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PREFACE

In the curricular structure introduced by this University for students of various degree programme, the opportunity to pursue Second Degree Programme in a Subject as introduced by this University is equally available to all learners. Instead of being guided by any presumption about ability level, it would perhaps stand to reason if receptivity of a learner is judged in the course of the learning process. That would be entirely in keeping with the objectives of open education which does not believe in artificial differentiation.

Keeping this in view, study materials of the Second Degree Programme in different subjects are being prepared on the basis of a well laid-out syllabus. The course structure combines the best elements in the approved syllabi of Central and State Universities in respective subjects. It has been so designed as to be upgradable with the addition of new information as well as results of fresh thinking and analysis.

The accepted methodology of distance education has been followed in the preparation of these study materials. Co-operation in every form of experienced scholars is indispensable for a work of this kind.

We, therefore, owe an enormous debt of gratitude to everyone whose tireless efforts went into the writing, editing and devising of proper lay-out of the materials. Practically speaking, their role amounts to an involvement in invisible teaching.

For, whoever makes use of these study materials would virtually derive the benefit of learning under their collective care without each being seen by the other.

The more a learner would seriously pursue these study materials the easier it will be for him or her to reach out to larger horizons of a subject. Care has also been taken to make the language lucid and presentation attractive so that they may be rated as quality self-learning materials. If anything remains still obscure or difficult to follow, arrangements are there to come to terms with them through the counselling sessions regularly available at the network of study centres set up by the University. Needless to add, a great part of these efforts is still experimental—in fact, pioneering in certain areas.

Naturally, there is every possibility of some lapse or deficiency here and there. However, these do admit of rectification and further improvement in due course. On the whole, therefore, these study materials are expected to evoke wider appreciation the more they receive serious attention of all concerned.

Professor (Dr.) Subha Sankar Sarkar Vice-Chancellor

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BACHELOR IN LIBRARY AND INFORMATION SCIENCE [BLIS] BLIS - I Library and Society : Course Writing : Dr.

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Classification Theory : Course Writing : Dr. Bhubaneswar Chakrabarty BLIS - IV Library Cataloguing Theory : Course

Writing : Prof. P. K. Mahapatra

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11 UNIT : 1 ????? REFERENCE SERVICE : FORMATION AND TRANSFORMATION Structure : 1.1. Introduction 1.2. Growth of Reference Service 1.3. Evolution of Reference Service 1.4. Recent trends 1.5. Definition and nature 1.6. Definition of Reference service and its nature 1.7. Utility of Information Science 1.8. Exercise 1.9. Bibliography 1.1. Introduction Common men understand reference : service as questions and answers session. Enquirers bring questions and librarian replies. But in reality it is not that easy. Questions enquirers ask mostly not clear, it is like the nebula. Reference librarian makes it bright like star through conversations. Then he replies with the help of his tools, available in his library. This bipartite exchange of opinion in brief is actually Reference Service. From our childhood we learn to ask what, why, where? Our parents according to their capacity reply. This element of exchange of opinion is same in respect of Reference Service. Whether a child well sheltered in his mother's lap or Havana cigar smoker computer scientist puts toward questions is same primarily for librarians. In the beginning a person should be there to raise question. Secondly, there should be a query. Thirdly, presence of a person whom the question could be addressed and finally there should be some materials for the person, who could reply. J. H. Shera defined Library as "agency of communication". But the question is what is this communication? How to perform this communication? Apparently it appears to be very easy but in actual practice it is not that simple, already stated. At the very outset there is a problem of how the reader would express the question? The duty of the reference librarian in this case would be to make it befitting to the information sources available. Then he has to organise the search method, to determine the source, etc. Five Laws of Ranganathan fully and finally help to form the nucleus of

12 reference service. D. J. Foskett had ascribed reference service as the best job in the library. In today's world right to information and news are not confined to intellectuals only, it is extended to all categories of persons. Formerly Library was absolutely under the control of few hands, situation had changed to open it for the masses. Earlier days library was seen as nonalternative for general public, now time compelled to expand its horizon for the same public to attract them into the knowledge sphere of library. It is now a very huge job, where pivotal role is played by the libraries. Librarian's role is increased to build the communication bridge between readers and source materials deposited in the library. This additional job is chiefly known as process of information work and better known as reference service. Was there ever a time, when one person used to grasp the whole universe of knowledge? If at all this could be there it is lost in the womb of past. In ancient civilization, although it might be true, it became a far-off possibility in middle age. Yet during renaissance exceptional persons like Leonardo da Vinci's ability had astonished the world. In this beginning of Christian era, for few centuries it was found few people were having encyclopaedic knowledge, but after 18th century, slowly, this trend became unnoticeable. Thereafter role of information processors had accelerated to help the researchers and scholars. Ranganathan elucidated this as : scholars could not serve as their own reference librarian anymore. This had necessitated the birth of reference service.

1.2 Origin of Reference Service

In the history of library science, there is beginning and evolution, but reference service is not found in the beginning. Denis Grogan made the same remark. Initially reference service was not a part of the library. Scholars visiting library any time but middle of the 19th century were mainly depending on catalogue and bibliography. During that time books were less and the numbers of libraries were limited equally. Suddenly there was an explosion in three fields- population, literacy and publication. World of library also witnessed an epoch making change. New generation provided new readers and new types of libraries. Particularly in the industrial towns of Britain and America public libraries based on subscription made a new sensation. At this juncture reference service originated. Regarding the origin of reference service, William A Katz referred the matter of personalised service. This had derived from personal attention. In order to answer this specific question, reference librarian, earlier, used to engage

13 himself in compilation of bibliographies etc. Librarians chiefly met two types of questions. First type of questions was of advisory and guidance, while second types were regarding the nature of informational source. Two different types of readers and two questions with different nature. From the first type, readers usually search information from the collection of books. The users of second category are very superficial, they were unable to locate their actual queries. But in reality the difference between these two are not very clear, for reference processing and service.

1.3. Evolution of Reference Service

Thomas Galvin claims that organised reference is the contribution of Americans. Samuel G. Green read one valuable article in American Library Association first conference in 5th October, 1876. The name of the article was "The desirableness of establishing personal intercourse and relations between librarians and readers in popular libraries." This is the oldest suggestion in the history of reference service. After one year Green placed the same opinion in the first meeting of the Library Association of United Kingdom. On the basis of the opinion of Green Grogan reached to a conclusion very easily by that time many libraries introduced reference service. 'Reference work' was first mentioned in Library Journal Index. Edward Edwards was the first librarian of Manchester Public Library. His famous book was 'Handbook of library economy'. He opined in that book : To provide assistance to readers and scholars was regular job of the public library. Explosion of huge number of periodicals in the middle of 19th century giving birth to reference service as a profession was considered very important. In the midst of various indexes of innumerable periodical readers were perplexed. To save them from this confusing situation William Frederik Poole prepared the index of manuscripts. Suffice it to say it became very much popular. George Putnum published it in printed format in 1884. Preparing an index of periodicals was the greatest achievement of Poole. After that H. W. Wilson began to work on Reader's guide to periodical literature in 1900. Work of this nature before it could not be traced at all. As entry to a subject the importance is outstanding of the work. Thus effort of preparing indexes, which gave birth to many brilliant indexes. Finally in 1900 reference service established itself as a most organised and extended field of operation. With the growth of industry in the world use and application of reference service found a greater arena. With the growth of science and technology, expansion of educational institutions urge for research also kept

14 growing. Printed knowledge also appeared like hills and mountains. The awareness regarding the utility, importance and indispensability also grew proportionately. 1.4. Recent trends The acceleration in reference service, recently is the outcome of mainly three explosions. World wide population explosion, simultaneous growth of publishing and educational institutions provided an opportunity for colourful future of reference service. Increased population forced to open new schools and colleges. Library facilities could not cope with this growth. Students were to run after public libraries for search of information. At the same time continuous queries throughout the life also gained ground. Mechanical life is providing the scope for recess. Radio, televisions also are enticing the inquisitiveness regarding the current development. These accumulated need and interest are reaching to libraries. At the same time books were entering the library like tide water. Reference librarian was overloaded with the questions from the seeker of knowledge. The only solution was to find the pillars of specialisation. In university libraries there was no other alternative, otherwise anarchy would reign, reference service would be very slow and gradually paralytic. So a control measure was a must. It requires number of specialists for a standard book selection method. On the other hand medium of selection of books were inadequate. So it became difficult to resist entry of unwanted books like foul water. Now, it is global competition everywhere. If one develops in knowledge its inevitable impact will be spreading to other fields. A mad race is found everywhere. It was giving a shock to libraries also, if any research can bring some valuable gems and rare stones. Hence the growing need of specialised libraries. Here is a scope for librarian to provide appropriate assistance in research and development project. 1.5. Definition and Nature of Reference Service Before defining reference service, two things to be made crystal clear. Organisational side of the Reference section in a library is known as Reference work. To organise the section it requires furniture, necessary books, bibliography preparation and other relevant involvement presupposes the formation of reference work. Next is the arrival of inquisitive users. So on one side there are books, documents etc. and other side users and in between stands librarian.

15 Through discussion exact questions are to be formed, attempt to find answers of the questions, to be convinced about the satisfaction of the users –these are in brief the reference service. Now-a-days some are calling it as Information service. In fact subtle difference between the two was not finalised in the past, nor the modern system can approve it too. Mary Jo Lynch forwarded this argument to extend the same definition for the two. According to her opinion, the personalised service of the librarian that leads the users towards the source of information or provides the right information to the users, is known as Reference service to Information service. In fact to search for right answer enquiry begins for source materials and the need for interlibrary loan if necessary. Again according to Ranganathan process involved in personalised service for getting the required answer exhaustively, pinpointedly and expeditiously are to be known as Reference Service. Many experts tried to record a standard definition of Reference service. James I Wyer's definition is the accepted choice of the many. He opined, to assist the enquirers sympathetically in his work for research activities and study with the help of library materials is actually reference service. Then Margaret Huchins' definition can be cited. Huchins thought, Wyer's definition was not comprehensive enough, and she brought a new one. Her was a twofold one. On one side she described Reference service is to provide answers to information seekers within the Library by personalised service, whatever may be the purpose. Upto this there is hundred percent similarity with her predecessors' definitions. But when she says that in order to satisfy the users whole library operation is to be engaged and utilised. The gravity of the dimension of the second one could be easily recognised. One more good definition can be found in A. L. A's 'Glossary of Library Terms'. This definition has a similarity with that of Wyer. The phase which specialises in library operation for information search of users is to be known as reference service. Louis Shore compared the reference service of the library with the intelligence department of military. Whole resources of the library are being used for the users in reference section. Frequently it is engaged in replying some queries. Sometimes this is in the nature of locating some particular books. Besides assisting research work, advices for cultural or entertainment purposes are also the areas where reference section extends its performances. Thomas J. Galvin observed if procurement, organisation and information processing are the main job of library then the last one would be the Reference arena. D. J. Foskett again, said Reference service is applied humanism. Because in the search of knowledge it ultimately serves the humanity. It enlightens the basic aims of the library. According to this definition the existence of successful

16 reference service is the most desired on in the activities of every library. The definition of Ranganathan is brief but very nice. It is like a bright diamond and infallible. In modern era right to get information and news is not confined to intellectuals alone, it is fast pervading to the masses. Information queries are not the monopoly of few persons, while source of information also extended to manifold diversities. There is no conventional boundary of Reference service. Innumerable users with their multiple characters had made this segment of responsible medium of education. So, Samuel Rothstein while giving the definition recorded his observation as : Personal help to each information seeker is the job of Reference service. Denis Grogan opines, the written ideas about Reference service do not match with the practical experience of poor service rendered by the most libraries. In actual practice horizon of reference service extended to much larger areas. It collects information from every sphere of life. Reference librarian is the catalytic agent for the whole operation. Reference service is not always necessarily limited to the four walls of the library. In most of the modern libraries there is actually no separate section as such, yet it cannot be presumed that reference service is suspended there. Instead the work is operational even outside the periphery of library as already discussed. Library is the storehouse of various sources of information. There are books, pamphlets, papers on technological innovation, marvels of science, encyclopaedias and the like to use these materials in proper direction a Reference Librarian is needed to satisfy the enquiries from one question to another is the sole duty of reference librarian. William Katz thinks all works like book selection, preservation, a administration, etc. should be brought within the gamut of Reference Service. That is why J. H. Shera clearly states, whatever may be degree of intermediary activities of library between readers and reference librarians, if they considered themselves warriors of the first line, they now plunge themselves into the emptiness. Since there are other departments interrelated in the library. Reference service is a combination of all departments. Reference librarian can't act in isolation. But due to public relation, they enjoy preference relatively and to some extent it is indispensable also. Among these several definitions, the particular jobs which surface first one is short-term and the second one is long-term. Three main areas are visible prominently from these activities : (1) Humanitarian side (2) Collection and organisation of sources (3) Responsibility in discharging the personal service. When users are clear about their queries then there is no problem, but many times they are unable to identify their problems, so this considered help 17 is the need of the time. There librarian is to appear as a friend to the seeker of knowledge leaving aside the official status. One famous librarian compared reference librarian with the crusader motivated to help the needy. Obviously this requires intelligence and personality. Information seekers are generally two types : one group is engaged in some occupation, the other is student. First group's queries relation to science, technology and commerce, and second one's need would be to satisfy their educational thirsts. Sometime demarcation may not act so prominently. Modern libraries are well equipped to answer all these queries. Reference Librarians are nowadays also known as documentalists, information scientists or subject specialists. Apart from regular job, other areas of reference work is known as documentation. Upto 60's in 20th century documentation remained very popular, afterwards appeared in this scene Information Science. There was a time when each was entering into other field, although subject approach was common. The fine difference between documentation and information science lies chiefly in source and service. Source covers reports, books, periodicals, manuscripts, etc. Currency and updatedness are the main characteristics. Books, are not always helpful in finding the current information. On the contrary information scientists' job requires : (1) direct answers to queries not to direct the readers to reference tools, it may not always be fruitful (2) Preparation of index and making abstracts and extend service with the help of them (3) Compilation of bibliography according to specific need (4) Preparing analytical papers and communication of the same (5) arrangement for information dissemination, etc. 1.6. Definition and Nature of Information Science There is no universally accepted definitions of Information Science. It encompasses the whole activities of modern library. Webster's New Collegiate Dictionary narrates it as : Collection of recorded information, classification, preservation, retrieval and communication of the recorded knowledge of pure and applied sciences. Information is collected in a specialised way for few and scientifically processed for dissemination, retrieval also. Rebert S. Taylor in his article published in ARIST, vol. 1, 1966' Professional Aspects of Information Science and Technology, provides three definitions which are complementary and having similarities. A different definition can be achieved with the help of these three. Information science is such a subject which deals with qualities and conducts of information, control of information flow, more

18 accessibility and applications for better use for the seekers. It is another branch of knowledge which projects : collection of referential information sources, organisation, preservation, retrieval, explanation, processing, and transferring with maximum usability. Both the areas of manual and mechanical processing are bound together here. There are devices for sending and processing information, equally provisions are available to use the information through computers and other modern methods. In reality information science is depending on various sources for its performance. From mathematics, logic, linguistics, psychology to computer application all are merged together here. Information science is closely related with graphic arts, library science and even management. Information science dwells freely in theoretical as well as applied science. Library science and documentation can be defined as applied side of information science. Either a librarian or a documentalist takes recourse to system or strategy which is dependent on theoretical observation of Information science. Every theoretician has to follow the long experimented method previously practised of course.

1.7. Utility of Information Science As a separate discipline Information Science has its definite goals. The main purpose is to supply information to those institutions which are engaged in extending the knowledge or services as the depository of knowledge. For example, books where knowledge is in print format; school, where knowledge is imparted for generations; library—known as preservation and extension centre for knowledge, motion pictures and television which promote audio-visual method of knowledge; periodicals contain the latest information; Conferences that assist to spreading knowledge orally. These institutions are serving the society, the utility parameter is so high, in future also these areas of service won't be stopped. But their potentialities to cater to the needs of modern-day, seem to be inadequate gradually. Five main reasons are seen by all as the main factors. (1) Unimaginable growth and development of science and technology. While many new areas of knowledge are appearing, old subjects are becoming obsolete. (2) Technology is changing very fast, today's system is emerging to be backdated tomorrow. Employees are to be trained afresh always. (3) Number of scientists are growing and scientific periodicals are keeping pace with them.

19 (4) World of knowledge is heading towards specialisation in such a speed as exchange of interdisciplinary information had become almost impossible. (5) Research and application is running in jet speed, question of time lag is beyond thinking, the need for information is always urgent and immediate. All existing systems of information exchange are upset due to the pressure exerted by this fast changing world. Information science is to cope in the same direction. So it is high time to take note this factor. Unless information science is geared up, advancement of science also would be halted. Repetition of research will take place and curse of slothness will affect the progress.

1.8. Exercise 1. When was the first conference of American Library Association held? 2. What is the importance of Reader's Guide to Periodical Literature? 3. Explain the need of reference service in present day. 4. Discuss the definition of Ranganathan for reference service. 5. Elucidate the difference between information science and reference work. 6. What is meant by information science? 1.9. Bibliography 1. Chakrabarti, B. and Sengupta, B : Fundamentals of reference service. Calcutta, World Press, 1985. 2. Grogan, Denis : Practical reference work. London, Library Association, 1991. 3. Lynch, Mary, J.O. : Research in library reference and information service. Library Trends, winter, 1983, pp. 401-16. 4. Ranganathan, S. R. : Reference service. London, Asia Publishing House, 1980. 5. Rothstein, Samuel : The development of reference services through academic traditions, library practice and special librarianship (ACRL Monograph No. 14), Chicago, 1953.

20 UNIT : 2 ?????? REFERENCE SERVICE : IN SEARCH OF THEORY Structure : 2.1. Introduction 2.1.1. William A Katz 2.1.2. Bernard Vavrek 2.1.3. Charles R. McClure 2.1.4. James I Wyer 2.1.5. Samuel Rothstein 2.1.6. R. Emery 2.1.7. Thomas Galvin 2.2. Observation 2.3. Exercise 2.4. Bibliography 2.1. Introduction Any service can be successful if there is a theoretical base. Because theory is the father of applications. For this reason library scientists of U.S.A. became busy to find a suitable theory for reference service. They correctly understood that if a theory could be propounded, planning for present and future reference service could be built based on that theory and it would be much more definitive. The burden of extra cost for reference service would find logic in the same theory. A clear picture of work flow to increase the efficiency of reference service was very much in need. And evaluate the attempt towards an effective direction, theory was inevitable. But so far nothing substantial was born, whatever may be the initiative in this matter. At the same time nothing had been achieved can't be told. Self- defence is required before plunging into the net of illusion. An assessment of the whole issue is required to find how far the achievement reached. But there is truth in one point, till date no acceptable theory is yet to be born, basic ideas are also not organised and processing art also did not develop to the desired extent. The thought that was engaged to develop a theory and whatever available so far in printed format, it is clear that everyone sang in a chorus. In the absence of a theory reference service is scattered. That is why J. H. Shera clearly stated in

21 such situation uniform colour of reference service can't be found. Meaningless partial reference service will prevail in the library. Staff will follow the route of their choice. The necessary spirit of understanding will be defeated and importance will be lost. Naturally it will spread to the other departments negatively. Library is the ocean of news, gateway to the information. But this news ocean is not navigable for users, the gateway to information is not open. Hindrances are there in that path. The duty of the librarian is to remove these hindrances, to make easy and safe ocean for readers. The curse of inaction should go.

2.1.1. William A. Katz The underlying meaning is simple; right to news and information. In their way one point is clear in a bid to find a theory. What are the obstacles to reach in the world information what could be the ways and means to remove these. Katz hinted clearly, librarian always put rules and regulations before the users which are detrimental to their rights. The centrepiece of reference theory intended to establish the truth exactly the reverse way i.e., to assist the readers to reach to the kingdom of knowledge as fast as possible. The wings of imagination can't work without liberty. Without the independence it not only put obstacles it also delayed the process for getting the information. Katz might be said for that, notional definition is limited to few lines : speedy imaginations. In every stage it works from raising question, to sharpen the query and finally for a satisfactory reply, imagination is the pivotal factor.

2.1.2. Bernard Vavrek Bernard attaches importance in the development of relations between librarian and users. He feels this is the core area. What is this knowledge of librarian about reference book or how he manages his department immaterial. This knowledge is only a intermediary stage. It is needed to form a relationship with readers and his sources of knowledge. Vavrek without any hesitation says, organisation, preservation is not the job of librarian, the main purpose of the reference service is to understand the need of the users and supply this information correctly. If any theory is to framed for reference service, this should occupy the centre-stage of our attention.

2.1.3. Charles R. McClure McClure reached one step further. He stressed on the educational 22 qualification of librarian. He feels, unless he is a specialist the job of reference librarian would be incomplete. If he fails to realise the importance of the service his as well as the purpose and existence of the library will be arrested. Library will be then reverted to the earlier concept of preservation instead of community service centre. If library can't meet the challenge of this time by providing the key reply of questions and completes his duty by locating the tools only and specific information is not found, there is no meaning in maintaining a library with it's reference division. Hence Katz wants full utilisation of library resources. Librarian should not distinguish the relative educational background of the searchers, he should not put any timebar for replies though it may create some administrative problems, it can work as an ideal for library service. The idea of McClure is having a wider perspective. If his whole concept could be applied librarian's service would be much more meaningful. Selection of information, and make their proper use for social upliftment thus give a control for information handling. But due to enormous development of technology it is very easy to exchange thought and information quickly. At the sametime this reduces in control by the librarian. McClure time and again said, librarian's job is not confined to professional expertise or technical know-how, rather these are secondary in nature. Actually librarian's job involves specialists touch and sagacity. Higher education of University, fundamental thought and trend in research all these combined help for reference job.

2.1.4. James I Wyer In 1930 Wyer while elaborating reference service forwarded three ideas viz. conservative, moderate and liberal. In conservative pattern only to direct the readers about the resources. In moderate system he guides the users for tools. In liberal way reference librarian personally help the users.

2.1.5. Samuel Rothstein Rothstein experimented the potentiality of reference service. His suggestions for maximum help to readers are not less important. Rothstein gave many examples for various types for users to meet their queries. Librarian can assist and succeeds maximum, again he can be reduce to a minimum with regard to service, or he can choose safe position in between. Where Wyer described conservative, moderate and liberal, later this had been projected as minimum, medium and maximum by Rothstein. Katz also referred almost these three systems.

23 Librarian extends assistance to a minimum at the first point. In medium range he provides some guidelines and answers for few selected persons. In respect of maximum service treatises of Massachusetts University Library, 'Reference Library Manual' published in 1975 may be cited. Owing to increase in the number of users only ready references are given, current information could not be provided. Sometimes it may change in the positive way depending on the intelligent interpretation of librarians. 2.1.6. J. H. Shera Shera also maintained the same opinion. He supported the opinion of McClure and Rothstein in a more emphatic way. He also held the opinion like them, the quality of librarians job depends on educational qualification and intellectual capacity. High standard specialisation should be the yardstick of the reference librarian. Shera said, transitional change had demanded the elimination of ordinary reference librarian to make the way for specialist librarian. 2.1.7. Emery R. Emery also joined Rothstein to point out, only supply of information would be a very minimal. This service would be considered as insufficient one. 2.1.8. Thomas Galvin Although Galvin engrossed in defining the ideals of reference service, he kept in mind the duties of librarians. He noticed that most of the reference librarians were satisfied with the minimum service, which not at all desirable. They occasionally serve few fortunates. Even while pessimistic picture is pointed by Galvin, no one can deny the theoretical viewpoint of reference service. Everyone is concerned about gain in the age of cost escalation. Evaluation is needed in every point. From this angle library scientists are leaning towards a theory for reference service. 2.2. Observation Reference service gained wide recognition in the beginning of 20th century. Exponents of reference service reached an unanimous decision for basic idea and process. What should be the duty, how far and to what extent reference

24 service should go, unitedly they formulated this policy, although the discussion is an ongoing process till date. Many of the exponents belonged to school, college or university libraries or acclaimed administrators. In another opinion they believe it would be better for the users to help themselves, reference service can only take them to reach the doorstep of information. Rest can be left to the users. Exponents of this block are known as conservatives in reference service. Those library and librarian, who are in specialists library wish to go little further, want to disseminate the information directly for the seekers. Reference librarian should be a fellow traveller in search of specific information. Those who hold this opinion are regarded as liberals in library field. Many of the college librarian remained moderates. They preferred to cater to the limited persons within the periphery of their resources. The year 1970 brought total change in the ideas. Time had altered the whole concept of reference service. According to the requirements all kinds of possible help to be rendered to the different people for their queries. The main purpose is to make available this information to its users, whatever may be the method. 2.3. Exercise 1. Describe the need for a theory in reference service. 2. Illustrate three concepts of Wyer in reference service. 3. Elucidate Thomas Galvins' ideals of reference service. 4. Discuss the conservative opinion of reference service. 5. Detail the McClure's concept of reference service. 2.4. Bibliography 1. Galvin, Thomas, J. : Reference services and libraries. (In A.

Kent et al. eds. Encyclopedia of library and Information Science, Vol. 25, 1978),

pp. 210- 214. 2. Katz, William, A. : Introduction to Reference Work. 2 Vols. 5th ed., McGraw- Hill, 1984. 3. McClure, Charles, R. : A Reference Theory of Specific Information Retrieval. RQ, Spring, 1974, p. 214.

25 4. Rothstein, Samuel : The Development of Reference Services Through Academic Traditions, Library Practice and Special Librarianship (ACRL Monograph No. 14) Chicago, 1953. 5. Vavrek, Bernard : The nature of reference librarianship. RQ. Spring, 1974, p. 214. 6. Wyer, James I : Reference work. London, Asia Publishing House, 1961.

26 UNIT : 3 ????? NATURE OF REFERENCE BOOKS Structure : 3.1.

Introduction 3.2. Childhood of reference book 3.3. Varieties of reference books 3.4. Audio-visual materials 3.5. Govt.

Publications 3.6. Questions and source materials 3.7. Guide to reference books 3.8. Exercise 3.9. Bibliography 3.1.

Introduction Hundreds of thousands of questions are regularly come to our mind and eagerly want to get the satisfactory answers. We ourselves determine which books could be helpful to find the answer. We consult the book immediately to locate the answer. If proper answer we get a mental satisfaction works. But century back books were not there and no educational institutions also. The demand for reference books are increasing with the spread of education. He who is less qualified deals reference book also equally less and similarly more qualified persons are consulting more reference materials. But what is reference book? This may also come to mind. At that moment he would open another reference book 'The ALA glossary of library terms'. There one can verify the definition of reference book. The book which is consulted for a specific information and not meant for continuous reading is known as the reference book. A reference book usually contain information on subject, persons, date, place, word, event etc. When a library organised its selected collection in this direction the reference section is developed. In this connection one can refer a world-famous huge book, known as the New Encyclopaedia Britannica in 32 vols. which reached 15th ed. of its publications. One can't thoroughly study it. That would be a very risky expedition. How many people can boast of the genius parallel to Swami Vivekananda or journalist Pier who completed reading the then edition of 24 volumes of Encyclopaedia. He was also an exception. This book is one of the good examples of reference book :

27 3.2. Childhood of reference book Men can think, also can imagine. Human beings are known to be the best creation of God. Human beings also can be creative, we know. In the early stages of civilisation men drew sketching. A figure of an animal appeared. Man wanted to hunt that animal. After hunting he came back, and saw that same picture, whose sketch he forgot. As soon as he saw it became bright in his memory screen again. This awareness of human beings was a hazy direction towards the future formations of reference books. What was visual once with the passage of time that got a shape. Evolutionary steps of reference got transparency. Primitive people began painting where good prey was available, in what water reservoir fish could be available, all these they used to paint. That was the beginning of map drawing. The success they achieved actually wanted to record, at the same time biographical books blossomed. 'The Gilgames epic' was written in 2000 B.C. Here the description of a king of Babylon and flood of Bible had been written. Egypt is the lying-in-room of almanac. River Nile was the lifebelt, but mysterious. When it would be inflated to inundate the two banks, nobody knew. Egyptians were identifying the period of flood years after years. They noticed that mystery had a rule also. Following this rule they calculated the time of flood. So the almanac came into being. Another reference book was born. One by one came almanac, biography, map but all are separate. Man wanted more advantage with the change of the time. So man wanted to see a book, where everykind of information would be available. In the same time assembled diamond and other precious stones. The hidden idea of encyclopaedia captured the mind of man. Aristotle, Plinius' books are regarded as the original historical reference sources. Inarticulate uttering of childhood today converted into an oratory of art. Modern reference books are so multivarious, developed and composition so unique. these are regarded as literature. That is why they are ascribed as literature of reference.

3.3. Varieties of reference books Reference books are of two kinds. First kind keeps information regarding word, event, facts, persons, places contained in dictionary, encyclopaedia, biographical dictionary, digest, maps and atlases and geographical dictionary. Second category provides where to get that information, that includes directories, bibliographies.

28 These two types can be again divided into two. Comprehensive and specific. Specific limits to a particular subject. In this sphere also two types are found. The boundary of comprehensive books is also very wide. This is not restricted to a particular subject, it deals many. From the view point of size and subject coverage reference books like dictionary, encyclopaedia, directory, maps, biographical dictionary and bibliography can be mentioned. These books are intended to cover certain information. This same information may be included in other reference books. For example, gazetteer was conceived to incorporate information for place names and geographical details. But it may be found in dictionary or encyclopaedia also. A description about the nature of information how sources included in what reference sources are given below:

1. Dictionary : Contains information on words, derivatives, meaning, pronunciation, usage etc. e.g. Oxford English Dictionary, Webster's New International Dictionary of the English Language.
2. For providing information on particular subject Encyclopaedia is the book. It gives definition, description background and bibliography on that subject. Articles on the subject are written by experts and specialists. Every subject has its own editor. e.g. Single vol : 1. Columbia Encyclopaedia. 2. Pears Encyclopaedia. Multivol : 1. Encyclopaedia Britannica 2. Chambers' Encyclopaedia. 3. Yearbook contains review of the last year's events and other information with statistical outline of the year. e.g. (1) Statesman Yearbook (2) Britannica Book of the Year. 4. Handbook records information in brief on a particular subject. Manual also serves the same purpose sometime. Information of varied nature and enunciated process or policy on the subject. e.g. (1) Famous first facts and more first facts : N. Y. Wilson. It details the inventions and discoveries of America. (2) Rockhounds manual, G.S.K., N. Y. Harper and Row, 1912. Discusses about preservation, use and other information on rocks. 5. Annual almanac, regarding astronomical information such as; sunrise, sunset, eclipses of solar and lunar; date, day occasionally astrological forecasting also, now ceased to include e.g. (1) Whitaker's Almanac, 1869 (2) Information please almanac, 1947.

29 6. Directory lists names of institutions, persons, industry, trade and profession. List is prepared either alphabetically or classified. Updatedness is done regularly so every two/three years revised editions are to be published. e.g. (1) American Library Directory, 47th ed. 1994. (2) The World of Learning, 48th ed. 1998. (3) Principal international business : the world marketing directory. 7. Atlas is the compilation of maps. It may or may not include notes. Two types are there (a) Political and physical or mixed; (b) Subject atlas e.g. (1) The Times Atlas of the World (2) The New International Atlas (3) The Atlas of World history 8. Gazetteer or Geographical Dictionary It describes the brief history of places with related information. Historical, cultural and statistical information of the places are also given. e.g. (1) Columbia Lippincott Gazetteer of the World. 1962. (2) Webster's New Geographical Dictionary, 1972. (3) The Readers digest guide to places of the world. (4) The Rand and McNally Commercial atlas and marketing guide, 1990. 9. Index indicates the whereabouts of information. This is required to find the location of periodical articles. Right direction for articles in a particular given time. Everykind of index like poems, essays, articles are found. e.g. (1) Guide to periodical literature. 1905 (2) Pool's index to periodical literature. 5 vols. 10. Bibliography represents the list of books or such other materials. Subject is the unified source of this book. It includes name of the book, publisher, page, price etc. Sometimes annotations are given whenever necessary. Its arrangement may be alphabetical or subjectwise. e.g. (1) Besterman, Theodore : World Bibliography of Bibliographies. 4th ed. 1965-66. 5 vols. (2)

Cumulative Book Index (CBI) : a world list of books in the English language.

Paperbound monthly, Annually hardbound. 11. Biographical dictionary informs regarding the important personalities of the world. This sometimes may be in details or occasionally brief too. e.g. (1) Webster's Biographical Dictionary (both dead and alive) 1976. 1st 1943.

30 (2) The International Who's who (living persons only). 1935. (3) Who's Who (Current) 1849. Yearly. (4) Dictionary of National (deceased) Biography, (1912-1977) Other media of resources: Generally reference works are available in printed format. Frequently it is in loose form without binding weekly appears. Best examples of this kind can be cited as 'Keesing's Contemporary Archives'. It is the digest of world news. Periodically bound and indexes are supplied for preservation. Magnetic tapes are used for assuring speedy dissemination of news. It operates through computer. This is known as 'Database'. 9th ed. of Sheehy's 'Guide to reference book operates' included some information on 'database'. Microfilms are known to almost-all modern users. From newspaper pages to books can be accommodated in the small films which could be retrieved through machine. Many reference materials are available in this format nowadays. Greater London Council Publishers 'Accomplish index' that gives information about microfilmed materials. Every three months subject indexes are updated to facilitate the use. One index is also in the market titled, Guide to microfilms in print, Mansel publishing, 1980. 2 vols. In this connection, it may be referred here Harscel in 1853 raised the issue for publishing reference books in micro format. Dissertation abstracts international' is a glaring example in this direction. Database and microfilms both are recognised as a powerful source materials. Computer output microfilm is the direct result of these two new formats. Where information need is more, it can serve in a speedier way with printing capacity. 3.4. Audio-Visual materials Library is the granary of accumulated knowledge. Knowledge of any dimension gets shelter in a library. Ancient library used to keep only a parchment. Modern library boasts of maintaining newspaper cutting, maps, photographs, plans, designs, CD Rom etc. Recent time experiencing the limitless variety of items. Now, one can see motion picture, cassetts, DVD or the like. Shore and other professional divided the whole audio-visual materials in five categories (1) Written works (2) Social wealth (3) Museum Materials (4) Audible materials (5) Other materials. 'Educational media index' is a very useful guideline for audio-visual materials published by McGraw-Hill, N. Y. 1964. 14 vols. 'The World's Encyclopaedia of Recorded Music', 'British National Film Catalogue' and Library of Congress Catalogue are the other examples.

31 3.5. Govt. Publications Government of every country publishes many books and other important materials. Mostly these are reports of activities of departmental works. Items from archives they see the light through publishing in print format. Annual reports, statistical figures, collection of lectures, directories, bibliography, rules and regulations or laws, results of research, travel accounts are chiefly the subjects covered by government. As a source of information these are authoritative productions. They have been the one area of problems in library organisation. Printing office of Govt. of U.S.A. is situated in Washington. This is the largest printing house of the globe. James Bennet Childs believes U.S. Government publications are the most traditional of the world. On the other side Britain's H.M. S. O. (Her Majesty's Stationary Office) is the largest among the member states of commonwealth. Yet huge numbers of unprinted documents are lying uncared in two countries. Even though they are not worthy of printing but they could be made available if demand was there. 'Monthly Catalogue of United States Government Publications' is the official name of government source. In 1975, 15 vols. cumulated publications appeared, covering 1900-1971. Similarly H.M.S.O.'s monthly catalogue is printed for the same aim. Government publications are increasing day by day but bibliographies are inadequate. These are some examples: 1. Morehead, Jo : Introduction to United States Public Documents. Littleton, Colorado, Libraries Unlimited, 1978. [Information and important for review.] 2. Downey, J. A. : U. S. Federal publication : The international dimension, Oxford, 1978. (Important tool published outside U.S.A.) 3. Pemberton, John E. : British official publications. 2nd ed, Oxford. 1973. 4. Childs, James Bennett : Government publications : Documents. see Encyclopaedia of Library and Information Science. N. Y. Marcel Dekker, 10 vols. 1975. [Information regarding all government publications] 5. Government publications review. Oxford, 1973. Quarterly [limited to U. S. and U. K.] Regarding government of India publications : (1) Indian National Bibliography, 1957- available in monthly and cumulated annual vol. (2) McDonald, T. : Union catalogue of the central government of India publications held by libraries in London, Oxford and Cambridge. (1947- 68). London. Mansel. From 1975 Microfiche ed.

32 (3) Union Catalogue of the Serial Publications of the Indian Government (1958-67). 1973. (1975 microfiche ed.) 3.6. Questions and nature of sources We have noticed the diversities of sources, again, at the same time the varieties of questions also. Louis Shore had made a table for relevant questions and its answer sources: Serial Class Sample Source No. 1. Language Spelling, words, notation, foreign Dictionary words, Usage 2. Background General Information, Self-education Encyclopaedia 3. Events recent events, last years events Yearbook, serials 4. Person Famous, specialist/experts, others Biographical dictionary 5. Place Location, description, distance Gazetteer, maps 6. Organizations Addresses, aims and objectives Directory 7. Facts and figures Questions, statistics, events, source Handbook indications 8. Function How-to-do Manuals 9. Bibliography Books, reviews, etc. National, Trade Bibliography 10. Illustrated materials Photos, cartoons, motion picture Audio-visual materials 3.7. Guide to Reference books Innumerable subjects proliferation give birth to books of reference every day that culminated in almost as mountain. It is impossible for a librarian to know everything in his fingertips. If users and librarians in their respective fields acquire knowledge, job would be relatively easier. Hence names of certain books may be cited which would be useful to locate the information on reference sources: 1. American reference book annual. Littleton. Libraries unlimited, 1970. [Classified list of reference tools published in the past year in U.S.A.]

33 2. Reference books in paperbacks : an annotated guide. 2nd ed. Libraries Unlimited, 1976. 3. Basic reference books : Titles of lasting value, selected from American reference books annual, 1970-1976. Libraries Unlimited, 1976. 4. Readers advisory service : selected topical booklists. N. Y. Science Associates International, 1973- 5. Walford, A. J. : Guide to Reference Materials, vol. 1 : Science and Technology. 7th ed. London : Library Association, 1996. - Guide to Reference Materials, Vol.2 : Social and Historical Sciences, Philosophy and Religion. 7th ed. London : Library Association, 1998. - Guide to reference materials. 3rd vol - Generalities, Language, Arts and Literature, 7th ed. London : Library Association, 1998. 6. Sheehy, E Paul : Guide to reference books. 10th ed. Chicago : ALA, 1992 and supplements. Reviews in newspapers and periodicals are of very much useful for reference books particularly choice, library Journal, wilson library bulletin, Reference service review. Addison Wesley's Library pathfinders is very handy and useful for primary information on reference job. 7. Balle, Rebert : Guide to reference books. 11th ed. Chicago : A.L.A., 1996. 8. Online : Walford's Guide to reference materials. London : Library Association, 2000 to till date Quarterly, annual 3 Vol. 9. American reference books. Annual 1970- 3.8. Exercise What types of reference book will you consult? 1. Address and publications of National Book Trust. 2. Present population of India. 3. Names of the prominent chemical societies of the world. 4. Gir forest. 5. Who were awarded Nobel prizes in 2004? 6. List of Hotels of Delhi and Kolkata. 7. Vitamin contain in milk.

34 8. List of publications of Asiatic Society. 9. Height of Kolkata? 10. What is bio-engineering? 3.9. Bibliography 1. Gerald, J. and Braunagel, J. S. : The librarian and reference queries. Academic Press, 1980. 2. Shores, Louis : Basic reference sources. Chicago, ALA, 1954. 3. Taylor, Robert S. : The Process of asking questions. Amer Docum. Oct. 1962 pp. 391-396.

35 UNIT : 4 ????? REFERENCE PROCESSING Structure : 4.1.

Introduction 4.2. Definition and nature 4.3. Selection of queries 4.4. Selection of queries in respect of decision making 4.4.1 Exercise : Selection 4.4.2. Words for subject indicator 4.4.3. Given subject and required subject 4.5. Selection of reference tools 4.6. Words for subject indicator and table of answerable-sources 4.7. 8 steps of Grogan 4.7.1. Problem 4.7.2. Information need 4.7.3. Primary question 4.7.4. Reference interview 4.7.5. Search method 4.7.6. Search system 4.7.7. Answer 4.7.8. Response 4.8.

Exercise 4.9. Bibliography 4.1. Introduction Peculiar types of questions are asked in the reference section. No clear cut format is readily available. Immediate reply is not possible, again it involves sometimes research work even. Continuous searching from one source to another helps to find the desired answer. It takes long time to consult many books, frequently easy question appears to be very tough. Simple to complex and compounded questions are to be negotiated by the librarian. Once the satisfactory end comes, it helps for the future permanently. Through a methodical routes libraries build a bridge of communication between the reader and reference source. this is developed after practising a fundamental principle.

36 Few acknowledged steps are there, in the reference processing ways are followed properly. The entire job from welcoming the question to reply actually known as reference processing. Experts have developed a model for it. At the first step it should be made specific to the point and transparent. It means subject determination and its sources are to be ensured. Before it librarian's duty is to discuss the issue with the enquirer, because detail points are to be cleared. Incompleting this phase will lead to partial reply. Time will be wasted and both parties will remain dissatisfied. Interviews direct to the actual location for the materials. Next step would be to finalise the subject heading under which source would be operated. Proficiency in knowledge of more than one may help to coin the word. Finally answer preparing session. The cream from the milk is to be collected for specific answer. Careful interpretation of queries are the hallmark for successful reference job. 4.2. Definition and nature Katz's brief definition of reference process says the same thing – one answer is not always limited to the original question only. Preparation of bibliography may lead to other related time consuming job. In 1964 J. H. Shera characterised it, a complex associative series of linkages or events. In 1966. Alan Rees pointed out not only the identification and manipulation of available bibliographic apparatus, but also the operation of psychological, sociological and environmental variables. Reference work is, observed by others as to quench the knowledge thirsts or satisfy the users with desired information supply. Both the ways are in vogue regarding the system of reply. Librarians themselves develop their own way of reply, different libraries follow their age-old practices also, but the main purpose is to satisfy the users. So, the aim creates some common characteristics which can be identified. Who works in a school library, he is replying the questions of students. While a librarian in Bhaba atomic research centre facing famous scientists. Apparently there is a difference in the nature of questions but the system involves is same. Steps of receiving the question and understanding and analysis process are same. J. Gerald and J. S. Braunagel in their book 'The librarian and reference queries' have adopted a model after much examination. This has weakness and power alike. But the model's steps are unparallel in finding the reference method. Because this is based on long drawn observation and realisation of experienced librarians. This model assures a line of action. If a sketch of working procedure is drawn, it quantifies the efficiency of work. Teachers of reference service would

37 be happy, if a system could be developed. From administrative point of view this helps to evaluate the service rendered by this staff. Detailed knowledge will help to distinguish between manual side and computer generated service. 4.3. Selection of queries A reader comes to reference section and asks for reference book. He may ask for encyclopaedia Britannica. This question does not require professional efficiency. But if the book was not there or the presented question was not clear, librarian has to move a little from the conventional service. He too has to ask question. Two different words are used here user's queries are known as questions and librarian's questions are known as interview. 'Where is the Encyclopaedia' – question poses two sides first is information and second is location. Thousands of questions if analysed these two sides would remain, one is presented and the other is required subject. One example may clarify the concept. 'I want to know the present address of Prof. Meghamandra Mandol, former professor of Calcutta University. I don't know where he is teaching now. Probably he is in one of the universities of Bihar. Yes, he was teaching Botany. Apparently this seems to be very complex. But if it was put into the pattern of given subject and required subject, the job would be easier. Dr. Meghamandra Mandol is a given subject. Some additional information enquirer supplied. These information would be helpful in finding the answer, but the main point is Dr. Mandol, without him no clue would be of any help. Librarian may be busy in finding the whereabouts of former Botany professor, it would complicate the search, rather identification of Dr. Mandol would be easier. Enquiring person wanted present address, so required subject appeared to be easy. A long question is now divided into two parts and so easily. But this does not apply everywhere. Sometimes in one question there may be two inherent questions. Parrot lives for how many days? and their nests look like? In the first question given topic is parrot and answer required is age. In second question given topic is parrot and required information is description of nest. 4.4. Selection of queries in respect of decision making Given topic and required subject combine together to form the queries. Additional information does not help that we have seen previously. These extra materials from the sentence has to be separated. It also helps to identify the real

38 query, and indicated if interview is needed or not. Reference source material selection also becomes more contextual. In the primary stage the confusion if any in question should be removed, otherwise whole process would suffer. 4.4.1. Exercise : Selection from the query Determine the subject from the given question : Query Given Required Simple : Is there Niagra Falls List of books any book on Niagra Falls (1) Meaning of certitude? (2) Address of Baichung Bhutia? (3) Sale of Sikkim Daily? (4) Where Monalisa Picture available? (5) When National Book Trust was established? (6) Who invented camera? (7) In which fish vitamin 'A' is found. (8) Can you tell me a name of a book on wool weaving? The whole process of finding the actual answer is dependable on practice and experience. 4.4.2. Words and terms for subject indicator The total numbers of given topic and required subject will be equally divided. If anyone wants to know about Baichung Bhutia, Dany or Chamling, given topic remained in three. Here, counting of words represent three questions although nature of query is same. Three questions centred around personal names. If one again raised a question who is the minister for education in Sikkim? Full name of Dany? Same analogy would apply here. Descriptors is the classified index of required terms with all anticipated given words. A list of such useful words are cited below: Given and required words : Given Required Brief name date Organisation (Cited name) Example Person (Cited name) statistical information 39 Place (Cited name) qualitative position (Scientifically measured) Words and Subject organisation (Besides aforesaid) Specific Publisher Address or location Publishing Bibliography Availability of documents Comprehensiveness and scrutiny of bibliography Information regarding text books Definition Recommendations General or background information Any question could be brought under this formula of descriptors. Questions relating to encyclopaedia and Shakespeare, if converted to descriptor words, encyclopaedia word go to given class 'special publication' and desired class would be 'address or location'. In case of Shakespeare given word is 'person' and desired object or class would be same address or location. Benefit accrued from this system one can make a routine for finding an answer. Librarian's mental process is the key factor, when he welcomes any question, he immediately decides his mind, as to where the probable information would be available. 4.4.3. Given subject and required subject Details of definition and example : a chart Given subject 1. Brief name : When brief name or some identification symbol supplied. Example : What is the meaning 'ibid', meaning of the symbol of '&' 2. Organisation : When name of any school, company, govt, agency, library etc. are given Example : Where the office of the National Book Trust is situated. 40 3. Person : When name of a person is given Example : Date of birth of John Milton 4. Place : When a name of a specific place is given Example : Where is Lengpri? 5. Words or subject : Which are not covered in this table Example : Background of modern verse 6. Particular publication : Where full or partial information or reference would be incorporated Example : Do you have 'Folktales of Sikkim.' Desired subject 7. Date : When question is for a date or period Example : When submarine was invented? or when Sepoy mutiny took place? 8. Illustrated materials : When question tells about a picture or map Example : I wish to look a painting of Rembrandt. 9. Statistical information : Two types are given (a) Measurement : Distance of Delhi from Gangtok by Roadways (b) Statistical Example : How many teachers are there in Delhi University 10. Organisation : When question would be regarding an organisation name Example : Who produces 'Amul Milk'? 11. Person : When one asks the name of a person. Example : Who invented the medicine of pox? 12. Address or location : Question for an address or location Example : Tell me the address of Tolstoy or where is New York? 13. Publication : Usually three types of question are raised in this regard (a) Bibliography : When query rests on a particular information recorded in the bibliography Example : List of Mongalkavya can you supply? (b) Location of : Where a particular copy of document available documents if not in this library. 41 Example : ILA bulletin on 2005 conference (c) For confirmation of some information of or comprehensiveness of a bibliography : For the same reason it is used Example : Complete bibliography on Jean Paul Sartre where can I get? 14. Information of text-book : Three descriptive words are usually used regarding the query (a) Definition symbol : When a definition or symbol of word is the question Example : 'Schizophrenia' where can I get definition (b) Recommendation : When a published natural, maps or produced material and criticism is the targeted question. Example : Can you give me a good English book on 'bird' (c) General or relating to : Brief information or background information background information: on particular subject or document. Example : I want books and periodicals on Nepal. Question styles have been discussed, now the words that would help to select the reference book. Suffice it to say the same logic will prevail. 4.5. Selection of reference books Experience of reference librarian would help to be familiar with few common questions. Quite naturally this would facilitate quick reply with such questions that are frequently asked. Again, questions which are not heard earlier, librarian would start mental processing to search such questions. Several number of reference books are there. Yet that could be classed in some general sections. There may be variations in name of the reference books, but according to information need feature of those books would be similar for collecting information. The table below will depict the difference in reference books from feature: Table : Biographical sources Card catalogue, Accession list Dictionary

42 Encyclopaedia Geographical source Literary directory Handbook, manual Index, bibliography, abstracts Monograph, textbook Non-biographical directory Primary publication Yearbook, almanac. From which source desired answers could be formed, the librarian begins his search, then he tries to find from that class titles and selects the one. He has to develop a relation between the answer and its sources. After following the process of assimilation and eliminations the answer of the question is found.

4.6. Words-indicating subject and table of answerable sources All the tables from table 2 to table 7 will establish a mental connection with the intended question and reference books. These tables will provide words suitable for given topic and corresponding words for answers-desired. Based on reference books of various types and their indexes this had been prepared. It is not possible to limit the subject index for subject directory or vice-versa. For a particular question, it is seen one common word for given question and desired subject, for directory is used. Example below will explain: Question : Is there any association for handloom in Gangtok Intended information : Given – Gangtok Desired – Handloom association Subject-directory word : Given – word-subject Desired – organisation Given subject directory meaning word subject table 3–6 are to be examined. If the desired subject directory that means here, organisation matches, answerable source will be known, non-biographical directory is to be consulted. This type of directory will record the information for associations, organisation from state to national level. Another example is given below: Question : From where historical information regarding Calcutta University would be available? Information required : Given – Calcutta University Desired – historical information

43 Table 3 provided subject directory words under organisation / institution as background informational source material as this : University Handbook, manual Monograph, textbook Non-biographical directory Primary publication For the first question we find only one reference book, but for the second, more than one book is available. What book librarian is expected to consult if he is to reply for question like this ie. Calcutta University? For information search a serial-sequence and a defined system are to be followed. But regarding the best procedure it has not yet been defined. Table–2 Given : Brief word – Symbol Example : A. L. A. O. Desired Sample question Source Nature Organisation What is meant by A.L.A.? Dictionary Definition What is the meaning of the Dictionary, handbook, symbol O? manual Table–3 Given : Institution Example : Library of Congress Desired Sample question Source Nature Date When Library of Congress Encyclopaedia, no was established? biographical directory, monograph textbook. Illustrative example I want to see a picture of the Encyclopaedia, reading room of Library of monograph, textbook, Congress Primary publication. Statistical information How many books are cata- Encyclopaedia, non- logged every year? biographical directory and Primary publication Institution In which department of govern- Non-biographical ment Library of Congress has to directory send report

44 Person Who is the present Librarian of Encyclopaedia, Library of Congress? monograph, textbook Address and location What is the official address Encyclopaedia, hand- of Library of Congress book, manual, non-biographical directory, guidebook Bibliography Is there any printed list of Card catalogue, Acc- books? ession, list, Index, Bibliography. Abstracts Availability of docu- Is there any copy of annual Card Catalogue, ments report of Library of Congress? Accession list Examination of Complete citation list of Card catalogue, documents Salamons book on Library of Accession list, Index, Congress bibliography, abstract Background Who can use the reading room Encyclopaedia, hand- information of Library of Congress book manual, textbook, nonbiographical directory, Primary materials Table–4 Given : Person Example : Jawharlal Nehru Desired Sample question Source Nature Date When Jawharlal Nehru was Biographical sources, born? Dictionary. Illustrative material I want a picture of Jawharlal Encyclopaedia, Bio- Nehru graphical sources, monograph, textbook, Yearbook Statistical Information What was the height of Nehru? Do measurement Statistical Information What was the age of Nehru Do Counting– when he became the Institution Prime Minister? Person Name of the sacred places he Do used to visit.

45 Bibliography Name of his parents Biographical source, I want to have some books to card catalogue, Index, write an article on Nehru. Bibliography, abstract Examination of Name of the autobiography of Do document Nehru Background in- I like to know about the period Do formation of his premiership Table–5 Given : Address and location Example : Kolkata Desired Sample question Source Nature Date When Kolkata was founded? Encyclopaedia, Geographical sources, monograph, textbook Illustrative material I want to see a map on Kolkata Do Statistical Information Population of Kolkata Do Measurement Statistical information What are the names of theatre Non-biographical Calculation halls? Directory Person Who is the present mayor of Geographical source Kolkata? Address, location What are the adjacent industrial Encyclopaedia, towns of Kolkata? Geographical sources Bibliography A list of books on Kolkata Card Catalogue, Accession list, index, bibliography and abstract

46 Table-6 Given : Word as subject Example : Cricket Desired Sample question Source Nature Date When the game of cricket Dictionary, started? encyclopaedia, handbook, manual, monograph, p...book Illustrative material Can you show me a picture of Do professional cricket of yester- years? Statistical Information How many tournaments of Do -Counting cricket are there? Which asso- ciations conducts these games? Person Who was the founder of Do cricket? Address and location Where the first game was Do played? Bibliography I want some materials to Card catalogue, Accession write on cricket list, publishing directory, index, abstract, bibliography Examination of 'My cricketing years'? Who is Do documents the author..... Recommendation Can you suggest a cricket Do book for children? Background What are the basic differences Do information in rules and regulations for cricket and baseball?

47 Table-7 Given : Special type of publication Example : Economic and Political Weekly Desired Sample question Source Nature Date When the periodical....its pub- Bibliography, Abstracts, location? index Statistical information How many volumes/nos are Do - Counting published in a year? -Organisation Who is the publisher? Do Person What is the name of the first Do editor of EPW? Address location Tell me the address of EPW Do Bibliography What are the writeups on Literary directory, index, globalisation in the last ten abstract, bibliography years in EPW? Availability of docu- What is the call no. of the Card catalogue, Accession ments periodical? list Examination of What is the vol. of special issue Do documents on liberalisation? Background What were the previous edito- Do information rial policy of EPW? These tables are all suggestive in nature. This is not possible to include all materials in the sample tables. It is only a working chart for learning and to assist the reference librarian for practical reference service.

48 4.7. Eight step method of Grogan Denis Grogan outlined two stages of reference processing in 1979. In the first phase, reader is the key-person and in second phase definitely librarian. First three steps are used by user and rest five are dwelt by librarian. 4.7.1. Problem Reference process begins with problem. Any user can bring problem, but everyone may not be satisfied with information only. 4.7.2. The information need In this stage reader feels the need of information. Little may be known at this stage, but most part of the queries would remain in broad area only. It does not find the right form for information and dissemination remains unclear, alternatively this also could be said. Robert R. Taylor took the help of biology to explain it. He described it as 'Visceral need'. For a wise reader there are some points like : observation, trial and error, experiment, asking some one; looking it up for oneself. 4.7.3. Initial Question If the decision of the prospective user is to ask about his need, then obviously it becomes necessary to give it a sharper intellectual shape, to describe it in words, and to formulate it as a question. And should he wish to look it up himself he may need to formalise the statement still further by deciding what words he will look it up under. This completes, the first phase of reference process. The moment he puts his question to the librarian his problem becomes shared and the process enters the second phase. 4.7.4. The Negotiated Question Librarian can't interfere unless he is asked to find something or successful reply librarian has to know this primary steps also, because initial question invites correction to editing. It needs to be more elaborated and specific. Andre Conorad compared the circumstance with marriage (match) maker, where he acts as a matchmaker for reader and his desired information.

49 4.7.5. Search strategy There are two accepted norms for dealing a question : (1) How to ask the departmental staff (2) Which parts are to be searched and in what order? Basic work again is to analyse the question for identification of subject. Then the question is to be related with the available sources of the library: The awareness and alertness of the user at this time is very much supportable. Second decision tells about the practical knowledge in dealing the reference materials, which will lead to the satisfactory result. 4.7.6. Search Procedure To conduct the enquiry into the material is the right of librarian obviously he can take the assistance of user. It confirms the directions forwards satisfaction. Search strategy if flexible is of much use owing to variations in the materials. The most effective searches are those when the strategy flexible enough to accommodate a change of direction should the progress of search indicate these. A well-prepared searcher will already have alternative strategies ready if need be : again, the presence of the enquirer facilitates such alterations of course. 4.7.7. The Answer In most cases a careful searcher will find an 'answer'. But process is not end in itself. Librarian possesses the recently collected information. It needs some editing. Alternatively the search may not be effective. In a way this is also an answer. Even if, reader would not feel happy but the point of unavailability should be made known to the enquirers. 4.7.8. Response The moment librarian ensured himself about the appropriateness of the answer it is better to intimate the reader immediately without any introduction. The reply is complete when both are satisfied after necessary addition of notes, etc. to the retrieved information. The tradition is maintained everywhere. It can't be a singular attempt without involvement of enquirers. There is no regular established practice, according to the situation it may change.

50 4.8. Exercise 1. What is information processing job? 2. Elucidate the patterns of question. 3. Explain the need for reference interview. 4. How do you explain 'response' in reference processing? 4.9. Bibliography 1. Chakrabarti, B. and Sengupta, B. : Fundamentals of reference service. Kolkata, World Press, 1985. 2. Gerald, J. and Braunagel, J. S. : The librarian and the reference queries. Academic Press, 1980. 3. Grogan, Denis : Practical Reference Work. London : Library Association, 1981. 4. Taylor, Robert S. : The process of asking questions. American Documentation. Oct. 1962 pp. 391-396.

51 UNIT : 5 ?????

BIBLIOGRAPHY : AIMS, TYPES AND CONTROL Structure : 5.1. Introduction 5.2. Definition 5.3. Objectives of bibliography 5.4. Types of Bibliography 5.4.1. Primary-information based bibliography 5.4.1.1. Bibliography based on ancient books 5.4.1.2. Universal bibliography 5.4.1.3. Trade bibliography 5.4.1.4. National bibliography 5.4.2. Bibliography based on received information 5.4.2.1. Subject bibliography 5.4.2.2. Selected bibliography 5.4.2.3. Author bibliography 5.4.2.4. Personal bibliography 5.4.2.5. Bibliography of Bibliographies 5.4.3. Types of systematic bibliography 5.5. Bibliographical control 5.5.1. International endeavour 5.6.

Exercise 5.7. References 5.1. Introduction 'Bibliography', this word is English, Literally it means 'writing of books'. E. W. Philips 'New world of words' was published in 1678. In that book the meaning was such. But the meaning changes with time. From 18th century the meaning stood to be systematic description and history of books. This description gave birth two types of bibliography. One is a list of books following a particular method. This is known as 'systematic bibliography' or descriptive bibliography. Second one is 'physical bibliography' which by name could be understood deals with the outerform of bibliography. Printing, paper, binding and other related

52 matters are the subject of this bibliography. This is also known as critical bibliography. These two types of bibliographies are useful to the students of literature. For reference service descriptive bibliography is useful, because, the systematic list is recognised for source-search. 5.2. Definition The world of book is not that much organised. In this world of disorder the bibliography acts as guide. William A Katz also said, 'A bibliography is analogous to a map or a chart. It serves to guide the librarian in the chaotic world of books. 'A modern library can't exist without bibliography. Luther Evans definition reads like 'A compilation of information 'regarding recorded sources of information'. According to the definition this covers catalogue, union catalogue, national bibliography, selected bibliography, subject bibliography, index, abstract, etc. 5.3. Objectives of bibliography By bibliography librarian means list of books, periodicals, motion pictures, records etc. A good bibliography must contain three qualities : universality, analytical, comprehensiveness. But why these objectives are used? We can reach a confluence in seeking the reply : (1) Examination and verification (2) Determination of location (3) Selection. (1) Examination and verification : General bibliography and catalogue cards usually carry the same information. Title, author, edition, publisher, date, page, illustrative materials, size and price are the common information contained in catalogue and bibliography alike. Relatively bibliography is more authoritative to a librarian. This examination and verification may be extended from general to special bibliography. (2) Determination of location : Whole information of a book, which in the library would be available the particular book, wherefrom it is published, all these information would be available in a bibliography. A reader views book mainly from its subject point. A bibliography organised scattered subjects in one place with all information. (3) Selection : To develop a needful compilation of information sources is the main aim of library. But in the kingdom of information explosion librarian has a limited source, where he can search? Subject, author, medium are the regular queries for librarian and bibliography is the oasis. Bibliography acts as the lighthouse. Librarian can distinguish quality standards and contents of books

53 from bibliography. Bibliography is the best selection tool for improving the library's resources. 5.4. Kinds of bibliography Bibliography is not just a booklist, since there is a reason behind the compilation of a bibliography. At the very outset bibliographer decides what kind of bibliography he is going to compile. He considers the aim, purpose, users, standard of selection, nature and characteristics, before taking up the job. Each entry should be thoroughly examined before recording them for authentic necessary and purposeful use. A bibliography's category can be identified by its comprehensiveness, kinds of material, geographical limits. There are broad two classes of bibliography. They are primary bibliography and secondary bibliography. 5.4.1. Primary bibliography Primary bibliography is compiled based on information received from basic, unpublished, unused and direct sources. Primary bibliography examines physically all materials and technically details the universally accepted norms for subject analysis for greater and wider use. The bibliography may be universal or selective. This may be subjective or sourcewise or any other useful method. 5.4.1.1. Bibliography based on ancient books Ancient manuscripts, early printed materials also can become the source for primary bibliography. In that case it may form the nucleus of bibliography of rare printed books. The historical value of the works is very high. Knowledge of historical bibliography, physical bibliography, analytical bibliography, and textual bibliography is the primary requisite in the compilation of such works. It also requires thorough knowledge regarding ancient script, language absolute alphabets and symbols. Scholars of eminence only can compile these bibliographies viz. (1) Conrad Gesner – Bibliotheca Universal is, 1545 (2) Cotton Mathew – Bibliography of Theological and Biblical literature, 1726 (3) Rajendralal Mitra – Descriptive Catalogue of Sanskrit Manuscripts. Part I, Grammar, 1877.

54 5.4.1.2. Universal bibliography or General bibliography From the name itself it is understood that this type bibliography is not confined to any country, time, language or subject. Attempt to compile such bibliography has been taken more than once. But practical constraints in locating the complete output of books in the world had always put an end. A well organised attempt in this regard also bound to fail because time gap will occur ending the period of compilation since the coverage is world-wide. In the intermediary time between compilation and publishing many books would be printed, which could not be entered. Catalogues of National Libraries of countries may actually work for universal bibliography, although not compiled as bibliography Examples. (1) British Museum – General Catalogue of Printed Books. 95 v. 1881-1900, 13v. Supplement, 1900-1905, New edition, 263 v. 1931-1966. (2) Library of Congress – The National Union Catalogue, 1953-1962. (3) National Library, Kolkata – Author Catalogue of Printed Books in European Languages, 10V. 1950. 5.4.1.3. Trade bibliography This is not actually bibliography, a list of books published by the concerned publishers, for publicity. It also includes the titles to be published shortly, which would be providing information in advance for forthcoming knowledge e.g. Cumulative Book Index. (CBI), N. Y., H. W. Wilson, 1898– 5.4.1.4. National bibliography National bibliography is the record of a country's intellectual property, creativity, imagination, researches and official publication. It reflects the whole output of a country irrespective of language or subject. 5.4.2. Bibliography based on available information This is known as secondary bibliography. Since the information had already created earlier in another place may be, in printed form manuscripts or other bibliographies, catalogues of different libraries, it is second time being compiled the name derived as secondary bibliography. They are divided into following sections:

55 5.4.2.1. Subject bibliography This may be compiled on one subject or related and associated only. It may take in its purview books, periodical articles, research papers, manuscripts, technical report, reviews or any item which may be required for the particular subject. A researcher can identify from the list what are the materials available, on what topic already work had been done. Besides, it directs the research work to process in the right direction, inspires reading habit, quench the thirst of knowledge in general. Examples: (1) J. D. Pearson – Oriental and Asian Bibliography, 1966 (2) UNESCO – International Bibliography of Social and Cultural Anthropology v. I – IV. Paris, 1958–61. 5.4.2.2. Selective bibliography The main purpose behind the work is to inculcate a spirit of cultural heritage, the classics of yesteryears should not be defeated by the age and finally to assist the users in finding particular materials. e.g. (1) Asa Don Dickinson – World's Best Books : Homer to Hemingway. N. Y. 1953 (2) W. S. Sonnenschein – Best Books. 3rd ed. Vols. 1–6, London, 1910- 1935. 5.4.2.3. Author bibliography As the name suggests, it encompasses all the works of an author and works on him are the focal area of this bibliography. When a research takes place on an author it is naturally very much useful tool for ready reference. A careful scrutiny for this bibliography is necessary to include all the published and unpublished works, letters, correspondence, interviews, diaries, lectures, seminar papers, periodical articles in brief whatever had been written by him or written on him. Comprehensiveness is the main objective to assess the contribution of the particular author. e.g. (1) Allan Wade – Bibliography of the writing of W. B. Yeats. London, 1958. (2) Alan Park – James, Joyce : a bibliography Boston, 1948. 5.4.2.4. Personal bibliography A compilation of contributions made by a famous person in the society. He

56 himself may not be an author but number of books, articles and critical works on him are available. Political leaders; revolutionaries, social reformers, religious persons or other important personalities may be the subject of this kind of works. e.g. : J. S. Sharma – Bibliography of Mahatma Gandhi : A descriptive bibliography, New Delhi : 1958. 5.4.2.5. Bibliography of bibliographies Readers, users and researchers are in need of bibliography, but what are the materials on bibliography itself are available and useful; a clear guideline in this regard is also needed. Bibliography of bibliographies is the compilation of primary and secondary bibliographies both. e.g. Theodore Besterman – A World Bibliography of Bibliographies, 1965–66. 5.4.3. Kinds of systematic bibliography There are six kinds of systematic bibliography : (1) Universal bibliography, (2) National Bibliography, (3) Subject bibliography, (4) Guides to reference materials, (5) Bibliography of bibliographies, (6) Analytical and textual bibliography. 1. Universal bibliography : Authentic universal bibliography means, that cover all sources of information of the world and extends to past, present and future, which is practically a non-existent. But the idea of universality has become little lenient. Yet this ideal one would definitely cross the barriers of language, country, time, subject or form. Some catalogues of National libraries and trade catalogues of some book-trader reflect that quality. 2. National Bibliography : This is usually restricted to particular country or regions of that country. For the benefit of readers it is further divided in sub- classes. It may be period sometime, or it may be identified by retrospective, current, future or prospective. In most cases retrospective and current are taken for dissemination. Importance varies occasionally from internal agreement to outerform according to the requirement. On one side collected works, monograph, etc. and other side deals books, recording, pamphlets, microfilm etc.; classification may follow from printed or non-printed modes. As already mentioned the time of demarcation between from catalogues and national bibliography is marginal. Original informational points are there in trade catalogues. Which are elaborated with additional materials in national bibliography. Those may be useful for cataloguing. 3. Subject bibliography : This is mainly derived from national bibliography

57 although use is confined to researchers. This is also one kind of selective bibliography. Process of periodically, current or retrospective may be the guideline for compilation of such bibliography. Similarly any one of the item also may be source of main compilation. 4. Guides to reference materials : In the area of reference materials varied standard works are there. It is not an easy task to select the best one out of them. So, there are guides, for directing the readers and librarian alike to locate best books. This guide is useful for children, adult, student, business personalities and for all. In strict sense it may not be defined as bibliography but in all probabilities it is nothing but gains the status of bibliography. 5. Bibliography of bibliographies : Already we have come to know there are many types of bibliographies. Arrangements of subjects are not the same. Coverage is also of different nature. This has necessitated the birth of Bibliography of bibliographies. 6. Analytical and textual bibliography : Analytical bibliography is busy with outer format and textual concentrates on intellectual content of the contained materials. If text varies or manuscript tells otherwise; and edition differs it is textual bibliography that signifies. Coordination of the two is also witnessed at times. 5.5. Bibliographical control Past centuries experienced the different kinds of bibliography like subject, author, selective etc. These were regarded as authentic reference sources. Printed catalogues and booklist also played roles to compensate the want of bibliography and also acted as alternative to bibliography. But they were either produced by individual capacity or institutional entrepreneurship. These are the results arising out of different news from cooperative or similar compilation consisting of periodical, self-imposed selection ones purported to serve its clients accordingly. These were never compiled to produce one universal or comprehensive bibliographical ideas or thought. That is why these attempts were always remained scattered, disorganised, irregular and unrelated materials. At the sametime in their respective fields, it has extended quality service for the person who were badly in need of such materials. These contributions are also the basic pilot motivation behind the modern concept of bibliographical control and assistance worldover. In order to cater to this effect a machinery known as control has come to the scene for well organised comprehensive compilation devised to encompass

58 the whole range or publication available or expected to be available world-wide are the goals of bibliographic control. A single query in the universe of knowledge will not be missing from the search of the users. It should be a non-partisan classified records with the provision for future extension and addition keeping the continuity of format and style. Modern times enhanced the scope for inclusion in the areas like : Patent, technical report, microfilm, CD-Rom, microfische etc. Separately these items can have bibliography of their own also. So a bibliographical arrangement based on universally accepted principles with scientific approach and world coverage is the ultimate goal for ideal bibliographical control. It should have infrastructural support and unified administrative control, never it can have success from individual limited effort. 5.5.1. International attempt From the very beginning, UNESCO has a special role to play. In the field of education culture, research they exhibited their application of thought in the world. The process of bibliographical thought made their way with Paul Otlet and Henry La Fontaine and with the establishment of Institute International Bibliography in 1895. They sincerely initiates a process for first ever world bibliography. They organised information in cards, and collected information from printed books, library catalogues and publishers list. This collection reached to more than one crore and sixty lakhs entries. After World War I in 1920 this ambitious project was to be discontinued because of cash trap and other organisational reasons. In changed circumstances Institute International the Documentation converted into International Federation of Documentation (FID) in 1938. Later the word 'Information' was added before Documentation. At present the organisation is not in existence. It served useful purpose in the field of information science yet. Bibliographical control is this embodiment of practical analysis and arrangement of world books and other information sources of library have already indicate. We that they can't take proper shape in the absence of international initiative. That responsibility had been taken by UNESCO to give concrete shape to the idea germinated long ago. In this direction UNESCO took decision to compile a covered bibliography by giving the authority to every country to organise national bibliography in large scale. UNESCO and Library of Congress in 1950 jointly, in a survey, stated each country should have appropriate organisation for compilation and preservation of their intellectual output. When every state would come forward to comply, the concept would be possible. The corresponding information can be interchangeable among the countries, and thus control of the current publications can be achieved. Retrospective national

59 bibliography can be compiled through special measure for the works published before the national bibliography began operation. UNESCO decided, in each country there should be powerful well-knit organised institution as a prerequisite for the purpose. They have suggested a common nomenclature for the institution i.e. National bibliographical centre. The institution should maintain functional relationship with the national library of the country although it would remain a separate administrative body. UNESCO in their publication "Guide to bibliographical centres (manual no. 3, 1970) outlined the power, function and financial provision for the centre. Centre will function as compilation authority and training centre. It will exchange bibliographical information among libraries, educational institution, research station and individuals. In national and international levels it will collect and disseminate information on books. In order to proper practical functioning each country should make legal provision for depositing all books published in the country. UNESCO arranged 'Intergovernmental conference on planning National Documentation, Library and Archives Infrastructure. One of the recommendation of the conference was on NATIS i.e. to develop the system of National Information System. Any uses can collect information from books or other sources through the guild. The objectives are to collect, organise, disseminate; formulate policy on national informational exchange and initiate planning and timely evaluation with appropriate training of infrastructure towards that goal. To implement the NATIS control of bibliography in international sphere and national segment is necessary. Universal Bibliographical Control (UBC) is a practical step to organise national collection centre which will be in exchange stage with international level and finally control over books. In order to change information in international level description details of entries should have to be uniformly practised; (ISBD) International Standard Bibliographical Description is a step to that aim. This can bring a global standard for bibliography, catalogue and information description. Separate ISBD available for books, periodicals, maps, audio-visual materials etc. International Standard Book Number is a system of giving a unique and not changeable number to every book. ISBN differentiates one book from the other facilitates machine handling of bibliographic information. Since uniform pattern for entry is followed internationally the identity of a book appears more definite. Similarly for periodical there is (ISSN) International Standard Serial Number to serve the main purpose. International Serial Data System is devised to store information and disseminate in respect of periodical articles (ISDS). With the above system readers will be aware of publication then naturally comes the question of availability, (UAP) Universal Availability of Publication

60 is a step towards that end. The system facilitates the availability of all types materials to the users. UNESCO document describes UAP as "To maintain, increase and diffuse knowledge by encouraging cooperation among the nations in all branches of intellectual activity including ... the exchange of publication ... by initiating methods of informational cooperation calculated to give the people of all countries access to the printed and published materials produced by any of them." Purpose, aim and working schedule of bibliographical organisation and control. 5.6. Exercise 1. Elucidate the role of UNESCO in bibliographical control? 2. What are the aims of bibliographical control? 3. Why universal bibliographical compilation is not possible? 4. What is the difference between trade catalogues and bibliography? 5. How universal bibliographic control is possible? 6. What is the use of International Standard Book Number? 5.7. Bibliography 1. Bowers, F. : Principles of bibliographic description. New York, Princeton University Press. 1986. 2. Chakrabarti, M. L. : Bibliography in theory and practice, 3rd rev.ed. Calcutta, World Press, 1987. 3. Collison, R. L. : Bibliographies, subject and national. 3rd ed., London, Crossby and Lockwood, 1986. 4. Davinson, Donald : Bibliographic control. London, Clive Bingley, 1975. 5. Indian National Bibliography. Calcutta, Central Reference Library, 1958-, vi-

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SUBJECT BIBLIOGRAPHY Structure : 6.1. Introduction 6.1.1. Philosophy 6.1.2. Religion 6.1.3. Social Sciences 6.1.3.1. Economics 6.1.3.2. Law 6.1.4. Language 6.1.5. Science and technology 6.1.5.1. Mathematics 6.1.5.2. Computer 6.1.5.3. Astronomy 6.1.5.4. Health Science 6.2. Current bibliography 6.2.1. Literature 6.3. Guid Books (Bibliography) 6.3.1. Library Science 6.3.2. Literature 6.3.3. Science 6.4. Exercise 6.5. Bibliography 6.1. Introduction

Subject bibliography covers one or more related areas of subjects. Depending upon the policy if possible it may include even materials like articles, research papers, manuscripts, technical report, review, microfilm, microfiche etc. Subject bibliography may be comprehensive or selective; it may emanate from a particular country or international; it may cover a particular period or not limited to any time. It may extend to racial point of view also like Indians, Negroes etc. or not limited to any community. A researcher has to prepare bibliography on his chosen subject at the very beginning. This assists him regarding the progress achieved in the subject, what

62 is the present state of affair and what are requirements for his job. This work could be lessened if good subject bibliography was available. Subject bibliography encourages regarding habit, makes aware of the unknown materials, guides researcher in the right direction. From this we can reduce that subject bibliographies importance in research work is paramount. Main principles of subject bibliographies are universal approach or national bibliography. Subject catalogue of a library is the primary source for subject bibliography. Retrospective bibliography is usually subject bibliography. The views and policy are the factors which determine the scope of the kind of subject bibliography whether it would be universal, limited to time or selective.

6.1.1. Philosophy 1. Aiyar, C. P. Ramaswami : Bibliography of Indian Philosophy. Madras : Sanskrit College, 1968. 2 V. 2. Potter, Carl H. Ed. : Encyclopaedia of Indian philosophy Vol. 1, Bibliography, Delhi, Motilul Banarasidass, 1970. 3. Radhakrishnan, S. ed. : Source book on Indian philosophy, Princeton University Press, 1957. These three books are basic tools for six schools of Indian philosophy.

6.1.2. Religion 1. Religious Books, 1876-1982 : Subject index, author index, title index. N. Y. : R. R. Bowker 1983. 4 vols. The book includes 130000 entries, based on 100 year's collection of Library of Congress. 2. Dandekar. R. N. : Vedic bibliography : an upto date, comprehensive and analytically arranged register of all important works done since 1930 in the fields of Vedas and allied antiquities including Indus Valley Civilisation. Bombay, Karnatak Pub. House, 1946 and 1961. Vol. 2 Contains details of books and articles. Arranged according to Vedas, Brahmanas and Upanishad as subject. It gives the indices for authors and terminology.

6.1.3. Social Sciences 1. International bibliography of the social science. London Stevens, 1962. 63 4 Vols. (a) Society (b) Political Science (c) Economics (d) Anthropology. Published as a part of Unesco's documentation work. Except the newspaper articles everything is covered. Available both in English and French, ... indices author and subject. 2. Unesco Research Centre on Social and Economic Development in Southern Asia. Southern Asia Social Science Bibliography, 1964–1966, changed name culture as Asian Social Science Bibliography 1966 – Delhi, Vikas, 1970. Change of publisher is also noticeable. By name it is understandable that whole corpus of social science is included. 3. Sharma, Jagadish Saran : Indian Struggle for Freedom. Delhi, S. Chand, 1959. Period covered 1885–1958. 4. India in 2000 A. D. NASSDOC, 1991 – a select list of 647 titles.

6.1.3.1. Economics 1. Business and Economics Books, 1876–1983. N. Y., Bowker; 1983. 4 vols. List of 143000 titles. First 3 vols contain retrospective publications and last one provides indices.

6.1.3.2. Law 1. Buckwalter, Rebert L. ed. Law books in print; books in English published throughout the world and in print through 1981. 4th ed. N. Y. Glanville Publishers, 1982. 5 vols. updated 4 times in a year. 2. Alexandrowiez, C. H. ed. : Bibliography of Indian Law. Madras : Oxford University Press, 1958. Vol. 1 includes general information and Vol. 2 includes bibliography arranged alphabetically. Directory of books and periodicals and author index are the areas of specialisation.

6.1.4. Language 1. Pattanayak. D. P. ed. Indian language bibliography. N. Delhi, Educational Resources Centre, 1967. Grammar, dictionaries and educational books are covered. 2. Collison, Robert L. Dictionaries of Foreign Language : a bibliographical guide to general and technical dictionaries of the chief foreign languages with historical and explanatory notes and references. N. Y. 64 Hoffner, 1955. Famous for bibliography of foreign dictionaries. Language is the base for classification, subdivided by etymology, sublanguage, bilingual system etc. Index appended.

6.1.5. Science and Technology Any successful query should start with bibliography. At final step also bibliography speaks but standard of that is much high. In the field of science and technology bibliography of past is required. In subject areas bibliography must be comprehensive. In 18th century Jeremias David Reuss was one such compiler. His pioneering work is known as Reportorium Commentationum a Societatibus Litterarits Editorum..... Gottingen : Heuricum Dicterich, 1801–1829. 16 vols. This was reprinted in 1961. Such a work in English is not however available; only in pharmaceutical field is there. National library of medicine had initiated a retrospective bibliography in their subject. Two examples : 1. Darling, Richard L, ed. A catalogue of sixteenth century printed books in the national library of medicine, 1967. 2. Suliyan Dorothy M, ed. A catalogue of incunabula and manuscripts in the army medical library, 1950. 3. Pure and applied science books, 1876–1982. N. Y. Bowker, 1982. 6 vols. A towering work of 2,20,000 entries, has three index sections : Subject. Author and title. Much information is found in subject index. The effort of McGraw-Hill is also appreciable. McGraw-Hill Basic Bibliography of Science and Technology published in 1966. The base of the work comes from the bibliography cited in articles in McGraw-Hill Encyclopaedia of Science and Technology. Subjectwise bibliographies are also there to highlight the subject; examples: 6.1.5.1. Mathematics M. C. Publications, 1946–1971 : a Bibliography of the Publications of the Mathematical Centre, Amsterdam, Mathematical Centre, 1971. 6.1.5.2. Computer International Computer Bibliography. N. Y., Science Associates International, 1973. It Included 6000 books and reports published in 39 countries between 1960-68.

65 6.1.5.3. Astronomy 1. Seal, Robert A and Martin, Sarah S. : 'A Bibliography of Astronomy', 1970-79, Libraries Unlimited, 1982. 2. Kemp, D. A. : Astronomy and Astrophysics : a bibliographical guide published in 1970. It was an incomplete work. There were 2119 entries showcased the growth in this field. Robert and Martin's book earlier mentioned was an improved science work on this one. 6.1.5.4. Health Science Health Science Books, 1876-1982. N. Y. Bowker, 1982. 4 vols. Nearly 132,000 titles have found place. Subjectwise arranged in first three vols and fourth volume arranged indices for author and title. 6.2. Current bibliography Unless something can't keep pace with time, it will occupy a backseat. Everywhere search is for current knowledge, hence current bibliography is always in demand in libraries. two mostly referred books in this regard are: 1. The ASLIB Book List. 1935 - London. 2. New Technical Books. 1915 - New York Public Library. From 1976 'British Scientific and Technical books compiled from ASLIB's list. There are publishers who take initiative in publishing current bibliography, particularly service books list they regularly publish. Contribution of some periodicals are worth mentioning. We all know the name of 'Nature' and its role in publishing the new list of books with review. Other periodicals like Science, Physics today, Choice are also well-known for their sustained effort in their field. In the areas of Index and abstracts the names of Chemical Abstracts, physics abstracts and computing review are world famous. 6.2.1. Literatures Annual bibliography of English language and literature, Vol. 1 - 1920 - London, Cambridge University Press. Although from name it is appeared language and literature but it covers other areas of Humanities also.

66 6.3. Guidebooks For the selection of books, there are guidebooks in some subjects, which are working as a solution to the procedure. In the ocean of information these books are like life-boats. The presence of the works are more in such subjects where the readers are more. 6.3.1. Library & Information Science Lilley Dorothy B and Badough Rose Marie; Library and Information Science : A guide to information sources. Detroit, Gale, 1982. The book is divided in four vols. First volume includes advances in the area. Volume 2 covers Model of search strategy. Volume 3 and 4 conclude with special materials in the search of information. 6.3.2. Literature 1. Bateson, F. W. and Mesrobian, H. T. : A Guide to English and American literature. 3rd ed. London, Longman, 1976. 2. Anderson, Emily Ann. English Poetry, 1900-1950 : a guide to information sources. Detroit, Gale, 1982. 6.3.3. Science In some areas of science, there are dearth of materials, but other guides compensate for those in want, because they are so comprehensive. 1. Lasworth, E. J. : Reference Sources in Science and Technology. Metuchen, N. J., Scare Crow Press, 1972. 2. Chingti Chi Chen : Scientific and technical information sources. Cambridge Mass, MIT Press, 1977. Acceptance of subject guides relatively more. e.g. 1. Barbara, K Shafer : Using the Mathematical Literature : A practical guide. N. Y., Marcel Dekker, 1979. 2. Coburn, Herbert : Use of physics literature, London, Butterworth, 1976. 3. Anthony, A. : Guide to Basic Information Sources in Chemistry. N. Y. John Wiley, 1997. 4. Wood, David N. : Use of Earth Science Literature. Reading; Mass, Butterworth, 1973. 5. Davis, Elizabeth B : Using the Biological Literature : A Practical Guide. N. Y., Marcel Dekker, 1981. These are mainly compiled for students, teachers and researchers. Librarian also find help. There are other guides specifically for librarian only : e.g. Mallinowsky, H. R. and Richardson, J. M. : Science and Engineering Literature: A guide. 3rd ed. Littleton, Colorado, Libraries Unlimited, 1980. While analysing the features of these books, Denis Grogan noticed two patterns-textbook and reference works. In the first ones they incorporate details information; and second ones do the guide jobs for librarian. Using the Chemical Literature : A practical guide where H. M. Woodburn in the preface said, the principle is mainly in the nature of guidance. Publisher of the book is Marcel Dekker of N. Y. 1978. E. R. Yescomb in his book Sources of Information on the Rubber, Plastics and Allied Industries, said every care had been taken to include information of all kinds, Pergamon Press of Oxford published in 1968. The aim of the subject guides frequently defeat its purpose. Quite often it is reduced to bibliography instead of identifying in subjects and guiding the searcher. 6.4. Exercise 1. State the name of five periodicals, where list of books on science and technology appear. 2. Cite names of 2 books on current bibliography. 3. Write about the features of guidebooks in subject bibliography. 4. Give detail information sources on six school of Indian philosophy. 5. Discuss the importance of subject bibliography for research. 6.5. Bibliography 1. Grogan, Denis : Science and Technology : an introduction to literature. 4th ed. London, Clive Bingley, 1982. 2. Rogors, Robert : The Humanities, a selective guide to information sources, Littleton, Libraries Unlimited, 1979. 3. Webb, W. and others : Sources of information in the social sciences : a guide to literature : Chicago, ALA, 1986.

68 UNIT : 7 ????? NATIONAL BIBLIOGRAPHY Structure : 7.1. Introduction 7.2. British 7.3. India 7.4. Exercise 7.5.

Bibliography 7.1. Introduction National Bibliography is an official list of all publications in a particular country. There is no distinction in respect of subject, language, outerform, literature or other contents for a national bibliography. All records relating to humanities are included in national bibliography. Usually national bibliographies source materials are compiled from country's national library's collection because it receives all published books freely of a country through an act of the land. That is why national library is regarded as copyright library, legal deposit library or other names varying from country to country. In India through the law of Delivery of Books and Newspapers Act, 1956 National Library gets all books freely. Copyright office of Library of Congress serves the same purpose while Britain also has the similar arrangement. National bibliography is the official record of one country's imaginative, creative intellectual and research progress that had been achieved in a particular period. Country, where multilingual materials are produced also reflected in the national bibliography. It is expected that information of a particular book if not available otherwise would be found in the national bibliography of that country. Such national bibliography is arranged subject wise, irrespective of language all books on a subject would be found in one place. This is important for research. As already we have come to know, UNESCO attached importance to national bibliography for universal or international bibliographic control. 7.2. British 1. British National Bibliography, 1950. London, Council of British National Bibliography, 1950 ed. : A. J. Wells, BNB is the record of all new publications of Great Britain. The members of the council are representative of different institutions like : The Publishers Association, the Booksellers Association. The

69 Internal Book League. Bibliographic Division of British Library began publishing Books. Books deposited at British Museum are the source of BNB. This is a weekly, followed by monthly, quarterly and cumulated annual volumes. Annual Volume is a bound one. Periodical, musical choir, maps, selected government publication, British imprint and cheap novels are excluded. Weekly issues have two sections viz. classified and author title index. Annual bibliography contains subject index since 1973. (DDC) Dewey Decimal Classification Scheme and (AACR–British text) Anglo-American Cataloguing Rules are practised for classification and cataloguing. Classified area contains full bibliographical description with (ISBN) International Standard Book Number. Price and BNB serial number, index too gives detail description. BNB provides plenty of cross references for subject headings. Knowledge of any of the three; subject, author or title will assist to find the required information. Previously one printed card used to be produced. Authorwise card was of standard size. Ranganathan's Chain procedure's influence was noticed in books entry for the initial twenty years. Subject-wise list and detail description with index were much useful to the libraries and were regarded as the ideal specimen of cataloguing and classification. Since 1967 BNB had accepted MARC (Machine Readable Cataloguing Record) which were first introduced by Library of Congress and became internationally recognised later on. So chain procedure was discarded and PRECIS (Preserved Context Indexing System) was adopted. This also is the beginning to the cooperation between Library of Congress and BNB resulting the publications of books in English as list 10,000 books in English. Since both the notations of DDC and L.C. (Library of Congress Classification) are provided with the publication, importance has been enhanced to a great extent. 1991 marked the end of PRECIS because of the emergence of online system. With pressing need of the hour BNB introduced one unique system of COMPASS (Computer Aided Subject System), although it could not avoid certain weaknesses. Non-cooperation of some publishers defeat the updated work and inclusion is delayed thereby. Computer generated system has liberated BNB from late publishing. So BNB enjoys the status of indispensable reference tool in the world. BNB's role has been widely acknowledged by different libraries of the world as a standard for book selection tool, and authority on classification and cataloguing. A list of national bibliographies is available in Kiffin's Survey of contents of existing national bibliographies, Paris, UNESCO, 1977; Guide to reference materials, vol 3. by Walford, Commonwealth national bibliography. Also keep information on world's current bibliography.

70 7.3. India 7.3.1. (INB) Indian National Bibliography October – December, 1957 and 1958 – Kolkata, Central Reference Library (Govt. of India) 1958– Recommendation of the Indian Bibliographic Committee set up by the Ministry of Education, Govt. of India. Central Reference Library was founded in the annexe building of the National Library, Kolkata in 1905. A bibliography with classified and alphabetical index was published under the supervision of the committee from the Central Reference Library, Kolkata. Oct – Dec. 1957 issue is regarded as the first number of Indian National Bibliography. Books in all the languages recognised by the constitution and English even included in INB. (D. B. Act) Delivery of Books and Newspapers Act. was promulgated in 1956 and books were coming to National Library according to the provision of the act and were entered in the bibliography maintaining the rules of ALA and DDC. INB was quarterly publication upto 1963, with annual cumulation of one volume. Since 1963 September it changed periodicity to monthly without changing annual volume. One five-year combined index is also available. The importance of INB as an authoritative list of 14 languages publication is unparalleled. Nearly 4500 alphabetical subjects are assembled for use. In the beginning language facsimiles were published separately with the help of state governments, but it could not run for long for various reasons including the non-encouraging effort of the state authorities. Indian National Bibliographies entries are made in Roman script. All language scripts are transferred into Roman with diacritical mark for easy access, throughout the world. At present monthlies with annual cumulatives are published. Few items like maps, musical scores, serials, guidebooks, ephemerals etc. are excluded from entry. Books in the languages of Assamese, Bengali, English, Gujarati, Hindi, Kannaraa, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Tamil, Telegu and Urdu are included. Later recognised languages can't be included because of non-availability of language personnel. In the beginning INB was in two parts viz. General Publications and the second part was Government publications. From 1973 both was merged to form a single unified bibliography. Now, this bibliography consists of two parts : classified and index. Full bibliographical details based on DDC and AACR II with Colon Classification and language symbol are found in the main part. It has detail subject heading derives from DDC. Second part is alphabetical index divided into two parts; first one author/title list and subject index is in chain procedure of Ranganathan.

71 The importance of INB is almost dependent on the awareness and good- will of publishers. In the absence of poor receipt of books the comprehensiveness is suffered. Active cooperation from the publishers sides can make this publication reach an envious position in the book world and for posterity of India's intellectual output this work is the only source as well. In the past decades INB was facing criticism for irregular and delayed publication. By overcoming the lacunae this is now on regular monthly with all annual arrear volumes printed upto 2004 and a useful tool for book selection. 7.3.2 – Accession list : India Vol. 1, January, 1962 – 1980. New Delhi, L. C. – American libraries book procurement centre, Monthly. This coordinated effort of American libraries for purchasing Indian books produced their list monthly, which they used to buy. Arranged first languagewise, then by author under that country. Nearly the number of books annually they used to list more than INB sometimes. Sometimes it attained higher status than INB. But the centre ceased to operate and the list is no more in print since then. 7.3.3. – The National Bibliography of Indian literature, 1901 – 1953. New Delhi, Sahitya Akademi, 1962–1974, 4 vols. This is a compilation on selected humanities, titles in Roman script of recognised Indian languages from 18th January 1901 to 31st Dec. 1953. Notes are given in English. It is a 4 volume books with index at the end of each volume. Volumes are divided according to language by alphabetical order. 7.4. Exercise 1. State the use of National bibliographies. 2. Basic features of B.N.B. – explain 3. Comparative study of I.N.B. and B.N.B. Elucidate. 7.5. Bibliography 1. British National Bibliography. London. The British Library Bibliographic Services Division, 1950. 2. Indian National Bibliography. Kolkata, Central Reference Library. (See Preface to issue No. 1 and the latest issue).

72 UNIT : 8 TRADE BIBLIOGRAPHY Structure : 8.1. Introduction 8.2. History 8.3. Definition and Nature 8.4. Use 8.5. Examples : America, Britain and India 8.5.1. America 8.5.2. Britain 8.5.3. India 8.6. Exercise 8.7. Bibliography 8.1. Introduction Commercial bibliographies are not compiled in the truest sense of bibliography. These are list of published books. In order to sell the titles and for publicity, publishers association or publishers themselves prepares this. It gives bibliographical description of titles. Publishers having more titles present in a classified order, some publishers attempt to record their titles in same manner as it is usually found in a standard bibliography. They can be regarded as a representative publications of recent titles. 8.2. History Commercial bibliographies are older than organised national bibliographies. The presence of national bibliographies were felt after the 2nd World War, but trade bibliographies began operation earlier. Two German printers in Rome first published list of printed books sometime between 1469 and 1472. In 1595 one English bookseller Andrew Monnsel tried to publish British national trade bibliography. Booksellers made an attempt to sell subject catalogue in Leiptzig and Frankfurt bookfair during 16th and 17th century. England witnessed Whitaker book trade in 18th century. Joseph Whitaker signalled the printing of "Reference Catalogue for Current Literature" in 1874. 'Reference Catalogue' began to be published under 'British Books in Print' title since 1967.

73 8.3. Definition and Nature Trade bibliographies are published by persons related to this segment, like publishers, printers and book-traders etc. These are booklists and books in print, which are available for purchase. Book-sellers unitedly bring list for promoting sale, can be used for bibliography. There are many established publishers who print the list of entire publications of their country and sell. These lists together could be used as a comprehensive bibliography of current books. These are also published as a weekly, monthly and annual cumulated formats. Publishers lists also indicate about the prospective titles, which can't be expected in a national bibliography. Updatedness and review of coming titles indicate in their lists serve the users to a great extent, which is absent in a national bibliography. 8.4. Use A book is a collective product of writer, publisher, printer. A business motive works and that end is served by trade bibliography. The aim of the bibliography is to draw the attention of the prospective buyers for their published documents. It also acts as a necessary guide for bookselection. They send it to the libraries and booktraders for promotion. Since it does not include theses, research papers or similar topics of current subjects, it is not so much useful to specialists or their libraries. So it is limited to particular section of readers and general users. 8.5. Examples : American, Britain and India Countries which are developed in the field of book production and sales, their trade bibliographies also reflect the quality of appropriate merit. 8.5.1. America 1.

Cumulative Book Index : a world list of books in the English language. N. Y. Wilson, 1898 – Monthly (Except August). There is no alternative to CBI as an exhaustive and authoritative list of books published in English language. Books published in foreign language in U.S.A. or government publications are excluded, considering its shorter use. Author entry is the main criterion for description and arrangement. Alphabetical order is followed in all sequences.

74 2. Books in Print : 1948 – N. Y. Bowker, 1948-. Annual. Published in six volumes once in a year. 2 volumes each for Author, title and subject and arranged alphabetically. Some bibliographies give current information about books. Examples of them are given here : 1. Subject Guide to Books in Print, 1957 – N. Y., Bowker, 1957 – 2 vols. Annual. Library of Congress Classification Scheme used. Almost all recent books are included. 2. Publisher's Weekly. N. Y., Bowker, 1872 – with monthly, annual and five years cumulated volumes. Author and title indices are provided. 3. Forthcoming Books, vol. 1, no. 1, January 1966 – N. Y. Bowker, 1966. Bimonthly. It covers for 5 months in advance. Alphabetical order is followed, with author and title indices. 4. Subject Guide to Forthcoming Books – vol. 1., No. 1 –, January, 1967 – N. Y. Bowker. Bimonthly. 8.5.2. Britain 1. British Books in Print : The reference catalogue of current literature. London, Whitaker, 1965– Annual. Covers last years and current books. Alphabetical order is followed. 2. British Book News : London, 1940 – Monthly. It lists the current books of Great Britain and Commonwealth Countries. Titles to be published are also included. 3. Paperbacks in Print : London, Whitaker, 1960 –. Annual. Alphabetically arranged titles cover 40,000. 8.5.3.

India Indian publishing industry is not organised like American or Britain. Sporadic attempts were made by individual and institutions. Example : 1. Indian Books in Print, 1955 – 67; a select list of English books published in India. Eds : Sher Singh and S. N. Sandhu. Delhi, Indian Bureau of Bibliography, 1977. 60,000 titles are included. Second edition appeared in 1973, third in 1979. 7500 published books are included. 2. The National Bibliography of Indian Literature, 1901–1953, New Delhi, Sahitya Akademi, 1962-1974. 4 vols. 1. BEPI : a Bibliography of English Publications in India : 1976 – 75 Delhi, D. K. F. Trust, 1977 – : Annual. Selected list of English publications in India, unlike U.S.A. and U.K. it covers commercial, government publications also, with atlases, periodicals, conference proceedings, and even annual reports of institutions. 2. Indian Book Industry : Delhi, Sterling, 1969 – Monthly. Includes published and forthcoming books with reviews. 3. Recent Indian Book : A quarterly catalogue of Indian publications : New Delhi, Federation of Publishers and Booksellers Association of India, Vol. 1–, June 1975 – Quarterly. Alphabetical subjectwise, with notes. This also includes books to be published shortly. 4. Indian Books, 1969 – Varanasi, Indian Bibliographic Centre, 1970 – Annual. Cover title in English and other Indian Languages. Arranged author, titles and subjectwise. Text book and children's literature not included. Selected government of India's publications are also included. 8.6. Exercise 1. Why trade bibliographies are not useful in special libraries? 2. What kind of publications are not included in CBI? 3. Cite three examples of trade bibliographies in India? 4. When British Books in Print began publishing? 8.7. Bibliography 1. Bopp, R. E. and Smith, L. C. : Reference and information services : An introduction. Libraries Unlimited, 1995. 2. Chakraborti, M. L. : Bibliography in theory and practice 3rd rev. ed. Calcutta, World Press. 3. Kumar, G. and Kumar, K. : Bibliography, Vikas Publishing House, 1976.

76 UNIT : 9 INDEX AND ABSTRACT Structure : 9.1.

Introduction 9.2. Evaluation 9.2.1. Publisher 9.2.2. Periphery 9.2.3. Duplication 9.2.4. Depth 9.2.5. Periodicity 9.2.6. Size 9.2.7. Subject Heading 9.2.8. Authenticity 9.3. Index 9.3.1. Science and technology 9.3.2. Citation index 9.3.3. Newspaper 9.3.4. Literary index 9.3.5. Concordance 9.4 Abstract 9.4.1. Library and information science 9.4.2. Psychology 9.4.3. Social Science 9.4.4. Political science 9.4.5. Economics 9.4.6. Linguistics 9.4.7. Science and technology 9.4.7.1. Mathematics 9.4.7.2. Physics 9.4.7.3. Astronomy 9.4.7.4. Chemistry 9.4.7.5. Geophysics or Geology 9.4.7.6. Biology 9.4.7.7. Period after World War II 9.5.

Exercise 9.6. Bibliography

77 9.1. Introduction The world of reference books is a diverse one. Indexes and abstracts are used widely. Index is the real associate of library from age-old days. To find a particular information is the work of librarian. Index is the resort in that search. Abstract is the extended part of index. Both the tools are effective guide for any kind of information search. But there is a difference between index and abstract. Abstract gives brief resume of the subject indexed. Abstract has to be limited in its sphere because of this reason. Arrangement also varies for abstract and index. While index generally follows alphabetical order by author, title or subject, abstract may opt for subject, accession number or publisher. The thesaurus has to be used in the compilation of abstract, particularly for machine readable materials subject list is a must. Every book contains an index. Besides, librarian has to use other indexes frequently like : periodical index, newspaper index, collected subject index, etc. Index may be written combining many periodicals. This may be written for a particular subject. Subject index should not be restricted to a particular periodical, it should also include books, pamphlets and reports. We can refer here: The Readers' guide to periodical literature, Applied Science and Technology Index, Index Medicus, The National Geographic Magazine Cumulative Index; newspaper indexes are relatively less in number : The New York Times Index is the best known in this area. Granger's Index to Poetry or Speech Index are available for collection of poems, collection of plays or collection of music. Other types include concordances, book review index, etc. Conventional library keeps a large number of printed indexes and abstracts, but now computer printed indexes and abstracts are also being kept in the library. Their form and arrangement are quite different. 9.2. Evaluation Paths chosen to assess the qualities are same for both index and abstract. Librarian has to confirm 8 points, viz (1) Publisher, (2) Scope, (3) Duplication, (4) Depth, (5) Periodicity, (6) Form, (7) Subject heading, (8) Authenticity. 9.2.1. Publisher As a publisher of periodical indexes H.W. Wilson company of America is at the summit of fame. Their works are easy to consult and perfect in all respects. Index should be judged from what it contains and how it has been arranged and its shortcomings should be overlooked. The form and coverage of indexes published by Wilson company are convenient to consult and their depth is also

78 praiseworthy. But where the publisher is unknown, if he publishes indexes qualitatively similar to those time-honoured indexes, in that case too the librarian mainly depends on reputation and reliability of the publisher or takes decision after consultation with the specialists. 9.2.2. Scope While we discuss about abstract and index we are to see the scope covered by the publication. It depends upon the books and periodicals covered and subject area how dealt? Although universal coverage is not possible yet every librarian see how maximum information could be collected from a book. Librarian would prefer that index and abstract in which, marginal and related areas of subjects were covered. 9.2.3. Duplication There were not plenty of abstracts and indices few years back but 1970 witnessed plethora of materials in this direction. While many areas are overloaded, other areas are crying for attention. Examples of Education index and current index to journals in education both covered 80% of the materials common. Naturally a librarian has to choose one among them. Publishers should select subjects and avoid duplication for better professional progress. 9.2.4. Depth No index can be complete in itself but what are the areas and depth of the subjects covered should be reflected prominently. The selection method of indices is also point of consideration. From one survey of political science indices it was found that only 3 out of 10 follows comprehensiveness, so the policy of elimination has to be studied before processing an index. 9.2.5. Periodicity Any journal including index should maintain time schedule. It is one of the reasons of authenticity and quality. Commercial success also is depending on these points. New York Times index emanates after three months and currency is lost by that time. Hence librarian has to consider the updatedness of these publications. 9.2.6. Form Outer format is secondary in the case of index and abstract. Internal arrangement is the primary concern : if easy accessibility is there or not; if arrangement is alphabetical or subject-wise, dictionary pattern and citation rules or bibliographical information is correct or not? 9.2.7. Subject heading The type of subject heading used is also a point to be noted. Many standard index and abstracts follow Library of Congress subject heading or Sears list of subject headings. Again other follow their own system. Local subject heading should contain cross references with "see" and all "see also" features: and a subject the same. 9.2.8. Authenticity The question of authenticity naturally is an area where care had to be taken. Policy adopted for abstracting directs the usefulness of abstract. If competent persons are not engaged the inherent subject matter would not be properly projected, style of writing would be difficult to understand, but if this is done by author himself or experts in the field the quality is maintained. Appreciation of abstracts and indexes is a time tested job. Scholarly knowledge in the subject is required so librarian has to depend on specialists' advice. 9.3. Index A general index we can discuss which is meant for common men. Jargons are absent. We have already briefed about Readers guide to periodical literature, Wilson. 1900 -. Around 170 periodicals are scanned for indexing. The work began with The Philosopher's Index : An international index to philosophical periodicals. Vol. 1, no. 1-, Spring, 1967-. Bowling Green, Ohio : Bowling Green State University, 1967-. Quarterly, with annual cumulations. It covers important journals of America and Britain with journals of other languages and related publications. H. W. Wilson has specialised in index publications. They have so far published 3000 indices in different subjects. e.g. Social Science Index. 1974 - Quarterly with annual bound volume.

80 Humanities Index. 1974 – Quarterly Annual bound vol. 'Art Index' Vol. 1 – Jan. 1929. With author and title index. Annual bound vol. 'Education index' 1929 – monthly. July – August except, every two years bound vol. 'Current Index to journals in education'. Vol. 1969 – N. I. Macmillan 1969 – monthly. Annual cumulation. From 1979 published by Arian. 'Index of legal periodicals' 1908 – Ross, Joun M. 'Trials in collection' : an index to famous trials throughout the world'. Metuchen, Scarecrow, 1983. Cover 1950-1980. 'Reviews from 1900-1950 also covered. 'British Humanities Index' 1963 – London, Library Association. Quarterly with annual. It includes 350 periodicals' and newspaper, former title 'Subject index to periodicals (1915-1961). 9.3.1. Science and technology The volume and quantity of printed world has compelled the use of abstract and index. No one can riegn monopoly on printed information world. Information' World is like a giant now. R. T. Bottle said, 'evergrowing flood of scientific writings'. Index is a pathway to faster research in science and technology. Name of some indices– 'Pandex' : Current index to scientific and technical literature'. N. Y. CCM information science, 1969 – Bimonthly. 'Applied science and technology index', Wilson, 1958 –. Based on 300 journals every three month Bounds Volume is available after one year. 'British Technology Index changed title from 1981 'Current Technology Index' to include journals from Britain also, provides popular important articale and relevant features from newspaper. 'Index Medicus' – largest in the field of subject index, published by National Library of Medicine. 1960-2300 periodicals being scanned 13000 citation find place, monthly. Biological and Agricultural Index. N. Y. Wilson, 1916 – monthly except August. Annual or biennial bound volumes, upto 1964 published as 'Agricultural Index' with 180 journals indexed. 'Bibliography of Agriculture'. Beltsville, National Agricultural Library 1942. Monthly. Besides periodicals books also got place for indexing. 'AGRINDEX' available in three language English, French and Spanish (FAO)

81 Food and Agriculture Organisation of UNO introduced Agricultural Information System database and that is source for compilation. 76 countries and 7 international bodies are supplying information since 1975. International Nuclear Information System (INIS) has been publishing INIS Atomindex. 9.3.2. Citation index Coordinated effort was found in 1958. Interdisciplinary relation among subjects are always there, particularly in research we notice it more than any other field of study. Garfield suggested for "Unified Index to Science" in Washington Conference. This would bring fundamental change in information recording and exchange of scientific thought. Scattered articles in journal could be brought together with a harmony. If information on all sides of science could be put together benefit accrued them would be invaluable. Information technology is a revolutionary aid in the direction. Previous information and particularly where bibliographical information is inadequate could also be improved upon, Example: 'Social Science Citation Index' has been published from Philadelphia: Institute for Scientific Information since 1973. Science Citation Index. 1964 – quarterly. 2400 journals are considered. Half million subjects are referred. Arts and Humanities Citation Index, 1978– 9.3.3. Newspaper The New York Times Index : New York, New York Times Company, 1851 – Semimonthly. Computer generated items produced in 1900 pages. 3-Colume pages Subjectwise. . 'Indian News Index' : A quarterly subject guide to Amrita Bazar Patrika, The Press Journal, Hindu, Hindustan Times, Indian Express, The Statesman, Times of India, Tribune. V. 1-7, 1965–. Ludhiana, Punjab. 9.3.4. Literary Index Poems after reading goes from our mind. To make them alive in our mind books are there : 'Granger's Index to Poetry'. New York, Columbia University Press. Name of the poem, first line, poet and subject indexed. Chicorel Index to Poetry in Collection in Print and Chicorel Index to Poetry 82 in Collection out of Print (New York, Chicorel Library Publishing). 'Fiction Index'. London, the Associations of Asst. Librarians 1969. Plot of English Fictions and characters are indexed. 'Essays and General Literature Index'. 1900-1933 N. Y. Wilson, 1934. 9.3.5. Concordance Alphabetical index of important words used by author in his works for a particular book are called concordances. Once Cruden compiled on Bible. Other two examples: Bartlell, John 'A complete concordance of vertical index to words, phrases and passages in the dramatic work of Shakespeare, with a supplementary concordance to the poem' London : Macmillian, 1956. Crawford, C. The Marlow Concordance. London, 1911. Reprint. N. Y. Burt Franklin. 9.4. Abstract As an aid to the bibliographical control of periodicals the abstracting services has several advantages over indexing services. But they are available several months later than periodical indexing services. Some representative abstracting services in different subjects fields are cited below : 9.4.1. Library and Information Science Library and Information Science Abstracts, 1969. London, Library Association, Bimonthly. Supersedes Library Science Abstracts. 1950-1968. 300 journals and other related materials are taken for abstracting. 9.4.2. Psychology Psychological Abstracts, 1927–American Psychological Assn. Bimonthly. Books, Journals and dissertations, monographs are abstracted. 9.4.3. Social Science Social Science Abstracts. 1964 – Varanasi. Gandhian Institute of Studies. Sociological abstracts, N. Y. 1952 – VI-5, joint effort of American Sociological

83 Assn. Eastern Sociological Society, International Sociological asses. MidWest Sociological Society. Majority of World's information on the subject are covered. 9.4.4. Political Science International Political Sciences Abstracts. 1951. London, Blackwell. 1952– Quarterly. Publisher changes occasionally. English and French abstract. UNESCO supported International Political Science Association had produced with the help of International Committee for Social science Documentation. World-wide coverage. 9.4.5. Economics Economic Abstracts. The Hague, Martinus Nijhoff.1953 – Semimonthly Ministry of Finance, Govt. of Netherlands and Library of the Economic Information Sercive of the Ministry compiled it. All important journals of Economics are covered. 9.4.6. Linguistics Language teaching and linguistics : Abstracts. London, Cambridge University Press, Vol. 1, 1968–Quarterly. 400-journals of the world are covered, with notes on new books in the subject. 9.4.7. Science and Technology Subject wise abstracting began in Germany in 18th century. It spread World wide in 19th century. Annales de Chimie in French, 'Chemisches Zentralblatt' in German and American 'Engineering Index' all published in 19th century. Royal Society of London Published Catalogue of Scientific Papers in 1867. Acknowledged as the useful guide upto 1900. 'International Catalogue of Scientific Literature' took world as a source published by International Council in 1901, more comprehensive in nature. Unfortunately it stopped printing in 1921. 9.4.7.1. Mathematics Mathematical Reviews, Providence, RI : American Mathematical Society. 1940 – Monthly. 2 vols in a year. Author and subjectwise with referential guidance.

84 9.4.7.2. Physics Science Abstracts. London. Institution of Electrical Engineers, 1898 – Reprint, this abstract had been divided into two series since 1903. 'A' series keeps Electronic Engineering abstracts (monthly). The name of the 'C' series was Control Abstracts from 1966. From 1969 it has assernd new name Computer and Control Abstracts (monthly). The name of the 'B' series is 'Physics Abstracts' 1969. Fortnightly. All important areas of Physics are covered provided with cross reference, standard indices. 9.4.7.3. Astronomy Astronomy and Astrophysical Abstracts'. Berlin, Springer-Verlag– 1969– Semimonthly. Abstracts in English, French and German are arranged in 108 sections. Provides Author and subject indexes. 9.4.7.4. Chemistry Chemical Abstracts, Ohio, American Chemical Society, 1907. Weekly. From 1897 to 1906 appeared as : Review of American Chemical Research. Present one is changed version of the earlier. The entire subject field had been divided into 80 sections. Every 5 year index is printed when in 1953 British abstracts' suspended their publication and in 1969 Chemishes Zentralblatt discontinued, importance of this work has increased much. 9.4.7.5. Geophysics or Geology Bibliography and Index of Geology. New York, Geological Society of America, 1933–. Monthly. Most of the publications of the area are covered. Three from titles are merged together viz : 'Bibliography and Index of Geology exclusive of North America', 'Bibliography of North American Geology' and 'Abstracts of North American Geology'. Whole subject is divided in 21 sections. Monthly issues contain subject and author index. Cumulated issues published in continued volume with subject index. 9.4.7.6. Biology 'Biological Abstracts'. Philadelphia, Pen, BIOSIS, 1926 – Semimonthly. Except health science all related areas are taken into consideration with 600 subject headings.

85 9.4.7.7. Period after World War II Disaster brought in the socio-political life by war also brought change in all respect. In the world of knowledge new research, new subject development, new approach to research view initiative for resources 1940-1970 witnessed significant changes in abstracts preparation. In 1947 (AEC) Atomic Energy Commission introduced 'Nuclear Science Abstracts,' after 1976 it was changed as 'INIS Atomindex', a complete fortnightly abstract. With NASA's initiative (STAR) Scientific and Technical Aerospace Reports was published in 1963. 'The Environment Information Centre' began publishing 'Environment Abstracts' from 1971 besides their regular job. 'Air Pollution Abstracts' a product of 'The pollution Technical Information Centre' began publishing one year before in 1970. U. S. Dept of Energies Technical Information Centre came with Energy Research Abstracts—a monthly from 1st July 1976. Many countries also joined this race of abstracts preparation. viz. Pascal Explore; 1985. Paris, Centre the National Research Scientific, 1940– 'Referativnyi Zhurnal', Moscow VINITI and Academy of Science of the USSR, 1953–It was divided in 65 sections. Publication is no more available. Indian Science Abstracts' Delhi, INSDOC (Presently NISCAIR), 1965–Now Fortnightly. There are certain materials where indexes and abstracts are amalgamated. (1) A Guide to the World's Abstracting and Indexing Services in Science and Technology. Washington, National Federation of Abstracting and Indexing Services 1963. (2) Owen, D. B. and Hanchey, M. M. Abstracts and Indexes in Science and Technology : a Descriptive Guide. Metuchen N. J. Scarecrow, 1974. Finally all these attempts had brought the world of information at our finger-tips. 9.5. Exercise 1. On which subject 'citation index' is published? 2. Name the three indices for Newspaper. 3. Subject abstract first published where? 4. Why 'chemical abstracts' has the special importance? 5. What are abstracts that appeared after World War II?

86 9.6. Bibliography 1. Chakrabarti, B. and Sengupta, B. : Fundamentals of Reference Service. Calcutta, World Press, 1985. 2. Grogan, Denis : Science and Technology : An introduction to the literature. 4th ed. London, Clive Bingley, 1982. 3. Subramanyam, K. : Scientific and Technical information resources. New York. Basel, Marcel Dekker, 1981. 4. Webb, W. and others : Sources of information in the social sciences : A guide to the literature. 3rd ed. Chicago, ALA, 1986.

87 UNIT : 10 ????? DICTONARY Structure : 10.1. Introduction 10.2. History 10.3. Characteristics 10.4. Evaluation 10.5. Kinds of Dictionary 10.5.1. Exhaustive Dictionary 10.5.2. Abridged Dictionary 10.6. Dictionary in Indian Languages 10.7. Subject Dictionaries 10.8. Dictionary of Translations 10.9. Dictionary of Synonyms and Antonyms 10.10. Thesaurus 10.11.

Exercise 10.12. Bibliography 10.1. Introduction Bible is the mostly used book in English. Next position is occupied by dictionaries. The word derived from Latin word 'Dict.'. 'Dicto' means word or group of words. Dictionary play a vital role in language or linguistic study. O. H. Holmes once said, "Language is a solemn thing. It grows out of life-out of its agonies and ecstasies, its wants and its weariness. Every language is a temple in which the soul of those who speak it is enshrined". In a word where the need to communicate is keenly felt, no source is more important than one on words and their meanings. Indeed, the need increases with the complexity of society, with the advances in science and technology and with our concern, with our image. So the more dictionaries there are, the richer the people. Like all other living things they grow, They change, they meet honour and disaster. Some remain puny others stretch like giants. 10.2. History Looking Back One may be struck by the fact that the origin of dictionaries is nowhere 88 recorded on the earth. In fact, the history of the evolution of dictionaries to some extent is inseparable from that of encyclopaedias. At the beginning of the 2nd century B. C. Aristophanes of Byzantium (C 257 – 180 B.C.) librarian of the Alexandrine Library is known to have been compiling a dictionary of Greek words, and curiosity concerning the origin and meaning of words developed throughout the classical period. Appolonius, the sophist and a grammarian of repute, compiled a 'Homeric' Glossary, in the first century A. D. In India sometimes during the fourth–sixth centuries the celebrated Hindu grammarian 'Amara Simha' compiled a dictionary of Sanskrit language 'Amara Kosha : Namalinganusasana followed by many later on. The first use of the word dictionary of dictionary made in English language may be traced back to 1225 A. D. when Joannes de Garlandia with this word as the title compiled a collection of Latin terms, arranged according to subjects. In the mid 15th century the English friar Geoffrey the Grammarian compiled 'Promptorium Parvulorum' – the storehouse for the Little Ones. In 1552 Richard Huloet produced his 'Abecedarium'. Of course, none of them made claims to be exhaustive. They were simply lists of 'hard words'. Robert Caudrey's 'Table Alphabetical of Hard Words' published in 1604 had at least the virtue of rational arrangement and in 1623— the year of the First Folio of Shakespeare—there came Henry Cockeram's The English Dictionarie or a New Interpreter of Hard English Words. The making of word lists, the arrangement in alphabetical order, the attempts at etymologies and comprehensiveness were all at milestones in the history of dictionary preparation. But still a famous one seemed to be 'An Universal Etymological English Dictionary' by Nathaniel Bailey published in 1721. In 1730 came his 'Dictionarium Britannicum'. It is worth to note that Bailey's dictionary served as starting point for the staggering task which Samuel Johnson undertook in 1747 and completed in 1755 with the publication of his 'A Dictionary of the English Language'. It may be mentioned earliest true dictionary of a modern language had been 'Italian Accademia della crusca' first appeared in 1612. In America Noah Webster's 'Compendious Dictionary of English language' came in 1806. In 1858 a novel attempt was made in England in compilation of dictionary with the intention to include all English words in use from the 7th century onwards with various meanings according to the date of its first recorded usage. This venture resulted in 'New English Dictionary on Historical Principles' (NED), now known as (OED) 'Oxford English dictionary'. Other languages were not behind. Pierre Richelet was the first compiler of a French dictionary entitled 'Dictionnaire Francois' came in 1679-1680. The work of M. P. Emile Littré, 'Dictionnaire de la langue Francaise' 1863-1872 was like 89 Johnson's monumental work. Pierre A. Larousse (1817-1875) published the encyclopedic 'Grand dictionnaire Universel' Like O.E.D. a ten volume with 400,000 words. Japan has surpassed all by producing in 9th century; Shoju a priest compiles Shinsen Yikyo. Most of the major countries of the world by the end of 18th century could compile a national dictionary or equivalent to it. But neither was uptodate nor could it consider all words in vogue. Hence arose growing number of specialised dictionaries to fill the gap while the nineteenth century produced great dictionaries, twentieth has seen swelling numbers of size and kind, and being stocked by libraries. 10.3. Characteristics A dictionary is a reference book that answers questions about words— correct spelling, pronunciation, syllabication, accent, part of speech, spellings, synonyms and antonyms and other sections of grammar. In addition, the dictionary may give illustrative questions, maps, biographical facts and geographical information. Thus a dictionary may be a combination of wordbook, gazetteer, thesaurus, biographical dictionary and encyclopaedia. Besides, dictionary may be unabridged or abridged. Dictionaries are usually arranged alphabetically convenience of reference. In the study of language and linguistics, dictionaries are the major aids. There are both the general word dictionaries of a language and dictionaries which provide more than a mere listing of words and their meanings. Linguistics, the scientific study of human speech, includes an investigation of the sound, form and meanings of language and relations of one language to another. Dictionaries which provide more than mere listing of the words of a language and their several meanings, may include historical development of words, usage slang, dialect and colloquialisms, synonyms and antonyms. Each can have separate dictionary. We know that quick reference books to deal with words are genuine dictionaries. But we should also note that all such dictionaries do not always call themselves dictionaries. Some prefer to call themselves 'wordbooks', or lexicons, glossaries or thesauri. The term 'wordbook' is self-explanatory, but the other three need clarification. The term 'lexicon' has come from a classical Greek word 'lexikon' meaning dictionary and is usually applied to dictionaries of ancient languages, such as A Greek-English lexicon' by Liddell and Scott. The term 'glossary' is commonly applied to the subject dictionary area as with Harrod's

90 'The Liberians' glossary'. The word thesaurus' derives also from Greek 'thesauros' meaning a storehouse or treasury. Modern usage is said to date from 1852 when Peter Mark Roget published the first edition of 'The thesaurus of English words and phrases'. Roget thought of his thesaurus as a classification of ideas and subsequently has been used to describe dictionaries which arrange words in a classified order and not in the usually alphabetical one. Roget's Thesaurus was the progenitor of a whole range of thesauri and synonym dictionaries on various plans, topical or alphabetical, showing varying degrees of grouping and relational structure, a variety of interpretations of synonyms and resemblance covering simple listings and full discussions and so on.

10.4. Evaluation The primary purpose of a dictionary is to answer questions about words and its usefulness is determined by the manner in which the material is presented. The user must learn the minds of dictionaries and of the distinguishing characteristics of each kind. This is necessary to decide which one or ones will answer a given question most completely and satisfactorily, for examples (1) Part of the language included—slang, dialect, technical words etc. (2) the period covered by the language (3) grammatical use, if any (4) spelling of plurals, verb, tenses and participles (5) syllabication (6) Definition, if given in order of historical or current usage (7) etymology (8) illustrative material—questions, maps, pictures, charts, if used, whether adequate, or appropriate (9) synonyms and antonyms, if any or are they explained (10) abbreviations and symbols, if explained (11) is encyclopaedic information, i.e. biography, geographical and historical facts included (12) is the dictionary easy to use? (13) comparison with other dictionaries on each of these points. The examination and evaluation should go together, as evaluation cannot be possible until a thorough examination has been made.

Authority and quality : In evaluation a dictionary authority is the first important factor. Here the authority is determined by who has compiled it, and who has published it. Amongst British dictionary publishers, the Oxford University Press occupies an enviable position, while in the U.S.A. G.C. Merriam Company, the publishers of 'Websters' new international dictionary has a high reputation. There are several others with good reputation.

Vocabulary : Vocabulary, considered in terms of the period of the language covered and the number of words or entries may also be extended to include

slangs, dialects, obsolete forms, and scientific and technical terms. However, American abridged language dictionaries normally run from

91 13,000 to 150,000 entries.

Revision or updatedness : The major publishing firms of dictionaries employ a type of continuous revision, adding or deleting a given number of words and each printing, as the dictionaries tends to be old and decline in use.

Features : Added features are found in many dictionaries, which are encyclopaedic; they include illustrations, historical date and biographical informations, for example, Funk and Wagnall's Comprehensive Standard International Dictionary contains supplementary materials.

Format : The format and typography are useful factors in evaluation, though individual tastes play some part. The print size, quality of paper are the factors for durability. One should feel comfortable in using the dictionary.

Accuracy, Aim and Usage : If dictionary deals with the accuracy on correctness of usage and provides current meaning of the words should be verified. In 1961 for examples Webster's dropped the pattern of 'colloquial' and 'slang', they were replaced by 'standard' and 'substandard' ; yet the defamatory stamp was not erased from the words known as slang. Many compilers considered the wide use of words and do not want to mark words as pure or impure. But many prefer to acknowledge the historic usage. It is essential to segregate foreign words and slang to maintain the purity of language.

Spelling : Different forms of spelling should be clearly indicated : e.g. American spelling 'analyze'; British spelling 'analyse', similarly 'theater'; 'theatre' center; 'centre', The user must determine the form to use.

Etymologies : All dictionaries indicate the etymology of a word by a shorthand system in brackets. The normal procedure is to show the root word in Latin, Greek, French, old German, old English or some other languages.

Definitions : Modern general dictionaries usually give the most common meaning of the word first. 'Webster's is the only one which gives definition in historical order. Where there are several meanings the difference is clearly indicated by numbering each of the definitions.

Parts of speech are separate entries.

Pronunciation : The pronunciation is commonly indicated by diacritical marks. Usually a key to the system is given at the bottom of every other page.

Synonyms : Some dictionaries include synonyms for showing the difference between similar words.

Syllabications : All dictionaries indicate how a word is to be divided into syllables.

Grammatical information : Although most dictionaries explain parts of speech but methods vary. Where dictionaries are evaluated, using guidelines such as shown would be of much help. In this matter Dr. Johnson's rule hold good "Dictionaries are

92 like watches; the worst is better than none, and the best can't be expected to go quite true. "Indeed, there is no perfect dictionary. Nor is any single dictionary sufficient. Of course, each has its bright sides, and defect too. 10.5. Types of Dictionary General language dictionaries are usually divided into two types : select and comprehensive. The select or abridged is the more familiar but it is the comprehensive or unabridged type that is more valuable to the librarian. Of course, no dictionary can be fully comprehensive in its coverage. It may be single volume or multi-volume like (O.E.D.) Oxford English Dictionary or Webster's one volume. 10.5.1. Comprehensive or Unabridged Dictionary Webster's New International Dictionary of the English Language. 3rd ed. Springfield, G & C Merriam Co., 1961. 2752 p. Supplementary vols. 1976-1988. Various pagings. As an unabridged one, it is well-known to world readers. It's rich historical sequence for word's definition and enriched inclusion of biographical and geographical information has placed it in world's one of the best used dictionaries. Technological terms are not excluded. In the earlier edition colloquial dialects were found. Archaic words and phrases are omitted in 1976 edition and conscious effort was made toward popularization. In 1976 supplement 6000 words are added to the numbers, most of which came from science and technology. While there is no rival to O.E.D. in Britain, Webster's has several in U.S.A. The Oxford English Dictionary. Oxford, Clarendon Press, 1933. 12 vols. and supplement. Originally published between 1884-1928 with the title A New English Dictionary on historical principles (Cited as N.E.D.) Edited by James Augustus Murray and others. The Oxford English dictionary (Cited as O.E.D.) being a corrected reissue, with an introduction, supplement and bibliography of N.E.D. By far the most comprehensive and detailed dictionary, O.E.D. is a class of its own. It is a word encyclopaedia. O.E.D. and the supplement present the historical development of each word introduced in English language since 1150, giving the date it was introduced and the uses which have survived each meaning illustrated with quotation from literature, gives pronunciation, etymology in factional form and synonyms. That is why it is referred as the emperor of dictionaries.

93 10.5.2. Abridged Dictionaries Webster's New Collegiate Dictionary. 9th ed., Springfield Mass, Merriam, 1988. CD-ROM appeared in 1989. The abridged edition was planned and compiled based on Webster's Third New International Dictionary. The Shorter Oxford Dictionary on Historical Principles. 3rd ed. N.Y., O.U.P. 1973. 2 Vols. This is the authentic abridged ed. of O.E.D., very much useful for small libraries. Oxford American Dictionary. Compiled by Eugene Ehrlich and others. N.Y., O.U.P., 1980. The British antecedent was the Oxford Paperback Dictionary published in 1979. Shorter American version of O.E.D is popularly known Concise Oxford Dictionary. The Concise Oxford Dictionary of Current English. 7th ed. Edited by J. B. Sykes ed. N. Y., O.U.P. (Oxford University Press), 1982. This is a thoroughly revised edition of 1976 Concise Dictionary, 6th ed. Importance was given to description side. The aim was to "record what is found to exist" in educated modern usage not only in Great Britain but in all of the English speaking world. The main rival abridged dictionaries are published by chambers and are headed by Chambers's Twentieth Century Dictionary, rev. ed. with supplement. Edinburgh : Chambers, 1977. World Book Dictionary. 2 vols. ed. by Clarence Burnhurt. Chicago, World Book, 1990. 10.6. Indian Language Dictionaries Dictionaries available for Indian languages are countless. One bibliography is available from National Library Kolkata. A Bibliography of Dictionaries and Encyclopaedia in Indian Languages'. Kolkata, 1964. From the name it gives indication the area of coverage. Some titles which have not been included in that book are given below : Assamese 1. Niyogi, M., Debsarma, R. and Barua, N. eds. : 'Adhunik Asamiya Abhidhan (Modern Asamiya Dictionary). Guahati, Assam Prakashan Parishad, 1977. Bengali 1. Bandyopadhyay, Haricharan : Bangiya Shabdakosh (Bengali Dictionary). New Delhi, Sahitya Akademi, 1966-67. 2006.

94 Hindi 1. Tiwari, Bholanath, Chaturvedi, Mahendra and Gupta, Omprakash : Vyabharik Hindi Kosh. (Practical Hindi Dictionary) Delhi, National Publishing House, 1974. Malayalam 1. Pillai, C. Madhavan. : Abhinava Malayalam Nighantu (New Malayalam Dictionary). Kottayam, D. C. Books, 1977. Marathi 1. Joshi, Prahlad Narhar, ed. Adarsh Marathi Sabdakosh (Ideal Marathi Dictionary) Pune. Vidharbh Marathwada Book, 1977. Oriya 1. Kar, Krishnachandra : Tarun Sabdakosh (youth dictionary), Cuttack, Granthmandir, 1966. 2 Nath, Rameswar. Ajanta, Oriya Abhidhan (Oriya Dictionary) Vol. 1. New Delhi. Ajanta, 1989. Sanskrit 1. Encyclopaedic Dictionary of Sanskrit on Historical Principles. Pune, Deccan College, 1976. Vol. 1 divided in 3 parts. (1976-1978); vol. 2pt. 1 Published in 1979. Tamil 1. Manimekalai Tamizccol Akarati (Tamil-Tamil). Chennai. Manimekalai. 1979. Telegu 1. Reddy, G. N. : Telegu Nighantuvu. Hyderabad, Andhra Pradesh Sahitya Akademi. 1967. 10.7. Subject Dictionary Subject dictionaries include specialised terms not to be found in general language dictionaries. They deal with more detailed description of word meaning than those in general dictionaries. Thus subject dictionaries can complement general language dictionaries in two ways. Among many problem facing the compiler of a subject dictionary two problems may be pointed out (1) what words to be included (2) level of readership at which the book is aimed. Some representative titles of such dictionary are noted below :

95 Library Science. 1. Thompson, Anthony. *Vocabularium bibliothecarii* : English, French, German, Spanish, Russian, 2nd ed. Paris : UNESCO, 1962. First ed. – 1953, supplement – 1958. Includes nearly 2800 terms. 2. The ALA Glossary of Library and Information Science. Heartsill Young, ed. Chicago, ALA. This is the revised and enlarged version of 1943 publication. It has 4400 entries. Preface reveals, besides Library and Information Science it includes terms relating to printing, publishing, photography, computer science, telecommunication, etc. 3. Buchanan, B. *Glossary of indexing terms*. London, Clive Bingley, 1976. Contains 1000 entries. 4. Harrod, L.M. *The Librarians' Glossary*. 4th ed. London, Deutsch, 1977. First edition was published in 1939. It is the best known dictionary of librarianship; Encyclopaedic pattern followed. 5. Indian Standards Institute – *Glossary of Classification terms*, 1964. – *Glossary of cataloguing terms*, 1966. 6. IASLIC. *Glossary of Cataloguing terms in Indian regional languages*. 1964. Philosophy and Psychology 1. Runes, Dagobert D. ed. 'The Dictionary of Philosophy' London : Philosophical Library, 1944. Records concise definition and explains philosophical terms consisting the subjects. 2. Tedd, Hunderich, ed. 'The Oxford Companion to Philosophy' O.U.P., 1995. 3. Coocher, Gerald, P., Narcross, John C. and Hill Sam C. *Psychologists' Desk Reference*. 2nd ed. O.U.P., 2004. Social Science Caulhoun, Craig. *Dictionary of the Social Sciences*. O.U.P. 2002 Political Science 1. Robertson, David ed. *Routledge Dictionary of Politics*. Routledge, 2003. 2. Robertson, David. ed. *The Dictionary of Modern Politics, Europa*, 2002.

96 Economics 1. Seldon, Arthur, ed. 'Everyman Dictionary of Economics. Liberty Fund, 2005. 2. Graham, Bannock; Bauxter, R. E. and Danis, Evan, eds. 'The Penguin Dictionary of Economics, 7th ed. Penguin, 2003. Law The 'Oxford Essential Dictionary of Legal Words, Berkeley. 2004. Education 1. Watson, Foster. *The Encyclopaedia and Dictionary of Education*. 4 vols. Baker and Taylor. 2003. 2. Goodman Fred, ed. 'The Greenwood Dictionary of Education. Greenwood. 2003. Linguistics 1. Dolby, Andrew. *Dictionary of Languages*. Columbia University Press, 2004. 2. David, Chrischal. *A Dictionary of Linguistic and Phonetics*. Blackwell. 2003. Science and Technology The words which are used in science and technology are different from the common words we know. In every field of science one can note, the existence of separate terminology. There is no dearth in scientific dictionary. Among few thousands of dictionaries, selected dictionary on specific subjects are provided here: 1. McGraw-Hill Dictionary of scientific and Technical terms. 3rd ed. N. Y. MrGraw-Hill, 1983. First ed. published in 1974, with 108,000 definitions and illustrated materials. Appendix attached various tables and diagrams of mathematics, Oxford University Press, chemistry and electronics. 2. 'Dictionary of Physics'. 4 vols. Nature Publishing Group, 2004. 3. 'A Dictionary of Physics'. 4th ed. 2003. 4. *Dictionary of Chemistry*. Parker, Sybil P. ed. 2nd ed. McGraw-Hill, 2003. 5. *Illustrated Dictionary of Chemistry*. EDC Pub. 2004. 6. *Dictionary of Earth Science*. 2nd ed. McGraw-Hill 2003. 7. *A Dictionary of Earth Science*. 2nd ed. O.U.P. 2003. 8. *The Cambridge Aerospace Dictionary*. Cambridge University Press, 2004. 9. *Willey Dictionary of Civil Engineering and Construction*. 1997. John Willey.

97 10. *Dictionary of Bioscience*. 2nd ed. McGraw-Hill, 2003. 11. *Dictionary of Medicine*. 3rd ed. Harper Collins, 2004. Translating Dictionaries Scholars feel, in the ancient times, there was only one human society and their expression was also one. Later, due to various reasons situation altered. In this regard Bible says, there was one language and one type of oral expression. Then while travelling towards east found plain land 'Shinar' to set up colony; they told among themselves, let us make bricks and burn in fire, in that crushed stone and oily aspect of soil. They said, let us build a structure and a city that would bring fame to us, let we are dispersed. Later God came to watch the construction of all buildings and town. Almighty said, see they are all of same race and speak common language; now they are engaged in this job; after that they would pledge to do something and wont leave the job. Let us go there and make the difference in languages, so that they can't understand each other. Almighty pierced them from there, and prevented them from setting up cities. So the name attributed was Buby (division); because almighty created the division in languages there; and people were dispersed over the face of the earth. Whatever may be the reason various languages originated in human society. One's language is not communicable to others. But this is essential. So the need arose to learn a second language. The question of learning a second language brings the bilingual dictionary. This is the ready-made answer to the linguistic queries. In this direction notable contribution made by 'Walford's Guide to Reference Materials. 3 Vols. 3rd ed. 1977. Sheehy's Guide to Reference Books, 9th ed. 1976–First Supplement 1980, and Second Supplement 1982. Sheehy's Guide listed and annotated various types bilingual dictionaries. First entry is 'Africans' and last one is 'zulu'. Cassell's series of dictionaries has a high reputation. Most in this series have gone through numerous editions and revisions by many editors. Pronunciation is given clearly enough for even the amateur to follow. Of course, definitions are not given. Funk and Wagnalls is the publisher of the series. Few of them are : New Cassell's French Dictionary, French-English, English–French. Denis Girad and others are the editors of this dictionary. Usually bilingual dictionaries are two way (e.g. from English to German and German to English). But some are one way only e.g., English to French or Vice-Versa. Example of such as follows: 1. Chaturvedi, Mahendra and Tivari, Bholanath eds. *Vyavaharik Hindi— Angreji Kos*. 2nd rev. & enl. ed. Delhi : National Publishing House, 1975.

98 2. Wu Jingrong, ed. The Pinyin Chinese English Dictionary. N. Y. John Wiley, 1982. 3. Rankin, Nigel and Thompson, Della, Comps. The Pocket Oxford English Russian Dictionary. N. Y., Clarendon Press, 1981. Even in subject dictionary also have Bilinguals e.g. Gieber, Robert L. An Eng-French Glossary of Educational Terminology. Washington, Union Press of America, 1981. A Glossary of Philosophical Terms. Mandras : Tirumalai Tirupati Devasthan Press, 1941. It covers all systems of Indian philosophy from Sanskrit to English. The second type of translating dictionary, the multilingual or polyglot, we would note here two such dictionaries from Indian languages. 1. Bharatiya Byavahar Kosh; or Dictionary of Sixteen Indian Languages, including English. Bombay : Triveni Sangam, 1961. (A polyglot dictionary of 14 recognized Indian languages, as well as English and Sindhi and scripts are Roman and Devanagari. 2. W. B. Home (Pol.) Dept. Technological Committee. Sarkari Karye Vyauaharya Paribhasa (Terminology to be used in the Public services) Calcutta, W. B. Govt. Press, 1958. (English – Bengali – Hindi). 10.9. Synonyms and Antonyms A dictionary of synonyms and antonyms offers a key to crossword. Following are the two classic examples. 1. Roget's International Thesaurus. 4th ed. Robert L. Chapman. N. Y., Crowell 1976. 2. Webster's New Dictionary of Synonyms. Springfield, Mass., Merriam, 1973. Comprehensive and antonyms appended. Arrangement alphabetical. 10.10. Thesaurus Thesauri are controlled vocabularies that display relationship among terms in a discipline to facilitate indexing and retrieval of documents.

The relationships are hierarchical and collateral among terms. Unlike dictionaries they don't deal with definition or words, except to a limited extent in the forms of scope notes and synonyms. Enormous growth of thesauri gave birth to bibliographies; name of some of them are as follows:

99 1. Bibliography of standardized vocabularies. Vol. 2 Infoterm series. Helmut Felber and other, comp. 2. Walkley, Janet and Barbara Bay. An annotated list of thesauri held in the Aslib library. Aslib proceedings, 23 June, 1971. 3. Kuttan, Aaron : Thesauri bibliography. Elyachar Library, Technion Israel Int. of Technology, Haifa, 1975. New Thesauri are reported in FID/CR Newsletter. Below are some of them : 1. GEOREF Thesaurus and Guide to Indexing. 3rd. ed. Sharon J. Riley, ed. American Geological Inst. 1981. 2. Institution of Electrical Engineers. The INSPEC thesaurus. 3rd ed. London 1976. 3. UNESCO thesaurus. Paris, UNESCO, 1977. 2 vols. 4. Viet, Jean. EUDISED. Multilingual Thesaurus, Paris, 1973. It is the duty of librarians to supply necessary dictionaries to readers, and accordingly resources are to be ready in the library. Librarians at the sametime should have thorough knowledge about in dictionary's contained information. Confucius said long ago "when words lose their meaning, the people will lose their liberty." But how librarian will procure dictionary? There are some tools to help: 1. International bibliography of dictionary. 6th ed. Munich. Verlag Documentation, 1977. (Chiefly science and technology) 2. Kister, K. F. : Dictionary Buying Guide. N. Y., Bowker, 1977. 3. World Dictionaries in Print, 1983. Bowker, 1983. This one covers dictionary, glossary, thesaurus ; compiled from 238 languages and numerous subjects. 10.11. Exercise 1. Who attempted to find out the true nature of Bengali words? 2. Dictionary is a multifaceted reference tool. Discuss. 3. Discuss the main points to be considered in evaluating dictionary. 4. Detail the division of dictionary according to their aim. 5. Give examples of two comprehensive dictionaries.

100 10.12. Bibliography 1. Bopp, R. E. and Smith, L. C. : Reference and Information Services : An Introduction, Libraries Unlimited, 1995. 2. Katz, William, A. : Introduction to Reference Work. Vol. 1. Basic information sources. 6th ed. New York : McGraw-Hill, 1992.

101 UNIT : 11 ????? ENCycLOPAEDIA Structure : 11.1. Introduction 11.2. Subject encyclopaedia 11.3. Types of encyclopaedias 11.4. Evaluation of encyclopaedias 11.4.1. Indirect evaluation 11.5. Updatedness 11.6. Reputed encyclopaedias 11.6.1. The New Encyclopaedia Britannica 11.6.2. The Encyclopaedia Americana 11.6.3. Colliers Encyclopaedia 11.6.4. Chambers encyclopaedia 11.6.5. Hindi encyclopaedia 11.7. Subject encyclopaedias 11.7.1. Aims and kinds 11.7.2. Evaluations 11.8. Conclusion 11.9. Exercise 11.10. Bibliography 11.1. Introduction Encyclopaedias aim to encompass all that is worth-knowing. It may consist of one or multivolume. The term encyclopaedia is derived from the Greek en kyktoi (circle) and paideia (of learning). In ancient time by subject meant grammar, aesthetics, music, philosophy, mathematics, Astronomy and cultural themes. This compound word was unknown to classical Latin or Greek writers. Sir Thoms Elyot used it just in 1531. Encyclopaedias are compendiums of information on all subjects. Denis Grogan in this connection referred one chemist, R. J. Bottle's description. According to him, this information source is a fractionated distillate from the ocean of information. William A Katz used only two words while describing 102 encyclopaedia. The main purpose of the encyclopaedias is to 'capsulize' and 'organize' the accumulated world of information and knowledge. Thus the whole world of knowledge is arranged alphabetically as articles. So, in information sources encyclopaedia is the most revered reference book. Any good encyclopaedia is expected to response questions of any kind except the happenings of immediate past or political issues. William A Katz said, in most cases they fail to satisfy us. The advertisement for encyclopaedia reads '

A literary work containing extensive information on all branches of knowledge, usually arranged in alphabetical order.

It is not possible to compile all knowledge in a single encyclopaedia. The term extensive, however, does not extend to all. It is an exaggerated ancient view for encyclopaedia. Denis Diderot in preface of one 18th century encyclopaedia observed the aim is to collect information of all kinds— so that our future generation could be more educated, qualified and remain happy. This eulogistic mind is absent now. The sellers ran from door to door and took the ones to change the view of Diderot. The real background motivative factor for acceptance of encyclopaedia in 18th century was the insistence of booksellers; editorials were not inspiring issue. The hope, so grew was soon leaned towards disappearance. It was the mountain of accumulated information in contrast. Ordinary encyclopaedia, it was natural could not withstand the pressure of the load of information. Sales fell; publishers were frightened. How much they could accommodate from this ever-increasing information world; rather selected maturing on specific subjects authored by experts would be more useful to the librarian and readers alike; yet that did not deter this publication of general encyclopaedias, but their numbers were not multiplied. On the other hand, days of general encyclopaedias are waring to an end. On the hand, it has not caused any significant loss. But one can't deny the age-old service general encyclopaedias are rendering in the search of information. In a single book biography, dictionary, maps, directory are available. So the importance of such a universal encyclopaedia is immense. Though it cannot satisfy the curiosity of a specialist, but it can give answers to large number of questions of common users. This is the age of specialisations. Everyone from a reserved analyst is an expert. So 'comprehensive summary' is moving to the directions of specialised encyclopaedias. Subject encyclopaedias are in almost all areas. In the midst of flooding information McGraw-Hill Encyclopaedia of Science and Technology, the International Encyclopaedia of Social Science, Encyclopaedia of Photography' etc. played their desired role well. The librarian who is engaged in information providing

103 job this had helped him a lot. According to the need he can use general or subject encyclopaedias. 11.2. Subject Encyclopaedia many encyclopaedias based on particular branch of knowledge have been published. These are subject encyclopaedias. Now, we can cite some representative titles : 1. Encyclopaedia of Gardening, (1822) of J. C. London. 2. Dictionary of National Bibliography (1882). Publisher was George Simth, aditors – Lessly Stephen and Sir Sydney Lee (21 vols, 1885-1901). From 1917 O.U.P. took it for publishing as supplementary to the existing way. 3. Encyclopaedia of Religion and Ethics (13 vols, index; 1908-27). James Hastings, ed. 4. Encyclopaedia of the Social Sciences. (15 vols. 1930-35). Seligman, E. R. A. ed. 5. Dictionary of Applied Chemistry (3 vols. 1891-93); (Revised in 7 vols. 1921-27). Thorpe, T. E. ed. 11.3. Types of Encyclopaedias Three types of encyclopaedias can be seen generally. Some are encyclopaedias by name sake. They are actually directories or lists. 'The Encyclopaedia of Associations' and 'The Modern Plastic Encyclopaedia' are the examples of such pseudo-encyclopaedias' which are in practice directories only. Two other are general and special encyclopaedias. While general encyclopaedias are satisfying the need of general readers, special ones are meeting with care the micro-queries specialists. Some encyclopaedias restrict their general subject coverage to a particular country. This biasness helps the user to limit his search : he should not waste time by looking for a minor Bengali author in Hindi Encyclopaedia, but should go straight to the Bengali Encyclopaedia, Bharatkosh. Similarly special subject encyclopaedias will be full of detailed information on the concerned areas. Naturally specialists will be benefited. General users are

104 also benefited from these encyclopaedias. This process of experimentation has given a growth to a hybrid, which is known as : Encyclopaedic dictionary. One example will reveal its nature: 'Thewlis Encyclopaedic Dictionary of Physics'. This also may be known as hybrid.

11.4. Evaluation of Encyclopaedias

Before going for processing encyclopaedias, librarian or individuals would like to judge the merits of an encyclopaedia. According to the criteria established by Louis Shores the six main check points are as follows: Authority, scope, arrangement treatment, format and special features. Katz, however, suggests the following evaluative criteria as guidelines for determining the quality and utility of any general encyclopaedia :

1. Purpose : The purpose of an encyclopaedia may vary with the user and its scope. There are two primary purposes for the general encyclopaedias: (a) To provide a source of information to fact questions of a simple nature as to who, what, when, where and how. (b) To provide a source of background information both for scholars and lay persons. (c) Besides, there is one which is directional. The bibliographies at the end of the articles in the encyclopaedia may help the user to find additional material in a given subject area. It may in some cases provide list of related essays which will be useful to students to write articles. Many persons have extra respects for encyclopaedias. In respect of research, they add additional value, which in reality does not contain such characteristics. Debatable areas do not find place only common subjects are dealt. Since current or to the points materials are not organised properly, the need to compare one article with another encyclopaedia can't be rejected. Many by mistake consider encyclopaedias as source of worth reading for students. This is not correct for any encyclopaedia of merit even. It is found, sales-representatives recommend students for consulting encyclopaedias, overzealously. This may lead to overburdened with information but never education properly. Teachers also believe encyclopaedias can give proper answer and solution for many queries. In practice it may increase the thirst of knowledge, if of course merit of the book is of high standard. Reversely it may kill the instinct of learning, if most of the materials they get ready-made from encyclopaedias. Gradually they will lose interest in other general books, which are very weak signs of education.
2. Scope : Nomenclature of subject encyclopaedias are self designed. Names extends to its scope. From two sides general encyclopaedias scope are judged. 105 First is obviously the age, while compiling for children the question of syllabus would bound to occur. World book could be recalled here. The type has to delve deep as a compulsion, particularly for those subjects which are directly in touch with syllabi. Contrarily, general encyclopaedias in these subjects give general information which would not be regarded as shortfall. Simultaneously business motives ask them to reach to all age-groups with such encyclopaedias that befit the purpose. They demand all their publications are worthy of class six to twelve. This may be true for meritorious students, but librarian has to judge the claims with care, because advertisement always does not speak the truth. In this case two results are to follow, adults are to be satisfied with the kind of knowledge meant for children, and deprived of the detail complexities of subject materials, which are over-simplified in dealing. Question of importance attributed to subjects also forms one criteria. It is duet attitude of editor. Science may receive priority and literature get insignificant treatment from the editor's discriminatory role. Recently one aspect had come to light; if the scholarship is given more weightage, it loses the popularity again, populism may yield commercial success but quality is damaged. Here is the question where and how to balance the nature and scope, between the two.
3. Authority : Authenticity is the prime point which determines the merit of encyclopaedias. Hence question would come if publishers and authors all are competent? If they deserve, so the integrity question and updatedness of information would be answered. Name of authors will denote the authenticity. These are the ways to examine : If the author is a renowned personality in the subject? If the writer's qualifications match the articles without questions? If the author is an acknowledged personality in his field of specialisation? Identification of author's age also help to confirm the policy of editing and updatedness. It is found that old persons are only ruling, the inflow of new thought is bound to suffer, may be few of them keep track with the growth of knowledge. Needless to say that it is not going to add to the fame of the encyclopaedia in question. Relatively a person's status count but with the change of time his capacity may not function well, so it is desirable to bring authors with today's capacity and quality.
4. Language : By this time we have to know general encyclopaedias are meant for common public; specialists are not much interested with such publications. Editor of Britannica unequivocally admitted this. Simple language makes it acceptable to all uniformly; customers are common public. Editor has to see the targeted standard of users. They have to examine thoroughly the manuscript and coin it to put them in a reachable language. To earn the confidence of the common users is then the primary objective.

106 Editors have to abandon verbose and jargons along with jugglery of words. Yet, there will be natural discrimination, the language of the children's book will be obviously the simplest, without hurting the gravity of the subject. Scientific articles are articulated, so editor has rarest opportunity to edit. Even if the readers are common public their curiosity and intelligence can't be underestimated. Terminologies are to be kept in its original form to signify the subject, it is difficult to do without them. Only in case of children's encyclopaedia the barriers of language has to be broken. For common public it is advisable to take recourse to children's encyclopaedia for scientific and technological matter.

5. Viewpoint and objectivity : The objectivity and fairness of the articles are desirable. Each author has its own viewpoint. Biased attitude should be given up. Editors can't conceal the question of prejudice, when motherland is treated. Editors have to be attentive regarding the question of importance of subjects with that of time and country of origin. Books emanates from West necessarily will not give priority to the topic concerning oriental factors. Controversial matters do not also find places. In Britannica 'Soviet Republic' topic left many questions in silence in order to avoid controversies. Foresight of editor is considered here; never illmotivated. A nonprejudiced view is the only proper guideline of a good encyclopaedia. Yet editor of Britannica Wabesh Preece could not reject the probability of doubtful motivation. But careful attempt can rectify and that is more commendable. Uniform maintenance of fairness is also difficult, for the question of capitalism and socialism can vindicate the style of information. Katz gave two suggestions : one is chronological, where essayist can shun all views and record the information from historical angle. In second opinion contributor can place all views before the user to decide upon, editors do not comment to influence the users. Prof. Harvey Enbinder of Columbia University wrote an article reviewing the 14th edition of Britannica. This was so critical that, almost all volumes were rewritten in the 15th editions, yet failed to earn the confidence of all. Stephen Brook told objectivity is an illusion of the mechanical age individual experience supersedes information. Discovery is truth and experience works as history. Imagination blends with information are noticed frequently.

6. Format : We are to consider the physical make-up of the work. What is the quality of paper, binding? Katz divided into four parts, first, quality of illustrative materials second, type-face size, third binding and fourth is size of the volume. By illustrative material we mean photographs, drawing, graphs etc. Librarian is to glance on these items in the course of evaluation. Pictures may not be relevant to time. Difference may also be found in description and

107 illustration. It may be for attraction without any textual reference. Materials may not be upto the mark. This may suffer for quality of paper, block and ink. Photographic projections are most important for children's encyclopaedia. Pictures irrespective of colour attract the tender mind of the child. Equal balance is to be given to writer also. The size of the typeface is another area, it should not be large or small, a standard size should be followed for children's works also. One is to examine the gap in between the lines and stanzas to facilitate reading. Since volumes of encyclopaedias are frequently used nature of binding should be examined thoroughly with price. Size of the volumes are also to conform to the binding, odd size will be difficult to use.

7. Arrangement and entry : Alphabetical order is being followed from the beginning. Related subjects are scattered and cross reference are the answer for linking the subjects of interdisciplinary nature, in addition to this exhaustive index is provided. For entry users are familiar with this method, they don't feel any inconvenience. Alphabetical arrangement is not able to link the related subjects during study and isolated from the background materials correspondingly, a repetition occurs. All readers can't be expected to read the related subjects serially or together. Hence arrangement must be according to the convenience of the users. Encyclopaedia with different kind of entry arrangement are also found. Denis Grogan has cited 'Materials and Technology: a systematic encyclopaedia' (Longman, 1968-75) as systematically subject arranged encyclopaedia. In the preface of the book they have rejected the alphabetical arrangement. Here all related materials are arranged in a comprehensive way. New users of course will find it difficult to consult in this system, but alert readers will have no difficulty. From scope point of view entry may be brief or comprehensive. Articles in one vol. encyclopaedia are small. Terms also could be used accordingly where entries are small, it encompasses everything separately like 'sun' 'ebb-tide', season etc. While in comprehensive only 'sun' will get an entry. Smaller entries of course help to locate implements in a faster way without consulting index. At the same time exhaustive entries direct to the indices. The practice of using exhaustive entries are now not attracting users, popularity is moving towards brief entries. Common man feels comfortable in small articles rather to grope in lengthy article.

8. Index : Some publishers have used suitable 'see' and 'see also' references to eliminate index. It can't, however, alternatively serve the job of index. An article may cover many items, in absence of proper relative index, these references would be difficult to locate. In 15th edition of Britannica index was withdrawn

108 for 'micropaedia' but it was not a 100% successful experiment. 9. Price : However nice or useful a reference work may be, the price is a factor that count much. Some encyclopaedias price vary for binding differences. Attractive binding was cost escalation. Now-a-days gift system has come to market, it has not left even books, but a qualified librarian should not be tempted by the offer of gifts, their authenticity only to be considered. 10. Updatedness : Evaluation can't be completed without the verification of date. Copyright date and bibliographical reference will easily guide to check the time. 11.4.1. Indirect evaluation This area would be assisted duly from two sources : first from reference and subscription book reviews published in 'Book-list', second is Kenneth Kister's Encyclopaedia 'carrying guide' which is revised every three years. 'Book-list's review appear every five years and guides buyer guidance for procuring encyclopaedia as well as reference materials. 11.5. Updatedness We have already come to know the continuous change in the information domain. If this change is reflected in encyclopaedia, it's efficiency becomes undoubtful. Publishers issue supplementary volumes or yearbooks to comprehend the modernity. Kirk-Othmer and McGraw-Hill bring out yearbook as well as revised editions every five or ten years to bring updatedness. A novel and complex system is the introduction of loose-leaf encyclopaedias, current information can be added and obsolete can be discarded by withdrawing the relevant leaves. J. F. Garner and D. J. Harris are efficiently practising in, Control of Pollution Encyclopaedia since 1977. 11.6. Reputed Encyclopaedias It is worth to survey main encyclopaedias of different countries. Kenneth Kister's "Encyclopaedia Buying Guide' lists the English ones. Some of them are discussed below: 11.6.1. The New Encyclopaedia Britannica The New Encyclopaedia Britannica. 15th ed. Chicago, Encyclopaedia 109 Britannica, 1985. 32 vols. A highly respected book since 1768. From the humble beginning is Edinburgh, it is continuing for more than a century under the auspices of Britishers, who passed it to American hands in 1955. Collison however called 11th edition of 1910-11 probably the finest edition. Epochmaking change took place in 1974 with 3 separate sections of the 15th ed. A compilation of 3 in one boasting 43 million words spanning in 30 vols. Total 33,141 pages, 22,000 illustrated materials, authored by 4277 of 131 countries made it a marvel in the history of publications. The first volume is Propaedia experiment. It is like a gateway to knowledge, that is recorded in other 29 vols. Then came 10 vols. Micropaedia knowledge when dealt in an abridged way. The last 19 vols 'Macropaedia' that treats broad subjects in a reminiscent of the 11th ed. In 1985 2 vols general indices had been added to rectify the problem of index. Most of the writer up in Macropaedia consist of 1000 words, giving it a deserved scholarship and provided acknowledged authenticity. The volumes are well supplemented with numerous photographs and bibliography of merit and humanities 12 vol. subjects are also dealt in depth 1993 ed. consists of Micropaedias and 17 vols of Macropaedia and these are available in CDS also. 11.6.2. The Encyclopaedia Americana International ed. N. Y., Chicago, Americana Corp. 30 vols. 1996. It first appeared in 1829. It recorded in detail the industrial progress of 19th century. The first editor expressed, My wish has been not to obtrude opinions, but to furnish facts. Similar ideas were expressed in 1977 ed. to "bridge between the worlds of the specialist and the general reader." Emphasis on American history, geography and biography is the hall-mark of the publication. The light it throws on the growth of science and technology also give a wide acceptability. Lengthy articles are signed but short ones are not. Bibliography are provided with major articles only. Index arranges main subjects in dictionary form and thus helpful for getting information. From 1923 they have been publishing annuals as a supplementary for renewal. William A. Katz had applauded its language, arrangement and outer form. According to some scholars it occupies position after Britannica. 350,000 entries with index again gives it enviable position in reference world. Present Publishers is Grollier Incorporated. 11.6.3. Collier's Encyclopaedia N. Y. Macmillan, 1997. 24 vols. It has been publishing since 1950-51. It is 110 regarded as a bridge between adult and young people's encyclopaedia. They also publish yearbook from 1939 to update the information. Most of the articles are short but signed, bibliography is also of elementary nature. 11.6.4. Chambers's Encyclopaedias New rev. ed. London. International Learning System Corp. 1973. 15 vols. This is the only encyclopaedia published in England after Britannica migrated to U.S.A. First published in 1860-68. In 1950 it was entirely rewritten and published in new print. Each volume gives author's short biography. 11.6.5. Bengali Encyclopaedia Bharatkosha Edited by Sushil Kumar Dey and others. Calcutta, Bangiya Sahitya Parishad, 1371-1380 B.S. 5 volumes have been published. Articles are signed and there are bibliographies at the end. 11.6.6 Visva-Kosha. Edited by Nagendranath Basu, Calcutta : Visva-Kosha Press, 1293-1318 B.S., 22 Vols. 11.6.7 Visva-Kosha. Varanasi : Nagripracharini Sabha, 1960-1970. 12 Vol. Contains short but signed articles. 11.7. Subject Encyclopaedias General encyclopaedias and subject encyclopaedias are not same. Subject encyclopaedias are specific, so subjects here are dealt in more details. Some of the well-known books are listed here: 1. The Oxford Companion to World Sports and Games. 1998. O.U.P. 2. International Encyclopaedia of Dance. O.U.P., 1998. 3. Encyclopaedia of Mental Health. Academic. 1998. 4. International Encyclopaedia of Public Policy and Administration. Westview. 1998. 5. Macmillan Encyclopaedia of the Environment. Macmillan Reference Library, U.S.A. 1997. 6. Encyclopaedia of Earth Science. Macmillan. 1996. 7. International Encyclopaedia of the Social Sciences.

111 11.7.1. Aims and Types Subject encyclopaedias are definitely much better works than general encyclopaedias. Already it is told that they are more current and specific with required information. When searcher is not satisfied with the kind of information contained in general encyclopaedias, subject encyclopaedias are to act as rescuer. Subjects encyclopaedias are broadly classified in three groups: (1) Where a particular field of knowledge is discussed, viz. International Encyclopaedia of the Social Sciences. (2) Where a specific topic is chosen as subject, viz. Encyclopaedia of the American Revolution. (3) Where a particular viewpoint is selected to project, viz. 'The New Catholic Encyclopaedia'. 11.7.2.

Evaluation The process of evaluation involved is same with subject encyclopaedias and general ones. Small libraries can't afford to purchase big encyclopaedia, listed considering the nature of the readers, they can go for smaller versions like subject encyclopaedias. Medium size libraries also prefer subject encyclopaedias because, fact finding operation is more easy and definite here. 11.8. Conclusion Seekers of information of any kind will get some guidance from the encyclopaedias. Encyclopaedia may not be indepth study but at times it can satisfy even scholars for quick reference to any query on any subject. Lowell A. Martin concluded by saying 'a bridge between scholars and learners.' One major problem that it faces details of a subject or items are not there to some extent that is taken care by subject encyclopaedias. If again, encyclopaedia can't be universal in approach and remain limited within the boundaries of a country of origin it can't be referred an encyclopaedia at all. In spite of certain lacunae it should be authoritative and authenticity can't be compromised. 11.9. Exercise 1. Where from originally Britannica began publishing? And now from where? 2. Discuss different types of encyclopaedias with examples. 3. How the updatedness of encyclopaedia can be achieved, illustrate with example. 4. State the difference between subject and general encyclopaedias.

112 11.10. Bibliography 1. Chakrabarti, B. and Sengupta, B. : Fundamentals of Reference Service. Calcutta : World Press. 1985. 2. Eberhart, George M. Comp. : The Whole Library Handbook, Chicago, London : American Library Association, 2000. 3. Grogan Denis : Practical Reference Work. London, Library Association, 1991.

113 UNIT : 12 ?????

READY REFERENCE SOURCES Structure : 12.1. Introduction 12.2. Almanac and Yearbook 12.2.1. Purpose 12.2.2. General Almanac 12.2.3. General Yearbook 12.2.4. Subject Yearbook and Almanac 12.2.5. International Yearbook 12.2.6. National Yearbook 12.2.7. Science and Technology 12.3. Directory 12.3.1. Objectives 12.3.2. Scope 12.3.2.1.

Local directory 12.3.2.2. Trade directory 12.3.2.3. Govt. directory 12.3.2.4. Institutional directory 12.3.2.5. Professional directory 12.3.2.6. Investment service oriented directory 12.4.

Handbook and Manual 12.4.1. Objectives 12.4.2. Scope 12.4.2.1. General handbook and manual 12.4.2.2. Subject based manual and handbook 12.5.

Exercise 12.6. Bibliography 12.1. Introduction A librarian feels satisfaction if he can satisfy his clientele with his query. Some want ready-made answer without waiting for a minute for them also, reference materials are there. So they are popularly known as ready-reference sources.

114 William A. Katz described it likewise. All reference materials are in one way ready reference tools, yet there are some specific only i.e. almanac, yearbook, handbook, directory are grouped in this category. The definition creates problem for these tools. Manual may be termed as handbook, almanac might be a good encyclopaedia, directory may surpass biographical dictionary. So strict adherence to definition may not be useful, serving no purpose. 12.2. Almanac and Yearbook So far what we have learnt, almanacs and yearbooks fall in a different category. They, theoretically contain different information but in practice we find i.e. 'World almanac' and Britannica Book of the year' deal with same kind of information almost, yet there are marginal differences which we would see here. Almanac : Necessary data or statistics on state, persons, events and subjects are given in almanac. Thus almanac can be regarded small encyclopaedia also. There are subject almanac also. Subject coverage is given in a nutshell only. Yearbook : It is described as 'annual' sometimes. It records the summary of events of the year usually last year with statistical outlines. Almanac may contain previous year's facts and figures but yearbook can't from name itself we know it. Subject yearbooks are coming and encyclopaedias are supplements with yearbook, that already told. Compendiums : Substance of a huge book is the compendium. A confusion persists when yearbooks and almanacs are merged and called compendium. 12.2.1. Purpose They furnish current information. This is a very vital information aspect. Encyclopaedias are large in size and incorporation of new ideas in appropriate areas are not technically liable, hence yearbook is the reminder. To know brief information on any topic almanac is the reply. Both areas like mirror of the society for recording current trend. Interest fluctuates with the passage of time. 'World almanac' allotted 22 pages for railways in 1908, it reduced to 3 pages in 1977, the reason is very clear. 10 Pages were allotted for television in 1987. Great changes have taken place in the trend of Americans' lives during last one hundred years. It is an indicator of social life, which is purposeful to the historian. It is a multipurpose tool in other-way. Some examples:

115 12.2.2. General Almanacs 1. The World Almanac and Book of Facts. N. Y. : Newspaper Enterprise Association, 1868. 2. Whiteker's Almanac. London. : Whitaker, 1869. 3. Information Please Almanac. N. Y. 1: Golenpaul Associates, 947. 4. The CBS News Almanac. : Maple Wood, N. J. : Hamond Incorporated, 1970. Earlier upto 1200 B.C. almanacs had a character, then came astronomy, applied astrology, health sciences etc; now they are full of common information, changes in contents took place number of times. Benjamin Franklins 'Poor Richard's almanac appeared in 1732 just, of its kind in U.S.A. 1792 saw the old famous almanac', in its yellow flap used to corr horoscopes, tribal medicinal news, harvesting time, wit and Jokes etc. Popular among them is 175 years old American farm and home almanac. It had once 6 million subscribers. Among them Whiteker's almanac is more comprehensive and having universal outlook without any local bias. 12.2.3. General Yearbooks Publishers of encyclopaedias are the pioneers of yearbook. We cite here some of them: 1. Annual Register of World Events : a review of the year. 1758-London, Number of times it changed publishers and titles. Upto 1953 it was known as Annual Register a review of public events at home and abroad. Present volume includes articles based on review, on various topics of several countries. Separate chapters are included for religion, science, industry, etc. 2. Facts on File Yearbook : N. Y. 1940 – This one is clearly divided in four parts; world events, events of U.S.A., other states, general. Subjective analysis with transparency are the features but biased on U.S.A. Exhaustive index is added advantage. 12.2.4. Subject Yearbook and Almanac Encyclopaedias brings out yearbook in their own trade interest. For renewal of facts it appears. Other yearbook deals from different angle, few examples will clarify the points :

116 12.2.5. International Yearbooks 1. The Statesman's Yearbook : London, Macmillan, 1864 – Broadly covers events and statistics. Two sections follow : One is international, the other gives states information. State chapters are well documented with bibliographical support. Maps are attached to substantiate natural resources, figures. 2. The Europa Yearbook : London, 1959 – 2 vols. Quite obviously first volume discusses world in general and Europe in particular; rest of the world figures in vol. 2. There is no other such exhaustive yearbook in English for education, business or politics supplemented with statistics and facts. Names of news papers of the world are the special feature of this source book, though addresses are not provided. 3. International Yearbook and Statesmen's who's who : Surrey Kelly's Directories, 1953, Alphabetically arranged. After states, international and local statistics are valuable addition. As the name tells biographical information is a precious compilation. 4. Yearbook of the United Nations : N. Y. 1947; an irregular publication with U.N. monthly chronicle supplement, appearing from 1964. 12.2.6. National Yearbook This type is not published by all countries. But Britain, China, India publish such yearbooks. (1) Britain : An Official Handbook, H.M.S.O. (2) China Yearbook (3) Official Yearbook of Australia are worth mentioning (4) India-a reference annual published by Ministry of Information and Broadcasting since 1953. Chiefly all sides of national life particularly views of Union Govt. with international reflections are the subject coverage. Source books are difficult to be identified from their title; e.g. (1) U. S. Bureau of the Census : Statistical Abstract of the United States and (2) Statistical Abstract of the Indian Union, 1951-52. New Delhi, Central statistical organisation. Like U.S. Census this also narrates about India as a whole and again statewise with statistics. 12.2.7. Science and Technology 1. 'McGraw-Hill Yearbook of Science and Technology'. 1961-. The yearbook is a supplementary to the encyclopaedia then publish. 2. 'The Britannica yearbook of science and the future', 1969-Half of the

117 contents are last year's review and rest profiles the current matter with articles. These are few which speak of the coming year: 3. 'The Yearbook of Astronomy'. N. Y. Norton, 1962 – Meant for persons studying astronomy. Gives advance information of stars' position. 4. 'Brown's Nautical Almanac'. It forecasts of ebb and tide. 5. 'Aerospace Facts and Figures' and 'Aerospace Yearbook', both published by the Aerospace Industries Association of America. It deals with the narratives and statistical accounts of the preceding year. 6. Indian Ephemer is and Nautical Almanac, 1958 – Delhi, Manager of publication. Meteorological Dept. Govt. of India has been publishing since 1957. 12.3. Directory A glaring example of ready reference with maximum use of yesterday directory, we all know 'Telephone directory'. Any person's or organization's address and location is supplied by directory. ALA's definition is little more elaborative. They add two more points, it should be well-arranged and it should provide clear information about the job profile of persons or institute and organization. 12.3.1. Objectives One can easily deduce regarding the objectives of directory. Various types of answers can be available from directory. We can concentrate here on the answers that are available in the directory : (1) Address and telephone number of individual or organization (2) Full name of individual or institution (3) Description on particular commodity or service (4) Questions like 'who' for example : who is the principal of this college, who is the president etc; secondary information such as (a) recent information about a person; one example : is he still president? (b) historical information on particular organization or institution; example: when was it established? What are the number of members? (c) Commercial use for sending letters to members of an organization, example : a pharmaceutical company may ask for the list of local doctors. (d) to conduct social or commercial survey.

118 12.3.2. Scope It is very easy to use. Scope is clear in title information-type is very limited and arrangement is according to standard order. Regarding the kind of directory there are many ways, this can be divided in six groups:

12.3.2.1. Local directory This is a compilation restricted to a locality. It may comprise of addresses of schools or theatre halls. Newman published 'Calcutta City Guide and Directory'. 12.3.2.2. Trade directory This entails that of products and related information e.g. 'Mining International Yearbook and 'Fairplay World Shipping Yearbook'. Both are publications of Financial Times of London, 'International Shipping and Shipbuilding Directory', published by Benn Brothers of London. Chemical industry has directories to count. ECN chemical date services published 'Worldwide Chemical Directory'. It listed the names of 10,000 organisations, selection of 95 countries. 'Worldwide Synthetic Fuels and Alternate Energy Directory', 1984. 3rd ed. William R. Leek, ed. Pennwell Publishing, 1983. Indices with two items subject and under the name of company. 12.3.2.3. Govt. directory Dept of Posts or Defence may prepare such directories for their employees only. 12.3.2.4. Institutional directory List of schools, libraries, hospitals or such institutions e.g. : Encyclopaedias of Associations'. Detroit, Gale, 1956 – Biennial. 3 vols. First vol. focuses on 15,000 entries; second vol. deals two indices of geography and executive, 3rd vol. tells about 'New Associations and Projects'. 'Research Centres Directory', this can be called an adjunct to the previous one. In 1979 published the 6th ed. Since researches are done from institutions, researches have become institutional. 'European Research Centres: A Directory of Organisations in Science, Technology, Agriculture and Medicine', 5th ed. 1982 edited by Trevor Williams in 2 vols. Published by Longman. An aid to find the information as it focuses on active research.

119 'World of Learning' is an indispensable tool in the field of education and research. A work of Europa. 1998. 48th ed. A memorable contribution of UNESCO in the field of education is : 'Directory of educational research institutions in Asian region', 2nd edition, Bangkok, 1970. It has covered 170 institutions in the field of educational research. 'The Directory of Scientific Research Institution in India'. Delhi : INSDOC, 1969, an invaluable contribution with the names of 913 such institutions. Machine readable materials also entered like : 1. The Directory of Online Databases. Calif. Cuadra Associates, 1979, Quarterly. 2. Online Bibliographic Databases, 1979. London, Aslib. 1979. A comprehensive directory efficiently guides librarian to select the materials. 'Directory of Information Service'. Detroit, Gale. 3 times updated in a year. 12.3.2.5. Professional directory Coverage look for profession as a classifications. Law, Medical, Library Sc. etc. e.g.: Institute for scientific information of Philadelphia is publishing each year 'Who is publishing in science? A list of two and half lakh names of scientists and technologists; a class by itself. For lawyers there is 'Martindale-Hubbell Law Directory', N. J. 6 vols. Last vol. provides information (abridged) about digests of laws. Equally important two books for library profession (1) International Library Directory. London, A. P. Wells. (2) Directory of Special Libraries and Information Centres. 5th ed. Detroit, Gale, 1979. 3 vols. In national level productions are there like : The American Library Directory. N. Y. Bowker publishing from 1923-. Mainly cover America and Canada but India is not excluded. In India Directory of Special and Research Libraries in India published by IASLIC, Kolkata and statewise directories are available. 12.3.2.6. Investment service oriented directory Closely on the heels of commercial directory detail reports regarding the services offered by research institutes.

120 12.4. Handbook and Manual It is little difficult to find difference between the two. But a distinction can be noted. A manual tends to tell how to do something, whereas a handbook is normally a mass of facts built around a single subject. 12.4.1. Objectives Primary aim is to supply information as fast as possible. Acknowledged and established information get priority. But in science it loses its importance within few years. They in advance take it for granted, their readers are ready, so tendency is to use less words. Even if the subject is difficult, users then try to find from the difficult domain, so need is felt to make it simple for common people. 12.4.2. Scope Average manuals and handbooks are limited in their approach. The more specific is the subject the more is the depth. Market is flooded with new materials every ; so old materials are going to oblivion. Treating the arrangement of subjects simply add to its feature. Yearbooks and almanacs are for common people; in order to find specific and micromaterials one has to consult manual or handbook for ready reference. 12.4.2.1. General handbook and manual (1) Guinness Book of World Records. N. Y. Sterling, 1955. From tiniest poem to tallest person of the world are the amazing areas of information content. It can be described as almanac, again since it is published every year, it is known as yearbook also. But they know their specific aim that it centres around world records. So it is a kind of handbook. Index is reliable and detailed. (2) Famous first facts : Joseph Nathan. 4th ed. N. Y. Wilson, 1981. First edition in 1933. Includes more than 9000 firsts in American history. Facts are arranged by subject with copious cross references. Four Separate indexes permit readers for easy access. (3) Awards, Honours and Prizes. 14th ed. Detroit, Gale, 1998. 2 vols. 2000 items are arranged subjectwise. Names of winners are not mentioned.

121 12.4.2.2. Subject based manual and handbook Among diverse subjects, we shall consider only a few: Religion : Nielson, Niels C. Jr. and others. Religions of the World. N. Y. St. Martin, 1983. Eight main parts with 50 chapters. Political Science : Taylor, Charles Lewis and David A. Jodice. World Handbook of Political and Social Indicators. 3rd ed. New Haven, CT : Yale Univ. 1983. 2 vols. vol. 1 deals with cross-national attitudes, rates of change. vol 2 is dedicated to the recent history of political protest and government change. Economics : Sinclair, Stuart. Third World Economic Handbook. London, Euromoniton 1982. Each country is given uniform treatment. First, key facts are tabulated followed by narrative overview on the country's economy, current development plans and its constraints. The statistical appendix presents basic production, consumption and import data for each country. Education : Holmes, Brian, International Guide to Education Systems. Paris : Unesco, 1979. Offers profiles of national education systems based on largely the national reports presented at 36th session of the International conference on Education, Geneva, 1977. Science and Technology : Handbooks and manuals are seen at their best here. Some are given below: 1. Salvendy, Gavrid, ed. 'Handbook of Industrial Engineering'. New York : John Wiley, 1982. Contains 14 sections, 107 chapters and 113 writers of different countries. 2. Helms, Harry, ed. 'The McGraw-Hill Computer Handbook'. New York : McGraw-Hill, 1983. 30 Chapters form the content authored by specialists. Comprehensive index with glossary are the added attraction. 3. Liptak, Bela G. 'Environmental Engineering Handbook'. Radnor, Penn : Chilton Book Co. 3 vols. Vol. 1 : Water Pollution, Vol. 2 : Air Pollution, Vol. 3 : Land Pollution. Published serially between 1974-1975. Music : Dudman, Jane, ed. 'International Music Guide'. 1983. New York : Zoetrope, 1982. It is an indispensable companion to music and musicians in 24 countries around the world. Literature : Hall, Sharon K. ed. 'Twentieth-Century Literary Criticism'. Detroit : Gale, 1982-. 11 vols. A very much useful ready reference guide for students and teachers of literature. Excerpts from the works of literary writers between 1900-1960 are incorporated. Geography : Kurian, George Thomas. 'Geo-Data : The World Almanac

122 Gazetteer'. Detroit : Gale, 1983. Four sections, consist of, (a) The U.S. (b) World Countries (c) Gazetteer rank of variety of items, such as longest rivers or highest peaks. Conclusion : As the proportion of tables to text increases, the handbook as a form of literature merges into book of tables. The task of the librarian is to be familiar with the best of the available. He should keep abreast of new publications as well as features, Topics are changed in new editions. In the beginning it appears to be a difficult task to handle questions, but within a short span of time a librarian acquires the knowledge of distinctness about the kind of tool and its information. A manual may be a handbook, an almanac more of an encyclopaedia or a directory a superior biographical aid. Continued practice only assures mastery in the use of these tools of ready reference. 12.5. Exercise 1. Detail the difference between almanac and yearbook. 2. Give examples of three Indian yearbooks. 3. What is directory? Explain with examples. 4. Explain the significance of manual. 5. What is meant by ready-reference sources? 12.6. Bibliography 1. Gerald, J. and Braunagel, J. S. : The Librarian and Reference Queries. Academic Press, 1980. 2. Grogan, Denis : Practical Reference Work. London, Library Association, 1991.

123 UNIT : 13 ????? GEOGRAPHICAL INFORMATION SOURCES Structure : 13.1.

Introduction 13.2. Definition and nature 13.3. History 13.4. Maps and library 13.5. Evaluation 13.6. Index and bibliography 13.7. Map - Atlas of distinction 13.8. Gazetteer 13.9. Guidebook 13.10.

Exercise 13.11. Bibliography 13.1. Introduction This is an arena where large world is organised. Here mind and works turn out to be romantic. Dry information makes readers tired. Mind spreads golden wings to fly like a migratory birds. Eyes of imagination can see the capitals, creations of human beings, numbers of rivers and hills, deserts and seas, numberless animals and unknown trees. William Katz also said, here lies the difference between other sources and geographical sources. Imagination reigns here. Useful as they may be to the romantic, no less in the hard world of reality, because of its utility. Irrespective of any category, these geographical sources are invaluable source for library. Human beings are to move from one place to another for different reasons. Need then arises to know the locality, railways, airways or waterways and road access to the places. Hundreds of thousand of such questions can be answered through geographical reference tools. True, answers may be sought from encyclopaedia, annual or almanac, but small, less unknown areas are dealt only in geographical sources. 13.2. Definition and nature The books of geographical sources can be divided in three parts (1) Maps

124 and atlases (2) Gazetteers (3) Guidebooks. Maps are the universally known projections of the world with border line. When areas in full or partial are shown through colour or drawing or by imaginary illustration to detail the earth's surface it becomes map. It may be of celestial sphere also. Atlas is the bound volume of collected maps. The kingdom of maps is diverse. One may be political or the other one is physical. One will project borders of states, capitals and other important towns or ports, the other may depict the different parts of the earth from weather point of view. The various scientific measurements are drawn based on maps. Like other tools map also portrays subject division. Guide maps will invariably include, railways, airways, roadways, bridges, etc. Map drawing is not an easy task. They have to follow special accurate measurement techniques for proportional and balanced format to figure earth's surface a reliable and scientific look. A fine replica of earth is drawn through the perfect equation of tropic of cancer and capricorn, longitude and latitude, equinoctial lines, etc. It is very difficult to project round shape on a plain surface, perhaps this prompted to prepare globe. Although it is debatable about the utility of globe in library, yet it is desirable. Gazetteer is another information source. Librarian has to consult for replying geographical question. Gazetteer often called as geographical dictionary. Indices in gazetteer are more exhaustive than atlas. Standard gazetteer will list the names of villages, towns, rivers, hills and lakes and other features of geographical interest, also gives population, longitude and latitude, names of places with historical, economical or political importance. Travel or tourist guides are complementary to gazetteer. These are confined to particular places. It aims at providing information such as : food and lodging; sight seeing. Revision can make travel guide the best information source.

13.3. History There is history behind geographical sources. We know Atlas is a name of giant who holds the world on his shoulder. Indian legends also has similar stories. Gerhard Marketer first published 107 maps bound like a book. He lived between 1512 to 1594. After his expiry in 1595 it appeared as atlas. Oldest form of map is available on the memorial plates over the grave. It is inferred to be engraved 600 B.C. The example of China is more old 1125 B.C. Majority of the historians decided to call Marketer as the father of modern geography. Tolemy of Alexandria is more famous who influenced cartographers upto 15th century 125 and born during 87 B.C. Even before 1500 Tolemy's 'Tolethese Cosmographia' saw five editions. Seventeen maps were printed with the publication. Maps were not correct or specific before the advent of press. Hand made copies of the original suffered much distortion. This map occasionally invite disaster when used in sea-voyage. Press removed this difficulties, confusions cleared. Attempts were never less to revise maps. They were used in loose-leaf to facilitate the job, the practice is still in vogue for some publishers. Abraham Otelewis was another person from Netherlands famous cartographer besides Marketer. He lived between 1527-1598. During 17th century awareness of maps inscreased in Spain, France and England. They began to draw the maps of Europe, America even for oriental countries. So description recorded in Greek mythology became the reality. After industrial revolution people began to leave their own countries and the demand for maps also increased. It has extended to every field of human activity. Yet main states of the world are not developed in their making of maps. With the development of technology, drawing of maps also developed.

13.4. Maps and library Maps and atlases are mainly of two kinds. Either this would be political or physical or the mixed one. Another side of the map is subjective. In general library main atlases are purchased and preserved. Important unit map is kept in vertical files. In respect of subject map selection is to be made. Varieties of maps are available. In the bibliographies of Sheehy and Walford and geographical magazines detail account is available. Of course in large libraries this is an exclusive department for maps and atlases.

13.5. Evaluation The yardstick for maps and atlases is different the way books are evaluated is not applicable here. A separate knowledge and expertise is needed, otherwise evaluation will fail. Printing of maps is another kind of graphic art. Ordinary map can be drawn by a person of calligraphy, but for any complex maps calibre of high standard is needed. Expenditure involves in maps are more than that of encyclopaedias or dictionaries. Three companies of America have earned the reputation of publishing maps—viz. Rand McNally, C. S. Hammond and National Geographic Society. Two are famous in England viz. John G. Bartho lomew and O.U.P.

126 When one selects map or atlas the question of establishment is to be verified, equally important is updatedness. It is quite natural, libraries will go for current issue. In response to this Bartholomew of Edinburgh arranges to bring revised materials every two months in Biographical magazine' as a supplementary. Rand McNally does the same by publishing 'Commercial Atlas and Marketing Guide' every year. It is necessary to procure the maps published by Government agencies. Many encyclopaedias, almanac and yearbooks supply current geographical information. A librarian certainly will select the atlas which will reflect well- balanced maps of all kinds. A good atlas will furnish contents, meaning of the geographical terms, full list of names used, detail index and appropriate preface. Every standard atlas will follow arrangement accepted by all. In the beginning it will project general maps that will be of showing whole world, followed by subject study e.g. population, rainfall, sea-current etc. Next the maps of the country of origin of the publication and other countries of the world. Maps will be perfect, easy reading and aesthetically superb. Eight steps are there to evaluate the quality of map (1) Scale, (2) Colour (3) Sign, (4) Projection, (5) Graph, (6) Typeface, (7) Binding, (8) Marginal information. 1. Scale : This is used to bring consistency for actual size of the earth and projected map. It varies according to the size of the maps. The lesser the size of scale the task of making the map perfect will be harder. It will then depend upon the size of the pages and leaves. Outside segment will not reveal anything, so librarian is to verify the scale and its actual application. Two practices are prevalent to verify, one is Bar scale. To determine the distance Bar is extended or shortened and that will be perfectly flawless. Another is natural scale. In 1913 cartographers have accepted it in principle. The base of the calculation is one of the actual one million of the earth surface. In mathematical expression it comes as 1 : 1,00,000 or 1 : 1 m. It is then converted into inches or meter and determines the distance. Usually 1 inch in map actually means 16 miles. With ordinary scale measurement may be achieved. Europe uses the method of 1 : 50,000, America – 1 : 62,500, England is in a better position, its map projection scale reads as : 1 : 2500. Variety may be there also. The benefit of this measurement is; where expanded way of information is shown larger scale can be used, disadvantage is also there – size of the country is to be stated again and again, otherwise 'China' and 'Chili' will appear to be of same size. In American atlas this consistency has suffered again and again when they want to show America and Canada in more prominence, it affects the other countries. Same is repeated in European atlas, if the uniform scale was used this discrepancies could easily be avoided. 'The Times Atlas' is correct in their projection, however. 2. Colour : Colour speaks many things in map. Where colour is poor quality

127 also deteriorates. Colour variety will signify the portion, high forest location, mountain and seas can be identified perfectly. Previous year noticed the use of five colours including obviously black yellow used to signify sea, green goes for forest, and for human settlement. One disadvantage of this colour arrangement was only the deep coloured areas were prominent. But otherwise were not insignificant. Later light colour was used and uniformity of the places was shown. In addition, success of colour depends on printing quality. 3. Sign : Universally acknowledged signs are used in maps to indicate roads, rivers, hills and villages, cities, airport or historical places, some common signs are used. American maps lack uniformity but European has variety of signs which are noticed in subject mapping. Differences are found in maps and from country to country, particularly when map tries to project many subjects, complexities increase like hills. So it is better to accept the principle of 'one-map one subject'. Rainfall and habitat should be placed in separate map. 4. Projection : Some common principles are followed for projection. If a portion of earth for example, a continent is projected from the universe, it should be crystal clear without ambiguity. 5. Net (Graph) : All maps are drawn based on longitude and latitude. Location of any place is easy with their assistance. Net that is formed from longitude and latitude are divided by degree, minute and second. For example a town of France would be told as 45 0 12' 18" north 1 0 15' lat. Readers of course forget this long number before reading map often consultations index. That led to indicate the squares by E5, D6 etc. with page number in index. Librarian prefers smaller squares since bigger size will create more problems for location. 6. Type : Design and shape of the type should be changed according to the need and time. Types used for book production, can also be used for good maps. Colour and lines sometimes make the letters illegible. 7. Binding : Atlas is for continuous use. So quality should be of that nature only, which can be used at ease. 8. Marginal information : Every map leaves some areas in all four sides. They provide necessary information so it is called marginal information. This is one of the criterion for evaluating a map. 13.6. Index and bibliography Besides name of places other information is also recorded in index, place name, page number, longitude, latitude, projection and geographical reference

128 of the country, cross-reference, pronunciation source. Librarian verifies all these to evaluate. But one should have a knowledge of maps in print. So librarian is to browse bibliography of atlas. Reliable bibliography is there. Winch, Kenneth, Winch, Kenneth L. *International maps and atlases in print.* 2nd ed. N.Y.R.R. Bowker. 1976. For a general library Subject guide to books in print is enough, but for a special library Winch guide is the source. Eight thousand entries are there, 700 publisher's publications are recorded. Arranged by country all are related to atlas and maps. The world is the topic for maps, librarian may be perplexed, let the Booklist Choice, Wilson Library Bulletin help librarian to select the right ones for his library.

13.7. Map - Atlas of distinction 1. 'The times Atlas of World History' : London : Geoffrey Barraclough. 1994. There are seven sections in this atlas : (1) The world of early man, (2) The first civilisation. (3) The classical civilisation of Eurasia, (4) The world of divided regions, (5) The world of emerging West, (6) The age of European dominance, (7) The age of global civilization. Besides other illustrated materials; terminology and index have given it unique position. 2. 'The New York Times Atlas of the World' : 1980. It contains 200 coloured maps. Text comprises with one chapter on 'Man, the world and the universe'. Profuse materials on earthquake and volcano provided. 3. Hammond International World Atlas. 1981. Relatively cheap in price. Target viewers are secondary students. Political map for each continent, botanical maps, then followed by human settlement, rainfall, weather etc. 4. World Atlas of Agriculture, Novara, Italy. Instituto Geographico Agostini, 1969 5. 'The Great Geographical Atlas'. Chicago : Rand McNally, 1982, Aesthetically pleasing atlas contains readable maps and good index. 6. 'Oxford Regional Economic Atlases', based on the 'Oxford Economic Atlas of the world'. Separate volumes on most of the principal countries of the world have been included.

129 13.8. Gazetteer Two are the outstanding among the gazetteers. Next to them are national level gazetteer. 1. Merriam-Webster's Geographical Dictionary. 3rd ed. 1997. Now as Webster's New Geographical Dictionary. 50,000 entries are arranged alphabetically. Position of locality, population, geographical speciality of hot area are served. Most of the entries are brief. Biased on America is the feature of the book. Dictionary by name but it is a wonderful tool as gazetteer. Pronunciation style is added feature. 2. Columbia Lippincot Gazetteer of the World. 1962. N. Y. Columbia University and American Geographical Society. Total entries 130,000. Main towns are given elaborate treatment, distance and road guides have made it indispensable to travellers. Historical information appended liberally. 3. Gazetteer of the British Isles. Reprint. Edinburgh : Bartholomew, 1970. Covering 90,000 entries. 4. Gazetteer of India : Indian Union : Delhi, Publications Div. 1965-1978. 4 vols. 13.9. Guidebook Edgar, Neal L and Wendy Yu Ma. 'Travel in Asia A Guide to Information Sources.' Detroit : Gale, 1983. This annotated bibliography contains nearly 1200 entries covering 24 Asian countries. Cheap guidebooks with specific objectives, e.g. 'All-Asia : Guide'. 12th ed. Hongkong : Far Eastern Economic Review. 1982. 26 countries along with the countries where travel permit is restricted are covered with all necessary information. Business Traveller's Handbook is available in 5 vols. 'A Guide to Europe' 'A Guide to Latin America', A Guide to Middle East, 'Guide to Asia, Australia and the Pacific, and 'Guide to the United States and Canada. 'Let's Go Guide' : It deals with Europe, France, Greece and Italy. Published by St. Martins Press, 1983. Eugene Fodor's Travel guides with 78 titles. 77 are published annually. For India two may be mentioned here: 1. Fodor's India, 1984. London : Hodder and Stoughton. 2. Tourist Guide – India. New Delhi : Department of Tourism, Government of India.

130 Meeting the needs of tourists is only function of the library. People from different corners, age and profession visit the library for guidance and information. The more the librarian is familiar with various kinds of information, he would be able to satisfy the readers, more efficiently. 13.10. Exercise 1. State the divisions of geographical sources. 2. Explain the word 'scale' for evaluating maps. 3. What is the name of the bibliography of atlases in print? 4. Cite example of gazetteer and guidebook in national level. 13.11. Bibliography 1. Katz, Bill : *Cuniform to Computer : A history of reference sources.* New York, Scarecrow, 1998. 2. *Reference and Information Services : An introduction.* Ed. by Bopp, Richard E. and Smith, Linda C. Libraries Unlimited, 1991. 3. *The Whole Library Handbook.* Chicago, American Library Association, 2000.

131 UNIT : 14 ?????

BIOGRAPHICAL INFORMATION SOURCES Structure : 14.1. Introduction 14.2. Kinds of biographical reference sources 14.3. Famous examples 14.3.1. International biographical sources 14.3.1.1. Current universal dictionaries 14.3.2. National biographical sources 14.3.3. Special biographical encyclopaedia 14.3.4. Biographical index 14.3.5. Sources of biographical reference 14.3.5.1. Genealogical table 14.3.5.2. Portraits 14.3.5.3. Festschrifts 14.3.5.4. Diaries, Private Papers, etc. 14.4. Evaluation 14.5. Conclusion 14.6.

Exercise 14.7. Bibliography 14.1. Introduction Individual's personal account of life is biography. Harold Nicholson Ricolson in his book 'Biography as an art' told, biography is definitely a historically backed perfect chronicle of one person's life. This has to be profiled in truthful transmission. Style of presentation is also a point to be noted. Prescription of high standard of this magnitude most of the biographies can't touch. The attraction of Geography is twofold: it appeals to curiosity about personality and it satisfies our interest in factual knowledge. The word biography did not find place in English Language until 1863, when Dryden described Plutarch's Parallel lives as the History of particular men's lives. The outstanding example of individual biography in English or in any language is Boswell's 'Life

132 of Samuel Johnson' written in the 18th century. Since then biography has integrated into literature and occupies a prominent place in library. There are numerous sources of biographical information. Encyclopaedias do contain many life stories of individual, even the study of scientists life has become obligatory for scientific research. Because, discovered theory can't be isolated from life. So, with the growth of demand for biographical information, reference sources for such information appeared in the scene like, biographical dictionary and biographical index.

14.2. Kinds of biographical reference sources They can be divided in many ways. First bibliography on biographical works, index of biographical reference materials comes as a second kind, third ranks as dictionary of biography. Again, these can be subdivided under country and subject; some prefer to part them as dead and living. For the personal work, who had expired, there is no problem with dictionaries, when they are included. Some reference works like 'Webster's Biographical Dictionary' deal both dead and alive together. Considering the nature of practical service some like to break it as : (1) Index – by which librarian can get easy access (2) Who is who – current biography is a directory type information (3) Where biography is written like articles.

14.3. Famous examples

14.3.1. Universal Biography (International biographical sources)

1. Chamber's Biographical Dictionary : rev. ed. J. O. Thorne and T. C. Collocott, ed. N. Y., Two Continents, 1978. Gives critical evaluation of 'the great of all nations and all times, and a large number of persons not of that standing but non the less apt to occur in general'. Contains 15,000 entries, based upon articles in Chamber Encyclopaedia. Emphasizes British and European names with some contemporary personalities. 2.
- Webster's Biographical Dictionary : a dictionary of names and noteworthy persons, with pronunciation and concise biographies. Springfield, Mass : G & C Merriam, 1976. First Published in 1943. Comprehensive, 40,000 entries. Emphasis on British and American biographies. 80 percent entries are deceased. At the end lists of world leaders and monarchs.
- 133 14.3.1.1. Current Universal Dictionaries (1) International Yearbook and Statesmen's who's who 1953–London : Kelly's Directories, 1953–Annual. Regarded as current reference tool. At the third vol. 6500 biographical sketches are there. Many names are not found in International who's who. (2) International Who's who, 1935 – London, Europa. Annual. 16,000 entries are included, world-wide coverage of heads of state government and military officials, prominent personalities from the law, science, business arts and other professions. (3) Current Biography : 1940 – N.Y.: H.W. Wilson. Monthly. (4) Nobel Prize winners N.Y., H. W. Wilson. 1987. Complementary issue 1987-91, 1992-96, Subjectwise list of annual publication. 350 persons usually covered. Every articles appended with bibliography.
- 14.3.2. National biographical sources
- Australia : Who's who in Australia. 1906 –. Melbourne : Herald and Weekly Times, 1906 – Triennial.
- Africa : Who's who in Africa. John Dicki and Alan Rake ed. London, African Buyer and Trader. 1973. Presents prominent personalities from 47 African countries.
- America : Dictionary of American Biography (DAB). N. Y. Charles Scribner's son. 1974. 11 vols. Supplements upto 1978. 16000 figures, who made major contribution to American life. A scholarly work, providing signed articles and bibliography.
- France : Who's who in France : Dictionnaire Biographique. Paris, Lafitte, 1953. Biennial, 20000, sketches.
- Britain : Dictionary of National Biography (DNB). London : Smith, Elder 1885-1901. 63 vols. 1908-09. 22 vols. 2nd-7th Supplements. 1901–1960. O.U.P. 1912-1990. Missing persons – 1993. Winchell calls this 'the most important reference work for English biography' : It is regarded as definitive biographical work by scholars everywhere. First editor Leslie Stephen followed by Sydney Lee. Notable Celebrities from Great Britain, America, and the Colonies are covered.
- Indian : Dictionary of national biography. S. P. Sen, ed. Kolkata, Int. of Historical Studies. 1972-79. 4 vols. Indian Leaders who made notable contributions
- 134 towards the growth of national consciousness; 1400 entries with their activities are the subject matter. Includes the life of foreigners who considered India as their homes. Dasgupta, Jyotis Chandra. A National Biography of India. Dhaka. 1911. 10 vols.
- 14.3.3. Special biographical encyclopaedia Some biographical dictionaries are covering the personalities of the past, they are called retrospective; e.g. (a) Dictionary of Scientific Biography : Edited by Charles Gilliope N. Y. Scribner 1970-80. 16 vols. Chronicles of deceased persons, useful for Chinese, Indian and Japanese Scientists. Vol. 16 contains the index. (b) The Oxford Companion to Theatre. Edited by Phyllis Hartnoll. 3rd ed. London : O.U.P., 1967. Biographies of playwrights, actors and directors are included. (c) Who's who of Indian Martyrs. Biographical data of patriots who gave their lives in India's struggle for freedom between 1857 and 1947. New Delhi : Government of India, Publications Division. 3 vols. Biographical dictionary of Indian patriots who fought with the British Imperialism for about 100 years. Current : (a) Who's who in science in Europe. 1967-1978. 4 vols. Irregular. List of 50,000 names from 20 countries. Based on questionnaire pattern. (b) American men and women of science. 20th ed. N. Y. R. R. Bowker. 1998. 8 vols. Entry 130000. First ed. 1906. (c) Who's who in Art. 1927 – 18th ed. Havant : Art Trade Press, 1977. Irregular. Coverage – Living artists in Britain. Each entry comprises : Qualification, type of work, art college attended, exhibition, publication, signature, address. (d) Contemporary Authors. 1962. 151 Vols. Detroit, Gale, 1996 : Living persons and their works, comments, source materials on them. Available in CD-ROM.
- 14.3.4. Biographical index In addition to biographical dictionaries, many biographies are diffused in

135 books and periodicals. To get information about them indexes to biographies are required. There are many such indexes containing information about memorable persons of the past and present. Few of them are cited here : (a) 'Biography Index'. New York, H. W. Wilson, 1947-. Quarterly. This index has been prepared consulting about 1500 periodicals and books. It has given dates of birth and death, profession and nationality, if other than American. (b) 'New York Times obituaries index, 1858-1968'. New York : Times, 1970. More than 350,000 names are listed. Updated by the New York Times Biographical Service. (c) A very useful collective index is : 'Biographical Dictionaries Master Index'. Detroit, Mich : Gale, 1975. 3 vols. Biennial editions and supplement. This is a guide to about 750,000 biographical sketches in over 50 current who's who and other works of collective biography. (d) Marquis Who's who Publications Index to All Books' 1977. Chicago, Ill. : Marquis, 1978 -. Annual. Annual Index to Biographical Sketches. Includes 280,000 sketches indexed.

14.3.5. Sources of Biographical Information

14.3.5.1. Genealogical table The history of ancestors, or family history is a part of biography. For example : Royal Family of Britain or aristocratic family's records are kept in Burke's Genealogical and Heraldic history of the peerage, baronetage and knighthood 1826-105 th ed. London. : Burke's Peerage, 1970. Irregular. Letters or correspondence : Letters or correspondence throws some light on person's work. e.g. The Correspondence of Isaac Newton. CUP, 1958-. 14.3.5.2. Portraits There is no substitute for portraits. Biographical sources that already mentioned earlier contain portraits with text. Example : Images of Einstein : a catalogue. American Inst. of Physics, 1979. Miniature reproduction of over six hundred photographs from varied sources. In addition to this another kind of index which helps librarian to know the details of portraits viz. A.L.A. Portrait Index. Washington, Library of Congress, 1906, Reprint : New York, Bart Franklin, 1964. Biographical dictionary always don't maintain neutrality, it may extend unwise patronage to businessmen and a scientists of repute may be relegated to 136 an ordinary treatment. Some less important person may exaggerate himself during interview. Book review can be saviour this time for judging the quality of dictionary and inconsistency. Reliability : Questions are raised regarding the authenticity of biographical references. Editors, Secretary, experts or person himself usually write these biographies. In most of the cases unprejudiced views are not found. Males or females both have weakness on age. They feind to record less age. Theodore Baker informed that Beethoven Sheehy wanted to establish his year of birth as 1772 but actually his year of birth was 1770, sometimes moneyed persons get placed in dictionary without any achievement or excellence. Hence librarian has to depend on the reputation of publisher or books like Sheehy or Walford's bibliography. Yet, one point to be noted like; photographs, proper index, cross-reference reasonable arrangement pattern.

14.3.5.3. Festschrifts In order to honour or remember a person's contribution, a book may be printed. Publications of this nature also contain biographical references, which would be a helpful additions to biographical resources. Example : Essays on the nervous system : a festschrift for Professor J. Z. Young. O.U.P., 1974.

14.3.5.4. Diaries, Private Papers, etc. These materials and laboratory papers also act as a reliable source for biographical information. These are preserved in archives. For the benefit of researchers a list of such materials have been prepared. One example : The Royal Commission on Historical Manuscript record repositories in Great Britain. 6th ed. London. H. M. S. O. List of 180 archives has been included.

14.4. Evaluation How a librarian can assess the quality and weakness of biographical reference tool? Selection method : Compiler selects the person's life to be included in a biographical dictionary. In this process some names may be omitted, but most of the prominent personalities are usually entered. When the sphere is small, selection process is easily. When the question is international problem cropped up there. 'Who's who in America' follows a principle, when designations have

137 been given the importance. Governors, Admirals, Nobel Prize winners or other dignitaries are the main criteria. Other considerations are not valid. International who's who includes Royal names as compulsion. In some places living persons are ignored but dead persons are getting priority. 'Dictionary of American Biography' follows the same logic. For subject biographical sources, personalities of the discipline only will be entered. Librarian while going for the selection, these points are to be taken care of. Length of entries : Uniform treatment although impossible yet very carefully it is to be seen, its distinction is made among them equally. As already told 'who's who' makes all entries brief and uniform, but dictionary entries are not. If the person was a dead, the task is easy, but if persons who are alive, the pages to be allotted for them and for that purpose distinguishing points make the job harder for editor. It is not expected that Shakespeare and one ordinary playwright will share same number of pages, again, a person's importance changes with time, naturally it will be reflected from edition to edition. 14.5. Conclusion Similarly autobiographies may be regarded as a major tool for reference sources. Human characteristics are that, they want to know other human. Curiosity for prominent men and women whether dead or alive are same. Thousands of men with achievement and number of titles with their entries or their works baffled librarian to search for information. Over and above any document may be outdated with time. Men and women are the object of curiosity. Even the imagined characters of fictions are also point of attraction. Queries are also around them. For them there are other kinds of information source or the original fictions may for the time-being be used as a reference tool. 14.6. Exercise 1. What is the role of librarian regarding the reliability of biographical reference sources? 2. Where to search the biography of Nobel Prize winners? 3. What kind of information could be available from 'Biography index'? 4. Where the information of famous family of India could be seen? 5. What kind of information can be available from index on biography?

138 14.7. Bibliography 1. Bopp, R. E. and Smith, L. C. : Reference and Information Services : An introduction. Libraries Unlimited, 1995. 2. Grogan, Denis : Practical Reference Work. London, Library Association, 1991. 3. Katz, William A.: Introduction to Reference Work. Vol. 1. Basic Information Sources. 6th ed. New York, McGraw-Hill, 1992. 4. Krishan Kumar : Reference Service. 5th ad. New Delhi: Vikas, 1996.

139 UNIT : 15 ??????INFORMATION SEARCH–ZEAL AND VARIETY Structure : 15.1.

Introduction 15.2. Public Library 15.3. Academic Library 15.4. Special Library 15.4.1. Information service 15.4.2.

Bibliography-based service 15.4.3. Online search service 15.4.4. Document supply service 15.4.5. Indexing source 15.4.6.

Abstracting service 15.4.7. Publication and Notifications service 15.4.8. Translation service 15.4.9. Newspaper Clipping service 15.5.

Conclusion 15.6. Exercise 15.7. Bibliography 15.1. Introduction A time was there, when Information searching zeal was unknown to library. At that time library was a centre of collected document. Documents were used to be supplied to the persons who required it. They were to be satisfied by consulting these materials sitting at the library only. Present service mentality was covered under veil. No institution can be static for long like a dead body. Every institute moves ahead and welcomes change. Slowly, advancing library service greeted the zeal of awareness towards information search.

Personalised service to assist the user reached the floor of library. Library is not one kind we know. Some libraries are for public, libraries for special class of readers, libraries for students or teachers. Thus we get public library, academic library and special library. Based on the kinds of libraries information service also became of varied nature.

140 15.2. Public Library Gates told, information and news, ideals and their explanation and personalised service are the pillars of information search and service. Information is available for immediate query. Users sometimes get their required information directory or through telephone. From general studies to research reliable role is played by public library. Public library is a social institution—this awareness from invisible library power has always inspired the alertness for information search service. Today's world has made human beings indefatigable to generate the internal potentiality, while social pressure they have to undertake. They have no alternative but to seek information to cherish this quality and public library is the right place, wherefrom he can avail of any information of his choice. From earlier days library was engaged in this job in a different way. Endless importance had been attached to library on information service. Today, one idea is always active behind this job that reference section renders. Necessary information will be available here always. Students and researchers can come here without hesitation. Information of all ages and time and for all classes of users will be kept here for use. It is expected that reference section will be a precious collection centre for all walks of life. What kind of service will be offered by a library depends upon the clientele and locale, and size. In a small library this activity will be limited, yet common items of reference work like encyclopaedia, dictionary, one or two directories are to be kept. In a large size library there are subsections for various needs, with number of employees engaged in the service for users. They maintain special collections for their readers. Many are in need of current information. Particularly it was found persons from trade and commerce are using current information more. Commercial, economics, law and subject like international trade are always to offer current materials. It is ever changing world of information, so utmost care is the key for a good reference service. 15.3. Academic Libraries In a college library graduate level students are visiting. They are not clear of their needs. Personal relation of teachers with large number of students are difficult. In the beginning they are not familiar with the system, at this point of time library is a bridge to break the barrier of uneasiness. Librarian helps them

141 to learn the use of library resources. Gradually they know the collection and how to use them best. In this job teachers can play a very crucial role. They guide the students for study materials. Both teacher and librarian can put their mental input to make it a meaningful business. Knowledge about books are the priced possession of librarians, sometimes they need to participate in the inter- college loan of books system, since the demand of teachers can't be met from the collection of the college library alone. A college library, then just is not a textbook library, futures intellectuals would be the product of their institution, hence information service is to be directed to achieve the same. In a university apart from regular study activities of research are a daily routine. So a university library is both an academic and research. Its service and collection have to reach such a pass wherefrom learning of high standard and quality research of international level can be performed with distinction. Evans once told university is the nerve-centre of knowledge industry, and to make the information-produced available is the job of such library. University library's users are manifold. From students to high scientific researchers are coming for latest information which would be of various types, accordingly reference librarian's duty would be to organise the section in the way that befits the job. Students who are new to the subject, intricacies and the details paraphernalia of use of huge materials are to be brought before them, later they themselves would be able to utilise and know to search for more knowledge in the subject. The need for teachers or administrative staff are different. They require slides, photocopies of periodicals articles, translation of portions of text, these all are to be reviewed for them and reference librarian is the active partner. Librarian should be impartial in approaching subjects. Science and Technology, or Arts and Humanities should not get preferential treatment. Staff should be agile and efficient to render service to all alike. A library can become instrumental in improving the status of an institutions. Right information to right readers at right time can spread the light of illumination of knowledge. By proper utilisation of source for researcher to save time can lead to a greater goal, a qualified reference librarian should be always alert to match the requirement of any standard. Compared to the big size library, school library and children library are very much neglected in India barring a few. In developed country of course picture is different. All attempts are made to see that they become responsible citizens of tomorrow and accordingly library's role is acknowledged in the society. Childhood curiosity is encouraged to increase and library is the area, they take

142 the answer. Attractive standard information and reference materials are available for them in those countries. Compton's Pictured Encyclopaedia', Book of Knowledge, Oxford Junior Encyclopaedia—few of the various materials produced for them. If a school library keeps photographic globe, illustrated encyclopaedias and, archaic objects, they can emerge, as information sources to satisfy the young mind and convinced about the usefulness of the library from the very childhood. In addition a children's library possesses Radio, T.V., records, local directories, geographical tools. Newspapers to make them attractive towards library and they can form the information source materials. Information service provided in a children's library has to have the ability to read the mind of them to inculcate the spirit of imagination. 15.4. Special Library Special library's area of operation is so large, it is difficult to limit the activities of them. Diversification of service is the guide to determine the nature of the quality too. The very design of collection describes their area of function with speciality. Medical library, Law library, Museum library etc. bear the stamp of their activities through their names. Wilfred Ashworth said, the library which is run from the fund of any institution and established to provide special information, they can only be called special library. Parent body may be government or private or both. On the other hand it may be commercial house, research institution even hospital. There are other points which draw the line to differentiate special library from academic or public library. Special library in size is small, less number of staff, space is also less and obviously resources are also the same. Users are also having a particular characteristics. Parent body denotes the kind of users. Service is also confined to them only, obtaining special permission outsiders can use this library. A section of the library is administered for the growth and development and existence of the institution and procurement policy is based on that. Profit is the prime factor for commercial establishment, the time of the user is very costly to implement search. Few feel there is no existence of information service in this library. Readers education here on the contrary is a must. Librarian's co-operation for abstracting and using micro subject or periodicals is a compulsory. The line of demarcation between special library and information centre is not clear. Mechanical use for dissemination of information has made it more opaque. A knowledge of the job done by special library towards information service, the variety of special library will be known. The Information service of the special library can be divided in some parts, e.g. Information service,

143 bibliographical service, on-line search service, documentation service, translation service, clipping service, preservation. 15.4.1. Information service The questions frequently asked for information in special library are never identical. In order to find an answer, how much depth search is required, question of time and labour all combined together makes the speciality true. For finding answer of a question if the name of the document or title or author is known task becomes easy and with the help of ready-reference it can be available within short time. But without thorough and extensive search finding the answer is impossible. Libraries of industrial house frequently asked very specific question regarding technology and most recent information also are asked. The pattern of reply will remain same. Some answers are required very urgently, if those are supplied in time, librarian succeeds. 15.4.2. Bibliography-based information service Some research institutes publish also. Librarian has to do the primary enquiry. Afterwards also he has some active role. Regarding format librarian's guidance everybody expect. Special libraries themselves prepare guidebook, bibliography, book-service, subject guide. 15.4.3. On-line search service Invention of on-line service is a dramatic devise. Since the introduction of the system in 1971, application in library became faster. Recently the degree has increased in western academic and public libraries. In the field of cataloguing and information searching its application has been extended surprisingly. 15.4.4. Document supply service Quick identification and selection of information is the prime job of reference librarian and information scientist. This is first step. Next step after search is retrieval and supply. If the information is in the library stack better if not it is to be collected from other source to make it available to the readers without loss of time. 15.4.5. Indexing source Special libraries hold diverse materials. Queries are also likewise,

144 coordination of grace is an expected phenomena. Librarian is to be ever ready with the motive to supply the information. Then the use of various indices facilitate the job. Conventional indices can not meet the need of special library; self-dependence is the ultimate answer. Local index preparation and datafile emerged due to sources. Collection is unique of a special library and this yield in search-materials to procure such items, which are specially needed in special library. Vertical files, reprints, preprints, photo albums, in house reports, correspondence, newspaper clippings. Laboratory notebook, reports of scientific examination, trade catalogue, index of local papers rules of the lands, index of documents without readymade index etc. 15.4.6. Abstracting service Now-a-days abstracting service is an inseparable service for special library. For answering special questions and organisation of information on recent topics these are appeared to be most useful. Abstracts are available, but they need to be corrected to give information service more fast and accurate. 15.4.7. Publication and Notifications service Catalogue can't always reflect the whole sources of the library. Particular subjects are to be specially projected. Bulletin and notices can be useful in that case. To inform the new addition in library and for current awareness service printed aids like guides, book reviews, annual reports form good ingredient to users. 15.4.8. Translation service Books in foreign languages occupy the racks of special library, but the languages are mostly unknown to users. It insists the need for translation. But readers don't know where the translation service will be available. Library can present itself as a service provider by way of intimating (1) Where translation has already been published (2) Who are associated with the translation service (3) Who's help in this regard could be available. 15.4.9. Newspaper Clipping service Newspaper brings not only news, many other features are also published. Few current information seekers take help of these pieces. Clipping service provides these type of information to update the current information service.

145 15.5. Conclusion Consciousness for information search service is not made in a day's effort. Galvin once said, perhaps the contribution of special library for the awareness in information service is second to none. Special libraries and information centres are providing service in this section for long. Whenever personal need was in question they reached the special library and received the uninterrupted help. Although different special library performed in a different way, but the quality of service was here per or halted. In time write the parent body it served appreciably always. Information retrieval and service is a very costly affair, so the library which can provide it help and quick emerged victorious. 15.6. Exercise 1. What kind of reference material should be kept in public library? 2. Discuss the requirement of readers in University library. 3. Discuss in detail the information producing material of school library. 4. What is the aim of special library in information service? 5. Discuss the online of information service in a special library. 15.7. Bibliography 1. Davinson, Donald : Reference Service. London. Clive Bingley, 1980. 2. Galvin, Thomas J. : Reference Services and Libraries. (In A, Kent et al., eds. Encyclopaedia of Library and Information Science. Vol. 25, 1978, pp. 210- 214.)

146 UNIT : 16 ????? INFORMATION SERVICE Structure : 16.1.

Introduction 16.2. Origin of Information processing 16.2.1. Research and development 16.2.2. Survey and census 16.2.3. Government Activities 16.2.4. Other activities 16.3. Who needs information? 16.4. What information? 16.5.

Conclusion 16.6. Exercise 16.7. Bibliography 16.1. Introduction In a conflict-ridden world four items namely (1) energy, (2) natural wealth (3) amiability, (4) information are the moving force behind the advancement of civilization. This was the comment of an expert. Everyone is worried about the contributions made by them. In this matter role of the fourth one is little different than that of other three. First three are decaying. World is facing energy crisis and attempts are being made to use alternative energy sources like : solar power, wind energy, wave energy, etc. Civilization has eaten natural wealth, no alternative in sight to fill that gap. Thus humanity is concerned how the world would move with depleting resources. Everyone observes the presence of violence, that overcast the sky or the imminent days facing the civilization. Crises are multiplied by mistrust of love and affection. The load of information is a problem to reckon with, but this from different direction. The important element form civilization point of view is growing day by day, and reached to a press as already told it can only be called as information explosion. To search and disseminate from this huge quantity is not easy task. The problem created due to ceaseless increase of information-various aspects of that problem and different steps taken to solve the problem is the subject matter of Information Science. At the same time it also reveals the responsibility incurred by the librarian employed in this segment. Particularly National Commission on Library and

147 Information Service in America categorically stated the duties and responsibilities of the librarians that every citizen of America can reach to the world of information irrespective of residence, social and health condition, according to their need depending on education, profession, culture or entertainment. The need for information and news is not new, from the very beginning of civilization every age felt the need for news. Search for information is traditional in human life. Human being has to adjust with the environment, where society is there, the need for good health, requirement for money and also men follow certain principles and religion—all added together generate lots of problems of different nature, so comes lakhs of questions and replies based on information and news vital decisions are taken out of this information. The need for information was always there, we know but it quantified during 1980s. Society is changing very fast and to keep pace with that damaging the relations between men and society. World has witnessed a massive change during last 25 years. Now, we know it is global society one talked about. In the speed age a net of travel has been spread. Television satellite is covering the world. News from remote area are reaching to the most sophisticated world within seconds. Disaster of a region makes busy the other parts of the globe. Everybody is fully insecured, a fear- psychosis pervades the mind of all. Last fifty-years research brought comfort in human life, at the same time indication of ruin also persists. Production of agriculture has increased to leaps and bounds. Agriculture can feed the world's increasing population with determination. Unfortunately the same science can convert the world into a desert within a fraction of second. New power is discovered but power to control the power is not in sight till date. Medical science increased life expectancy but to make life more meaningful for aged persons has not been sought yet. Few points only, that warranty changes in society are vital here. Margaret Mead said, earlier generation could not experience such changes. Alvin Toffler said, where change is uncontrollable and orderless; threatening the very existence of society, can't help reach resolution, it can only be called as enemy of the humanity. Families are fragmented after the World War II. Relatives and friends who were taken bears for solutions, are far away. Social customs, functions had major role to play but this has lost that past glory. Now they are too formal to acquire very cautiously. Everyone is living separately as if in a sea-of-life. Now our so-called dear ones do not come forward to share the problems, humans are at their wits' end in this situation. Change and information both have seen the effect of explosion. A sum total of information and news, what were collected in the human history, the

148 information in last two decades had multiplied in great numbers. It has seen this growth is a continuous process. The task, therefore is to channelise the information efficiently with the help of (ICT) Information Communication Technology. This now has increased the efficiency in dispensing the service proportionately. Everyone has realised the bare meaning knowledge is power in the beginning of 21st century. This age-old proverb has made us understood, the dearth of knowledge may question the existence of ours. 16.2. Process of origin Difficult activities of mankind are producers of information. This may be generated from individual or institutional. Now, let us know from which area information is coming. 16.2.1. Research and development Quite understandably intellectual activity of any kind creates information. At the very beginning of this exercise is research, which is catalytic to the growth patterns. Information there arrived are processed in library and information centres. These researches, we come to know already, are also performed in academic institutions yielding necessary information. 16.2.2. Surveys and census We know about the land survey or census. They also produce information of different nature. The Office of the Registrar General is such an organisation producing lot of information regarding the birth, death, diseases, conditions of classes in society and analyses the data. The data is useful for future research on various subjects. 16.2.3. Governmental activities The various departments of government produce information through their regular activity. For example department of police, responsible for maintaining law and order, keeps information on murder, stealing, snatching etc. Planning Commission likewise collect data of various kinds, which are useful for proper planning. These are useful to the social researches and activity. Similarly department of law and courts are possessing information enough for human development use.

149 16.2.4. Other activities Among other sources, sections of business and labour produce information including historians, critics and politicians. Their writings contain sufficient social and political information. 16.3. Who needs information? Everyone needs information. Each one has to walk over the information highway. For some reasons or other based on reliable information decisions are to be reached. Educated to illiterates industrialists to saints, players to handicapped, adult persons to aged, prime minister to prisoner—all are after information. Experts are opening immediate access to information in the primary sight. This will accelerate the individual as well as national growth. Informed persons would be made efficient in discharging duties. Three reasons are active behind information need (1) Information for need research, (2) to understand the present stations of research, (3) Specific information for different stages of research. Lawyers and physicians require for their professional activities. Absence of information would be harmful to the society. Engineers and technicians follow the suit. Similarly, managers of Labour Department and businessmen need it for decision making. Senior officials reasons is same. Students and teachers to prosecute their studies. In one Conference at White House, American representative unanimously sounded, everyone needs information worth with. Right to information is a fundamental right, age, social status, dignity do not sanction any special privilege. 16.4. What kind of information? If the need could be analysed, the task of providing information would be easier. That conference in White House outlined six points. [1] Daily problem oriented as quality of products, health care, environment, accident prevention, transport, weather, roads, accounts of income and expenditure, superannuation, tax, etc. [2] Personal need : Burning, accident, death, deadly diseases, etc. [3] Recent trends. 150 [4] Cultural tradition, religious and family life. [5] Entertainment and recreations. [6] Social information like : Physically handicapped, deaf & dumb, blind or boarders of institution. Clara Jones showed another classification : (1) Need for existence, (2) Need for success, (3) Special need. 16.5. Conclusion Previously one could get information from library. A recent survey revealed 83% of knowledge seekers go elsewhere. This had necessitated the revamping of library. For catering information from specific to more specific is to be the goal of libraries. Terminating advice, analysis of needs and information, now-a-days from the part of librarian's duty. Anyone can reach information whenever he feels so. Persons with difficulty living in remote area, handicapped should be trained properly to use information. 16.6. Exercise 1. Discuss the problem of information explosion. 2. Detail the points how information is created. 3. Why a researcher need information? 4. 'Knowledge is power' – Discuss. 5. What is meant by 'global society' – Elucidate. 16.7. Bibliography 1. Lipetz, Ben-Ami : Information Needs and Uses. (In C. A. Cuadra, ed. ARIST, Vol. 5, 1970), pp. 3-32. 2. McGarry, K. : The Changing Context of Information : An introductory analysis. London, Clive Bingley, 1981. 3. Paisely, William J. : Information Needs and Uses. (In C. A. Cuadra, ed. ARIST, Vol. 3, 1968).

151 UNIT : 17 ????? VARIETIES OF INFORMATION SOURCES Structure : 17.1. Introduction 17.2. Kinds of sources 17.2.1. Ranganathan's view. 17.2.1.1. Conventional document. 17.2.1.2. Neo-Conventional document 17.2.1.3. Non-Conventional document. 17.2.1.4. Meta document. 17.2.2. View of Hanson 17.2.3. View of Grogan. 17.2.3.1. Primary sources 17.2.3.2. Secondary sources 17.2.3.3. Tertiary sources. 17.3. Paperless sources 17.4. Exercise 17.5. Bibliography 17.1. Introduction Dominance of documents usually in paper in the information world is witnessed, although paperless documents are not less, rather on some subjects their growth is extraordinary. Live-source we mean conversation or dialogues. In science and technology this medium is very much in practice. President Woodrow Wilson when he was professor said, I would not read any book if it was possible to speak to the author of the book. After a decade Robert Oppenheimer told, 'If you want to contact, send a person.' Truth is that scale of development is in such a speed, that today's information becomes history tomorrow. Document sources can't compete with current happening. It is undoubtedly, a great disadvantage in the field of recorded information. But this accumulated human experience can't thrown out. In this context we can recall Karlyle: Human beings, whatever this thought, did or received everything is preserved in the pages with magical influence. Science and technology once neglected it, but the result was not good. A statistical evidence revealed that in one decade out of 950 antibiotics invented, 250 were the repetition of the same

152 invention. It means clearly neglecting documents remitted is the wastage of time for 250 invention. With the passage of time besides printed documents other medium had been recognised as the source of information. Among these documents there are films, records, slides, cassettes of audiovisual medium; punchcard, magnetic tape, disks, like materials are also there. In other areas medium embraced different form. Classic example of new form is obviously computer, where stored information can be seen on screen and if required print out can also be taken. Every kind of information is the creation of human beings. Process of storing the information in various medium is different. Direct involvement of man is working behind the all medium, again in some cases it is automatic mechanism, without human involvement, while the machine itself is the creation of human beings. Seismograph gives the gravity of tremor automatically and radar provides signals from the sky which are nothing but scientific information.

17.2. Kinds of Information The way scientists, technologists, social scientists or persons of humanities consult library materials established a routine methodology. For a scholarly person of humanity library is like a pilgrim centre. They depend on books mainly. Method of using information is almost same in all departments. Difference is noticeable in context or application and characteristic subject. This characteristic influences the source of the subject. There is no difficulty in determining the kinds of sources. The classification may be made in many ways—outer form of medium, method of information supply, inherent information, level of discussion, etc.

17.2.1. Views of Ranganathan According to Ranganathan the documents used as source of information are of four types : [1] Conventional Document. [2] Neo-Conventional Document. [3] Non-Conventional Document. [4] Meta-Document.

17.2.1.1. Conventional Document : This is the oldest kind of document, that is used in information centres of library.

153 17.2.1.2. Neo-Conventional Document : With the development of science and technology a new kind of document had appeared in the scene e.g. standards, specification, patent, etc.

17.2.1.3. Non-Conventional Document : Now information can be stored in microcard, microfilm, again tape recorder, film, CD etc. audio-visual documents are in use. These are classified as non-conventional ones.

17.2.1.4. Meta (data) Document : All the above three are identical in nature, all compiled directly by human beings, although they have their dissimilarities also. All information is the evolution of humankind. Here lies the difference of meta document e.g. radar generated information, which an mechanic made without human attachment, except the machine itself. This the information derived from such machines are known as Meta (data) document. Ranganathan here stressed the outer format of document. The evolution that is inherent with the change of time is reflected here.

17.2.2. Hanson's view C. W. Hanson divided information sector in two ways – Primary and Secondary. Considering the qualities of the document the classification is drawn. Books, serials, reports, patents, research papers are grouped in primary sources and abstracts, index, bibliography and surveys are placed in the other group.

17.2.3. View of Grogan Denis Grogan divided information sources in three sections : Primary, Secondary, Tertiary. He illustrated materials as follows: Primary : Serials, reports, patents, research papers, commercial papers, standards, etc. Secondary : Abstracts, Index, Surveys, Dictionaries, Encyclopaedias, etc. Tertiary : Bibliography, directory, catalogue, etc.

17.2.3.1. Primary sources : Research reports are the primary source of information in science and technology. The writings are mainly survey-based. Reports of scientific experiments are also part of this area. Some are merely descriptive, e.g. trade literature. Most of the items are results of research in respect of science and technology. Research is fulfilled when the results can reach its users. When a fundamental research inspires in future other researchers in the same sphere, nothing can be more satisfactory than this. Always they add new contribution in the world of knowledge, presents new

154 explanation to the previous knowledge, in addition provides, obviously, current information. Finally, during publication it seeks shelter of various kinds. e.g. Serials, reports of research, conference proceedings, reports of scientific expedition, standard trade literature, research papers. These are all preserved as the specimens of scientific progress. According to the need readers can study this. Royal Society describes science takes rest in the published writings. All research papers are not published immediately. They may be published later and satisfy the curiosity of history. e.g. (1) Laboratory notebook, obituary, memorandum; (2) internal research report, company file; (3) Correspondence, personal files. These primary resources remain scattered, irrelevant and disorganised. This can be described as information ores of science and technology. They can't be easily found out for use however important may be. Another item emerged in the information world because of nonavailability of those materials. 17.2.3.2. Secondary source This is not at all new. These are derived from disarray of arrangement noticed in primary level are removed here. Well organised planning has helped to make them available for use; and for that reason ultimately it is easily available, accessible and self-sufficient e.g. (1) Periodicals or serials (2) Abstract and index (3) Advances (4) Reference sources : Encyclopaedia, dictionary, handbook, tables, notes (5) Treaties (6) Monograph (7) Textbook. The knowledge of primary source is not presented in new format, secondary level directs to find the original document. In brief, to open the closed door of primary sources, elements of secondary level source could act as a key. 17.2.3.3. Tertiary They don't in practice supply subject knowledge. This is like a bunch of keys. The locked rooms could be opened by the keys. The duty is to assist the researcher to open the door. Secondary sources emerged due to abundance of information in science and technology. Even in secondary sources flood of information exist. We can mention here, like: (1) Annual and directory, (2) bibliography : (a) list of books (b) list of periodical articles and index (c) list of abstract and index (3) Guide to the literature on specific subject (4) list of reviews on the way to completion. (5) Guide for information source. (6) Directory of institution. These are bibliography of bibliographies or guides to direct the proper use of secondary sources.

155 17.3. Paperless source It is more interesting to listen and tell than reading and writing. The paperless source has assumed a significant role in the communication of science and technology. This has no parallel in invention sector. In a recent survey conducted by American physicists, nine hours personal communication in a week will advance for four hours from other source of information in knowledge. It is perfectly true that what oral sources can give other sources cannot. There are two kinds of paperless source : conventional and non-conventional. Conventional sources consist of (a) Government departments. (b) research organisations, (c) academic associations, (d) advisory council. Non-conventional sources consist of : (a) conversation among colleagues and guests, (b) corridor meetings at conferences, (c) Regular discussion and social-meeting. Justification for verbal communication is more useful in the sense – discussion is directed towards an aim, up-to-date and regulated to the main subject without losing their identity of main topic. Conversations are becoming so popular and comprehensive, that asked Robert Fairthorn to say, a time may come when a major portion of scientific knowledge will remain unwritten of course, this is true that many points of applied research remain unwritten. Obviously, scientists will like to keep secret the strategy, the particular machine or weaknesses of some formulas they followed with utmost care. Source of knowledge when verbal advantage definitely reigns, but reliability is the casualty. Time and places are not always conducive for exchange of information. Limitations prevent to communicate and direct to the main document. Commercial competitions actually is in obstruction in the way of verbal expression. Industrial scientists and technologists shut their lips in the interest of business. Companies directives are also for keeping secrecy of information like oath of allegiance professed by representatives of public or public servants. Scientists of academic institution also follow the same route – since they quite naturally wish to see their work get published before other in the field. However, it can't stop the system for good, as a complementary to scientific research it is respected to play a confident role. In scientific information reading, writing, and audio-visual exercise will continue to occupy front seat, knowledge will not serve as science in absence of the sources quoted.

156 17.4. Exercise 1. Identify the new information source besides paper. 2. Cite example for meta document (data). 3. Elucidate the need for tertiary sources. 4. Detail the advantage of non-paper sources. 5. Where lies the need for secondary sources? 17.5. Bibliography 1. Grogan, Denis : Science and Technology : An introduction to the literature. 3rd ed. London. Clive Eingley, 1984. 2. Guha, B. : Documentation and Information. 2nd ed. Calcutta, World Press, 1983. 3. Hanson, C. W. : Introduction to Science Information Work. London, Aslib. 1971. 4. Ranganathan, S. R. : Documentation and its facets. Bombay, Asia Publishing, 1963.

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INFORMATION SERVICE ORGANISATION Structure : 18.1. Introduction 18.2. C.A.S. 18.2.1. Features of C.A.S. 18.2.2. Levels of C.A.S. 18.2.3. Method of C.A.S. 18.2.3.1. Content method 18.2.3.2. Comprehensive subject based 18.2.3.3. Classified method 18.2.3.4. Project method 18.2.3.5. Mixed method 18.3. S. D. I. 18.3.1. Steps of work 18.3.2. Mechanical S.D.I. 18.4. Cataloguing 18.4.1. Alphabetical subject cataloguing 18.4.2. Classified cataloguing 18.4.3. Chain indexing 18.4.4. PRECIS 18.4.5. Coordinate indexing 18.4.6. Title index 18.4.7. Citation index 18.5. Abstract 18.5.1. Indicative abstract 18.5.2. Informative abstract 18.5.3. Annotations 18.5.4. Telegraphic abstract 18.5.5. Automatic abstract 18.6. Document Delivery 18.7.

Exercise 18.8. Bibliography

158 18.1. Introduction Viewpoint of reader and his requirement is to be examined before providing information service. Number of surveys have already been made on the issue. These surveys tell about the reading habit, kinds of information they seek, if existing service could bring satisfaction etc. Melvin J. Voiet made a valuable survey on this. He showed reader never comes with same query. Information need would vary depending upon the query. In this regard he found four kinds of approach : (a) Approach of up-to-date : Every researcher has to know current information. He is to be confirmed about the originality of his work. So at the beginning he has to consult the sources of information centre continuously to know the progress of his selected area of research. (b) Approach of regularity : A researcher may require daily some information with the progress of the work, he may need such information. Daily need again may be directed to another viewpoint of 'background approach'. This after all is nothing but another side of regular approach. It comes from actually daily need of information but demand is different. Barnall's opinion indicates : This need is not that much found in fundamental research but applied research requires it. These students and teachers don't find time to read the original book, the approach is very popular to them. Secondary sources are important alternatively. (c) Comprehensive approach : A detailed scrutiny is required for the concerned subject before a research work is taken up. That made the comprehensiveness of approach. E. J. Craine said comprehensiveness is a relative term ; there should be a limit for a subject enquiry otherwise time and labour will be wasted. This approach suggest the printed materials as source. Abstract and index become the reliance. Source of information is to search the primary source. (d) Standard development approach : A researcher may wish to know the progress achieved in the related area of his chosen subject. Since researcher is not an expert on the subject, advancement of the subject would remain unknown to him and that is natural. So with this motive the researcher reaches library. If the information need was known, step accordingly could be taken. Now let us see to meet the aforesaid demand what are the steps to be followed : (a) Viewpoint of up-to-dateness can be met from current contents type of publications. This service is provided from the printing of content pages of 159 current periodicals. It is very convenient to know the progress of work achieved in a particular area of any subject. (b) Through current awareness service researcher can get current information of the subject. (c) Selective Dissemination of Information Services (S.D.I.) provides the similar service. (d) List is prepared on the subjects of on-going research. (e) Advance information on the prospective seminar is given. (f) Newspaper clipping – published news are arranged according to required orders. (g) Serials and periodicals are usually glanced by the scholars in order to be updated on the subjects. (h) Different types of reference materials are used and the direct involvement of reference librarian is also needed. He tries to put the materials of regular need on move as follows: (a) Reader guidance. (b) Referral service – to inform the reader where the information would be available if not found in the library where researcher is primary visits? (c) Handbook, data service to inform about the availability. Indexing and abstracting periodicals can be rescuers or they can be prepared by the staff. Some periodicals provide these information along with the articles which are part of comprehensive approach. To supply the information for improvement of standards of research, annual review 'state of the art' reports are taken into consideration. 18.2. C. A. S. (Current Awareness Service) As already discussed demand of researcher for regularity is an important factor. He has to be updated on the progress of working in his field of activity. This will guide him about the area to be taken, initiate change or improvement on the subject or can avoid duplication in research. In brief, it acquaints the researcher with the current state of affairs in the subject of his choice. It is known, if he saw current periodicals information so desired might be reaching first hand. The intermediary serials which incorporate the contents, index and abstracts articles might be useful, but time lay between original articles in periodicals and intermediary serials (abstract and indexing journals) are so lengthy, it has given birth to C. A. S. to reduce the wastage of time.

160 18.2.1. Features of C.A.S. 1. This is not for thorough reading, but only to glance the advancement in the subject. 2. This may help to increase the reading habit. 3. To save the time of the reader by informing the user about the latest articles of periodicals in the subject. 4. Old copies become ephemerals. 18.2.2. Levels of C.A.S. This service is extended in three stages : International, national and local. Current contents of I.S.I. (Institute of Scientific Information), Philadelphia is the outstanding one. Earlier in USSR 'Express Information Service, was a pointer. Now most of the research centres, they compile information and disseminate for their clientele locally. 18.2.3. Method of C.A.S. Different applied methods are in vogue : 18.2.3.1. Content method : Only contents of periodicals are reprinted and served. 18.2.3.2. Comprehensive subject method : Catalogue is prepared from the periodical articles with subject heading appropriate to the materials. 'Current chemical paper's is the best example of the method. 18.2.3.3. Classified method : Entries are arranged under some classified sequence. Related subjects can be seen, classification takes time. 18.2.3.4. Project method : Only the specific materials are grouped for which the institution is pursuing the project. It is also a time-consuming system. 18.2.3.5. Mixed method : This is nothing but a combination of two or more methods stated above. Since the aim is only to reduce the time, attempt should concentrate on that aspect, whatever may be the method. 18.3. S.D.I. (Selective Dissemination of Information) This is an improvement over C.A.S., where researchers has to undertake the responsibility of searching the subject materials from the number of entries. This S.D.I. has eradicated that problem to some extent.

164 another as Precoordinate indexing. Coordinate indexing can be divided into two – Term records and item records. For the first one, idea is written on each card, and corresponding ideas found in documents, their accession numbers are recorded in that very card. Second system practices a card for each idea and all relevant materials are connected with understandable signs. Uniterm system : This is a simplified method over 'term index'. Mortimer Taub introduced in 1953 in U.S.A. 18.4.6. Title Index International Conference on Scientific Information was held in Washington in 1958. The index was a product of the conference. H. P. Luhn and H. Ohlman distributed machine made indices at the conference separately. Important words from the title of the periodicals were selected to construct this index known as KWIC = Keyword in Context. Since this is basically related to the title of the article, if title fails to reflect the subject proper index will fail to serve the objective. Computer is used with a 'stop' command for words. So automatically it prepares excluding the words as ordered. Other similar methods are in service with little additions, alterations or modifications like : KWOC = Keyword Out of Context, SWIFT, Select Word in Full Title. 18.4.7. Citation Index The architecture of knowledge is standing on the pillar of previous researches. Importance of old research is never less needed, inventions are all from old which is gold. Newton said, If I have seen anything farther, that is leg standing on the shoulders of giants. Each researcher appends bibliography and citation. It clearly starts from where the present one took help. Actually it means citation is ancestral and present one is next to it, this relation is established in citation. Science Citation Index : (S.C.I.) – 1963 was the time when Eugene Garfield and his institute scientific information brought this for public view. Citation Index : Authors referred in citation are recorded. Alphabetically, associated with year, name of periodicals with vol. no and pages. When that article was found to be cited by others, their names are also recorded. Source Index : All the names of writers and co-writers are arranged alphabetically with the details of periodicals. Permuterm subject index : Here important terms and their writers are arranged together. For more information author's name is separated for source index.

165 18.5. Abstracting Index can't claim to be the representative or alternative to documents. Only indications are there but abstract does. Even since 1900 it was introduced, its gravity was accepted. Original writings are presented in a abridged form. Length, trends, substance of information was led to various types, like– 18.5.1. Indicative abstract This is brief in nature. The subject and features are recorded. It helps to select the further study materials; it does not act as an alternative to original works. 18.5.2. Informative abstract It can be used as alternative since it possesses the quality of system, result etc. relatively more important than the previous one. 18.5.3. Annotations It is more brief than indicative abstract. Few sentences are used to establish the subject. 18.5.4. Telegraphic abstract Three main points (1) important words (2) action indicator (3) punctuation. The words here establishes the contextuality. Words and indicators make one unit, their relation is shown through punctuation marks. 18.5.5. Automatic abstracting : Computer identifies and prepares from the necessary words found in original writings for index. 18.6. Document delivery Necessary tracing of information only can't meet the purpose. The information should be in useful nature, but it is not always like that. One got a hint of information from intermediary periodical, but nearby library fails to provide the original article or copy of that. So, an arrangement is necessary to collect the copy from any library this is called document delivery. Again, if the article was available, it was witten in an unknown language. In this case the article can be made usable through translation service. Another system was there to make the information available to the user is know as. Known as reprography. All these three combined together is known as backup services.

166 The possibilities are there to supply (1) a library is to be developed by procuring a large number of materials. Any demand can be met and according to demand copy could be sent to the user. (2) when all kinds of documents can't be kept in a library, a consortium could be thought of, where participating libraries would share their resources. It needs close understanding and co- operation. In both the cases organisational capacity and expertise are required. From theoretical point of view, it is seen document delivery service came into being after a new evaluation of document world. The idea was in existence with regard to document world was UBC (Universal Bibliographical Control). This practice tried to provide the document through the buying of all books of the world in one space which is called UBC. It was thought then, document would be available from library to information centre once it is collected in one sequence. To make arrangement for availability was not necessary. Later stages of thought decided in favour of availability of document not only collecting the document. This led to the idea of Universal availability of publication (UAP). 18.7. Exercise 1. Discuss the approaches or viewpoints of need of the users. 2. What are the arrangements that could be made to meet the need? 3. What do you understand by referral service? 4. What kind of need can be met by current awareness service? 5. Discuss the difference between CAS and SDI. 6. Discuss the need of document profile. 7. Give examples of indexing family. 8. Where subject heading was first originated? 9. Discuss the need for document delivery. 18.8. Bibliography 1. Chakrabarti, A. R. and Chakrabarti, B. : Indexing – principles, proicesses and products. Calcutta, World Press, 1984. 2. Guha, B. : Documentation and Information. 2nd ed. Calcutta, World Press, 1983. 3. Ranganathan, S. R. ed. : Documentation and its facets. Bombay, Asia Publishing, 1963.

167 UNIT : 19 ?????

REFERENCE SERVICE : ORGANISATION AND MANAGEMENT Structure : 19.1. Introduction 19.2. Planning 19.3. Organisation 19.4. Appointment of Staff 19.5. Directions 19.6. Cooperation 19.7. Reports 19.8. Financial provisions and statement of Income and expenditure 19.9. Conclusion 19.10. Exercise 19.11. Bibliography

19.1. Introduction Utility and success of a library depends on the capacity to satisfy the requirement of users. If speed and competency can't be achieved in document supply and reference service activities of library would be weak. In most of the big library there is separate section for reference service. This section is to be organised keeping in mind the main outlined principle and special feature of library. Like main library this section should have to be discussed from planning organisation, employment, directing, public relation, report and budget preparing point of view. Following the recommendation of Ranganathan a relation of operational management with the reference service is to be made. 19.2. Planning Planning brings coordination and speed in various types of works in reference section. Long-term or short-terms whatever may be the need, the question of implementation arises. A particular time also allocated for any 168 job. It means successful application of planning. A sustained effort is required for reference service and information supply, which is frequently absent. Accordingly like other departments appointment of staff and outside structure has to be organised. Financial allotment also reflects the arrangement. Following points are to be interpolation in planning method : 1. Used materials of information seekers have to be evaluated. 2. Periphery of Service 3. Collection of reference materials, organisation and preservation 4. Staff 5. Outer facility 6. Financial provision and budget. Users develop direct relations with reference section. Real need of the users can be known from this section. This may be a successful step towards evaluation of the library service also. This again can be used as guide for future planning and collection policy. Given service and analysis of the same can thus construct the infrastructure of the future what reference section can do: (1) Analysis of the record of the rendered service. (2) Analysis of the long-term and short term service (3) Holding interviews with users and to know the advices of the users regarding working module of the section. (4) To be aware of source-materials is very essential to study the trend of the readers whether they use periodicals containing latest happenings more or books on indexes and abstracts. Analysis the nature of used materials of the users is the barometer of reference section's service. The most valuable wing of the reference section is the collection on reference books and other such materials for informational reply. Acquisition department should maintain a close liaison with reference section. Both quality and quantity should be developed taking the suggestion from the staff of the reference section. This should be a common practice to replace the old books with new edition and procurement of current materials should be the aim of reference section. After procurement attempt should made to make it available as quickly as possible for the users. Along with the materials, staff also have to be properly trained to make 169 use of the collection, otherwise it will be a dead section in the absence of a qualified staff. Accordingly arrangement of space and budget provision has to be made. Proper use and maintenance of machinery with speed can enhance the reputation of reference section. In order to maintain the regular reference service following points may be considered: (a) Reference desk (b) Reference collection, organisation and service (c) Current service (d) Long-term reference service (e) Writing and publishing of reference books. (f) User's training programme (g) Cooperation and supervision. 19.3. Organisation Organisation means a working infrastructure – with which reference work can move smoothly and uniformly. We have already come to know by analysing the structure can be built. One example is given here: Reference Section Direct Service Anticipatory Service 1. Direction type 1. Service arising out of current awareness (C.A.S.) 2. Reference desk 2. Newspaper clipping service 3. Recently performed service 3. (S.D.I.) Selection Dissemination of Information. 4. Long-term service 4. Indexing service 5. Abstracting services 6. Programme related to users' education 170 19.4. Appointment of staff Dealing appointment number of employees, their qualities are considered. Who is head, he has to have the quality of giving leadership. Educational qualification and professional experience are counted. Staff of other section also should know the job, for it is a collective work after all. They should be courteous and polite in their dealings. Recruitment to this section needs a careful consideration. According to workload and quality should be the base of recruitment. Assessment of the work papering will help to justify the nature and quality of service rendered by the section. 19.5. Direction or Guidance Head of reference section always guides his subordinates regarding the special nature of work service. Authority also should place such staff in the selection with competence enough. An environment of cordiality and cooperative atmosphere should be followed in order to satisfy the users. Leader of the section is to be always clear about to decide the daily routine. The head of the section should have complete faith on his subordinates otherwise service would be hampered. Everybody in the section should endeavour for more better service. 19.6. Cooperation There are many departments in the library. Each department is dependent on the other. Like human body reference section is an inseparable part of the body. We see a well-balanced cooperation of parts in the body, similar cooperation is to be formed among all the departments, otherwise a desired objective would be defeated. 19.7. Reports Constant awareness regarding the weaknesses in sectional work will help for future improvement upon rendering of service. It is a kind of revisional process. Self-analysis signifies the future, which in turn become

171 pillars of success for years to come. Annual report plays a pivotal role in this respect. A projection of efficiency is recorded here. Annual report, hence, should be careful for furnishing data. The use of statistics can supplement the claim of upward level of job. For preparation of annual report following points are to be noted. 1. Number and identity of users – a daily record. 2. Record of long-term and short-term service. This will reflect the known address and profession of information seekers together with the name of the staff attended. Name of information sources, time spent for searching for each query. 3. Record of compiled bibliography. 4. Record of publication of CAS, SDI, index and abstract and others, if any. 19.8. Financial provision and annual statement of income and expenditure Reference service is a continuous process. It can't find an end suddenly. This service now-a-days adopted many mechanical process. It entails a big budget. Allotment of fund is then a necessary point for latter and up-to-date service, definitely fund would be released on the nature of service. Relevant points are important, particularly annual report must reveal all the item for enabling reasonable fund release. 19.9. Conclusion A rhythm and system of speed must ensure the job of reference section. Strict adherence to discipline and time can direct the job towards more successful one. 19.10. Exercise 1. Detail the organisational infrastructure of reference section. 2. What is the underlying principle for recruitment in reference section? 172 3. Establish the importance of annual report. 4. What are the important points for daily reference service? 19.11. Bibliography 1. Davinson, D. : Reference Service. London : Clive Bingley, 1980. 2. Krishan Kumar : Reference Service. New Delhi : Vani Educational Books, 1996. 3. Ranganathan, S. R. : Reference Service. 2nd ed. Bombay : Asia Publishing House, 1961.

173 PAPER - VI (Information Processing) Modules : 1 - 4

174 Information Processing (Practical Classification) Module-1 DEWEY DECIMAL CLASSIFICATION UNIT - 1 Introduction, Structure and Organisation of Dewey Decimal Classification (DDC), 19th Edition. UNIT - 2 Definitions, Notes and Instructions used Schedules in DDC Schedules. UNIT - 3

Ascertaining specific subject of a document and assigning class numbers to it.

UNIT - 4 Synthesis of Class Numbers and Number Process Building Process. UNIT - 5 Use of Relative Index.

175 Module - 1 DEWEY DECIMAL CLASSIFICATION Introduction Library classification arranges documents and other recorded materials in a systematic way to fulfil the needs and requirements of users. Documents are assigned numbers with the help of a library classification scheme to mechanise the arrangement of documents in libraries. There are several general classification schemes in practice. The most popular and widely used scheme is Dewey Decimal Classification (DDC). This block introduces you to the art of classifying and arranging documents by Dewey Decimal Classification 19th ed. In the beginning we will explain you with a brief introduction of the structure and organisation of knowledge embodying in documents. The entire work is recorded in three volumes, viz. Vol 1 Auxiliary Tables and Summaries of classes ; Vol-2 Schedules of Classification of Knowledge ; and Vol- 3 Relative Index. In this block we will also discuss about the analysis of specific subject for the assignment of numbers. It also explains how numbers are selected from the Relative Index. This block essentially deal with classifying documents following Dewey Decimal Classification, 19th edition, in 1979. The theoretical part of the system is discussed in Paper - III Library Classification Theory.

176 Unit Structure BLIS-VI Module-1 Dewey Decimal Classification UNIT-1 Introduction, Structure and Organisation of Dewey Decimal Classification (DDC), 19th Edition. 1.1 Introduction 1.2 Notation 1.3 Basic Plan of DDC 1.4 Vol-1 Introduction and Tables 1.4.1 Auxiliary Tables 1.4.2 Summaries 1.5 Vol-2 Schedules 1.5.1 Hierarchical Order 1.5.2 Sequence of numbers 1.5.3 Understand the schedules 1.6 Vol-3 Relative Index 1.7 Assignment of Class Numbers in the Book 1.8 Numbers in the Square-Brackets and Obsolete Entries 1.9

Summary 1.10 Answers to Self-Check Exercises

177 UNIT-1 Introduction, Structure and Organisation of Dewey Decimal Classification (DDC), 19th Edition 1.1 Introduction Dewey used decimal numbers for classified order of documents. In 1876, DDC

was

published under

the title "A classification and subject index for cataloguing and arranging the books and pamphlets of a library".

Before Dewey, libraries used the fixed location instead of individual book. In that arrangement each document was assigned to a certain location fixed for a given subject. Dewey adopted relative location instead of fixed location in his scheme. Among the various schemes available for organisation of knowledge in libraries, DDC is the most popular scheme. It is popular because of its simple numbers and mechanise arrangement. 1st edition of DDC was published in 1876 in one volume with only 42 pages. From 16th edition (1958), DDC appeared in two volumes. The 18th edition appeared in three volumes. We will discuss the structure and organisation of 19th edition appeared in 1979. During this time several other volumes already came out. The 19th edition, also in three volumes are as follows : Vol. 1 Introduction, Auxiliary Tables and Summaries of Classification Vol. 2 Schedules of Classification Vol. 3 Relative Index

Dewey Decimal Classification and Relative Index, devised by Melvil Dewey

Edition-19, edited under the direction of Benjamin A. Custer. Albany, New York. Forest Press, 1979. 3 Volumes. 1.2

Notation Classes and subclasses are organised in this scheme using notation. Here in DDC, Indo-Arabic numbers 0-9 are used as the base of the notation. These notations are divided hierarchically by decimal numbers to show Super ordinate-Subordinate and Co-ordinate relation among the classes and their divisions. DDC used minimum three digits together to specify a subject.

178 Since only one variety of notation is used, it is a pure base. To make the three digits, DDC used two zeros with 1 which gives 100 and single zero with 11 leads to 110. These zeros are meaningless after decimal numbers used only to make minimum three digits. The notations used in DDC automatically displays order among the numbers. It is basically an ordered series i.e. 1 to 9. So the notations used for the subjects have ordinal value. Here meaning of any one class number is fixed in value. It is neither higher value or lower value of the preceding or succeeding numbers. So the number 512 (reads as five one two, not five hundred twelve) is having higher value than 511 or lower value than 513. The notation in DDC is also called hierarchical notation. Notational hierarchy is maintained by lengthening one digit with the base digit. This hierachical order demonstrates the status of a subject in relation to other subjects in the same field. Since DDC maintains hierachical order, it is called a hierarchical classification. It means co-ordination

and subordination of subjects are displayed by notation. Thus for example, for the two subjects numbered with 5 and 51 means 51 is subordinated to 5, and 511 is subordinated to 51

and so on. Thus the hierarchical order of these figures is as follows : 5 51 511 This order is achieved only if we follow decimal numbers. Assignment for Self-Check Exercise - 1 1. Why DDC is decimal classification ? 2. Arrange these numbers hierarchically. 3, 32, 53, 41, 531, 6215, 8351, 4211. 1.3 Basic Plan of DDC DDC is a universal general scheme which contains all fields

of knowledge. Dewey considered whole of knowledge as unity and he divided whole knowledge in ten Main Classes denoted by 0 - 9

as follows :

179 0 Generalities 1 Philosophy and related disciplines 2

Religion 3 Social Sciences 4 Philology, Linguistics, Languages. 5 Pure Sciences 6 Applied Sciences, Technology. 7 The Arts 8 Literature (Belles -

Letters) 9 History, Geography, Travel, Biography. Mathematically those numbers should be denoted as 0.0, 0.1, 0.2, etc.

But, in practice, the initial decimal point is not used. These are simply read as 0, 1, 2, 3, and so on. These are treated as integral numbers but as decimal numbers. So, 213 be read as 'Two one three', not as Two hundred thirteen'. Similarly, 912 will be read as Nine one two, not nine hundred twelve. Since DDC referred a specific by minimum three figures together, so to make the above series of numbers into three figures DDC used zeros. Hence in actual practice the above ten divisions or Main Classes are denoted

as follows : 000

Generalities 100 Philosophy and. related discipline 200 Religion 300 Social Sciences 400 Language 500 Pure Sciences 600 Technology (Applied Sciences) 700 The Arts 800 Literature (Belles Letters) 900 General geography and

history. The above ten divisions are considered as the first summary of the DDC Schedules. This is our beginning of understanding the system for practical book classification. 1.4 Volume - 1 : Introduction and Tables This introductory volume gives a brief history of DDC and is prefaced by the Decimal Classification Editorial Committee called DCEPC. DCEPC is a powerful policy-making body of revisions of DDC It also gives an editor's

180 introduction which is an important part of this volume. The detailed structure, various features, important notes and use of the system are described here. The subject analysis and guidance in ascertaining the subject of a document are an important feature of this volume. It also provides the method of synthesis of class numbers of documents which are not enumerated in the system. 1.4.1 Auxiliary Tables This part of the volume devoted to seven auxiliary tables which supplement the class numbers from various approaches. These tables are :

Table - 1 Standard Subdivisions (s.s.)

Table - 2 Areas Table - 3

Subdivisions

of Individual Literatures Table - 4 Subdivisions of Individual Languages Table - 5 Racial, ethnic, national groups.

Table - 6 Languages Table - 7 Persons. 1.4.2

Summaries Summaries of Classes in this part are an overview of the system. The summaries are divided into three groups in order of their increasing intention. The First summary gives the main outlines of the scheme into ten main divisions of knowledge using 0-9 as the base numbers used in the scheme. Each of the main divisions has been further divided into ten subdivisions resulting to 100 subdivisions. The second, summary of DDC is reproduced below : Second Summary The 100 Divisions 000 Generalities 010 Bibliography 020 Library & Information Science 030 General Encyclopaedic works 040 050 General Serial Publications

181 060 General organisations & museology 070 Journalism, publishing, newspapers. 080 General Collections 090 Manuscripts and book rarities. 100 Philosophy and related disciplines 110 Metaphysics 120 Epistemology, causation, humankind 130 Paranormal phenomena and arts 140 Specific philosophical view points 150 Psychology 160 Logic 170 Ethics (Moral Philosophy) 180 Ancient, medieval, oriental 190 Western philosophy 200 Religion 210 Natural religion 220 Bible 230 Christian theology 240 Christian moral and devotional 250 Local church and religious orders 260 Social and ecclesiastical theology 270 History and Geography of church 280 Christian denomination and sects 290 Other and comparative religions 300 Social sciences 310 Statistics 320 Political science 330 Economics 340 Law 350 Public administration 360 Social problems and services 370 Education 380 Commerce (Trade) 390 Customs, etiquette, folklore 182 400 Language 410 Linguistics 420 English and Anglo-Saxon languages 430 Germanic Languages German 440 Romance Languages French 450 Italian, Romanian, Rhaeto-Romanic 460 Spanish and Portuguese 470 Halc Languages Latin 480 Hellenic Classical Greek 490 Other languages 500 Pure Sciences 510 Mathematics 520 Astronomy and Allied Sciences 530 Physics 540 Chemistry and Allied Sciences 550 Sciences of earth and other worlds 560 Paleontology 570 Life Sciences 580 Botanical Sciences 590 Zoological Sciences 600 Technology (Applied Sciences) 610 Medical Sciences 620 Engineering and allied operations 630 Agriculture and related technologies 640 Home economics and family living 650 Management and auxiliary services 670 Manufactures 680 Manufactures for- specific uses 690 Buildings 700 The Arts 710 Civic and landscape arts 720 Architecture 730 Sculpture, Plastic arts 740 Drawing, decorative, minor arts 750 Painting and paintings 183 760 Graphic arts prints 770 Photography and photographs 780 Music 790 Recreational and performing arts 800 Literature (Belles-letters) 810 American Literature in English 820 English and Anglo-Saxon Literatures 830 Literatures of Germanic Languages 840 Literatures of Romance Languages 850 Italian, Romanian, Rhaeto-Romanic 860 Spanish and Portuguese literatures 870 Italic literatures Latin 880 Hellenic literatures Greek 890 Literatures of other languages 900 General geography and history 910 General geography Travel 920 General Biography and geneology 930 General history of ancient world 940 General history of Europe 950 General history of Asia 960 General history of Africa 970 General history of North America 980 General history of South America 990 General history of other areas

Each member or class in the Second Summary has been divided into ten divisions called sections. Thus we get $100 \times 10 = 1000$ sections called Third Summary. This summary gives further details of the Second Summary. Their numbers are in pages 473-482 of this volume. 1.5 Volume - 2 Schedules This is a long table of classes in numeric numbers arranged hierarchically and the numbers are derived from the numbers in the Second Summary. This volume is the heart of the system providing scopes and various notes under various entries.

184 1.5.1 Hierarchical Order The numbers in the system are hierarchical in nature which means a sequence in successive subordination. The order also means an order in chain. It is derived by successive decimal division of the previous number. The general and specific relation is demonstrated by decimal numbers. For example, 500 Pure Sciences 510 Mathematics 511 Generalities 511. 3 Symbolic (Mathematical) Logic 511. 32 Sets 511. 322 Set theory The above series of numbers is a successive subordination of the preceding number. From the above it is seen that the number column in the left side and descriptions are in the right side of the page. 1.5.2 Sequence of numbers The entire schedule has been arranged from 000 to 999. At the top of the page, the three digit numbers i.e. the number taken from the Third Summary displays the subdivisions of that particular number. 1.5.3 Understand the schedule The descriptions of class numbers are displayed at the right hand column. Sometimes descriptions do not contain the broader class terms. Since it is hierarchically arranged, it is obvious that the terms implying the broader concepts from which they are derived. Hence, it is clear from the following example : 320 Political science (Politics and Government) 320. 01 Philosophy and theory 320. 011 General theory and theories. In the above entries, 320.01 Philosophy and theory, which is used as 'Philosophy and theory of Political Science.' This means that philosophy and theory is a subordinate concept of political science obviously implies the broader concept.

185 Self-Check Exercise - 2 Note : (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Locate the following class numbers in the schedule and write the subject heading against each number. (1) 495.6 1..... (2) 539.721 2..... (3) 616.12 3..... (4) 639.92 4..... (5) 727.6 5.....

1.6 Volume 3 : Relative Index This volume contains alphabetically arranged list of terms used in the schedule to describe subject matters of documents along with the class numbers assigned against each. Class number attached with the class term locates a particular subject in the schedule. This Index not only listed simple terms but also complex and compound terms used for complex and compound subjects. The Index is relative one as it collocates the subjects having relation with a general subject. It serves as a key to the classified sequence of the schedules. It is an essential device for the identification or location of a particular subject in schedules of classification. Thus it forms an integral part of the DDC system.

1.7 Assignment of Class Number in the Book DDC specifies a subject with atleast three digits taken together. Thus, 535 reads as light and parae photic phenomena. This number 535 be read as five-three-five not as five hundred thirty five since the class number used in DDC is a decimal fraction. A specific subject needs numbers beyond three digits. In such cases the length of the class, number is divided into blocks of digits and each block Consists of three digits. A dot is used after first three digits of a class number and subsequent block is introduced with small space in between two blocks after the dot. For example, 186 621. 381958 Digital computers are actually transcribed as : 621.381 958 Similarly : 621.3819592 Computer combinations be transcribed as : 621.381 9592 The use of dot and space in a class number do not indicate any substantive meaning but are used to read, write and even to remember the class number. Dot and space give only comfort to our eyes and mind. It is not used as a meaning ful symbol in a class number.

1.8 Numbers in Square-Brackets and Obsolete Entries The schedule of classification often presents numbers in square brackets. [004] Never assigned [006] Unassigned Most recently used in Edition 16 010 Bibliography 010 [.28] Preparation Class in 010.44 [029]- Documentation Class in 025 330[.159] Socialist and related schools. (use of this number is optional; Prefer 335) Above categories of square-bracketed numbers are seen in DDC schedule which are used with different purposes. The purposes of those square- bracketed numbers are the following : (i) Never assigned (ii) Unassigned (ii) Lefts vacant only (iv) Optional class numbers (v) Formerly notes All the, above categories except 'optional class numbers' are maintaining gaps in the schedule to accomodate newly developed subjects in revised editions. Optional class numbers are sometimes used to meet the requirements of a particular library. The difference between never assigned and unassigned is that the former

187 is not used for any subject in any previous edition while the later numbers are used sometimes and where it is last used inticated under the number, eg. [006] most recently used in Edition 16, while [004] is never used in any previous editions. To avoid the confusion of some useful square-bracketed numbers, notes are provided for their meaning. For example : 330 [-159] Socialist and related schools Here part of the class number [.159] is square-bracketed and the note is "use of this number is optional; prefer 335". This means that the subject may be classified either at 330. 159 under economic theories or at 335 under Socialism and related system. Hence to avoid confusion in any manner, it is important to follow the notes given under respective square-bracketed numbers. The number 602 [.72] enumerated in the schedule against Patents where it is instructed not to use that number for 'patents'; because patents have been classified at 608 in the schedule. Another example of square-bracketed description is : 002 The book [formerly 001.552] This explains the number '002 the book' has been classified at 001.552 in previous editions. Sometimes a heading merged with another heading in the schedule with a note on 'class here'. For example : 025 Library operations Instructed under this entry reads as follows : 'class here documentation' [ormerly also 029].

Self-Check Exercise - 3 Note. (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Locate the class numbers of the following titles : (1) [029-n-756] Machine translation (2) [112] Classification of Knowledge (3) 750.[92] Painters (4) 730 [-901-905] Historical periods of Sculpture

188 1 2 3 4. 1.9

Summary In this unit we have explained the structure and organisation of Dewey Decimal Classification. The main features of this section are the following : (i) It discusses in brief about the origin of DDC in 1873 and later published its first edition in 1876. (ii) The whole universe of knowledge is divided into ten divisions ordered from 0 Generalia classes to 9 History, Geography. (iii) It discusses the hierarchical structure of DDC numbers and brief introductions about the usefulness of three volumes. (iv) Some numbers are within square-brackets and their application in DDC to select appropriate class numbers from the schedules.

1.10 Answers to Self-Check Exercises Exercise - 1 Exercise - 2 1. Numbers are divided 1. Study of Japanese Language into ten divisions and for (Language) this reason the Scheme is 2. Particle physis (Physics) Decimal Classification 3. Diseases of Heart (Medical 2. 3, 32, 41, 4211, 53, 531, Science) 6215, 8351 4. Habitat improvements for Exercise - 3 animals (Non-domesticated 1. 418.02 animals.) 2. 001.012 5. Architecture of Museum 3. 759 Buildings. 4. 732.735

189 UNIT - 2 □ □ □ □ Definitions, Notes and Instructions Used in DDC Schedules Structure 2.1

Introduction 2.2 Definition, Explanation and Scope Notes 2.3 Different Types of Notes 2.3.1 Inclusion notes 2.3.2 'Class here' notes 2.3.3 'Class elsewhere' notes 2.4 Centred heading /Centred Entries 2.5 Number Building Synthesis of Class Numbers 2.6

Summary 2.1 Introduction In this unit we will discuss the definitions, notes and instructions under each entry of the Schedules and Tables. These notes and instructions have different meanings in different situations. There are essential features in building class numbers. In order to extend a class number these notes give you specific instruction to assign a class number of a document. These notes are called scope notes. 2.2 Definition, explanation and scope notes In some instances a heading requires, for complete understanding, the limitations stated in the note following the class number. For example : 025.48 Subject indexing Manual and mechanised indexing of individual, serial, collected records. Class specific aspects of indexing in 025-34 - 025-39, list of indexing terms in 025-49. Definition is appended immediately below the entry heading, eg. 330 Economics

190 The science of human behaviour as it relates to utilisation of scarce means for satisfaction of needs and desires through production, distribution, consumption. However, where no definition is given, the term is understood to be used as delimited by its subdivisions, or as defined in Webster's Third International Dictionary of the English Language. 2.3

Different Types of Notes Sometimes instead of defining a class term, the scope of the subject is explained with illustrations. Sometimes the scope of a subject is explained with examples given under the subject heading. For example : 025-313 Form (of the catalogue) Examples : card, book, microform, on-line. It indicates that the form of catalogue is specified by specific forms such as book, card, etc. So, the number 025.313 is used for card catalogue, book catalogue, on- line catalogue, etc. Similarly a separate type is observed from the following example, 791 Public performances other than musical, sport and game performances. The notes mean that though music, games and sports as public performances are not considered here since these being important subjects and given separate class numbers. 2.3.1 Inclusion notes Some topics are not obviously a part of a number. If such topics think useful to mention them they are given standing room at a number by way of the including note. For example : 791.4353 Educational and documentary films including newsreels. Similarly : 025.42 Classification including assignment of book numbers 025.62 Inter-library loans including regulations.

191 Such topics have not been given separate class numbers in the schedules since those topics do not have sufficient literary warrant so that they may be considered separate subjects. 2.3.2 'Class here' notes Topics are frequently enumerated preceded by the term "class here" under a class number. Such topics are broader or overlap the contents of the number; it is decided to class the topic at a particular number. For example : 025 Library operations 'Class here documentation' Similarly : 025. 525 Selective Dissemination of Information Class here current Awareness Programs. The class here note is used to indicate subordinate concepts, not obviously part of the heading, that are of a general nature and have applicability to the subject and its subdivisions, for example, 725 - 728 Specific types of structures 'Class here specific structures' The above class here note instructed to use architecture of Government buildings at 725.1; architecture of Cathedral Church buildings at 726.6; architecture of museum buildings at 727.6; Low cost housing at 728.1 and so on. 2.3.3 'Class Elsewhere' notes Sometimes 'notes' appear in the schedules of classification that indicates related subjects or topics are defined by 'class elsewhere notes'. The real significance of such notes are equivalent to see references in alphabetical subject entries. These notes are explained below with examples. Let us take an example :

523.30222 Moon pictures and designs. Class charts and photographs in 523.39 The above instruction means for 'charts and photographs of moon' is located with a distinct class number under 523.39. Similarly under the class number : 025.47 Subject cataloguing Class specific aspect of subject cataloguing in 025.34 - 025.39

192 It means that specific aspects of subject cataloguing is located under a distinct class numbers, though it is a related concept of subject cataloguing. Another kind of cross-references that appear in the schedule with a number preceded by the word see. For example, 025.47 Subject cataloguing For controlled subject vocabularies, see 025.49 Another kind of note that appears under centred entry is covered by a span of numbers. To assign class number for such topics which covers all topics in ; the span is described by the note 'class comprehensive works in....' For example : 181.41 - 181.48 Hindu Brahmanical philosophy. Class Comprehensive Works in 181.4 The span 181.41 - 181.48 covers all aspects in the subject Hindu Brahmanical philosophy but to assign a number for topics containing all aspects by 181.4 is the broader number of the above span. A discontinued number with square brackets is shown in the schedule by the note 'do not use ; class in' for example : 022 [.309] Historical and geographical treatment of library buildings. Do not use ; class in 022.33 This indicates that historical and geographical treatment of library building is located at 022.33. The classifier should not assign bracketed numbers which is discontinued. Similarly : 023 [.5] Staff Number discontinued ; Class in 023 For library staff it is instructed to use the class number 023 not 023 [.5]. Another example reads as follows : [024] Regulations for use of libraries Class in 025.56 It means that the above topic is relocated to the number 025.56. So, the actual number for the topic stated in the above example is 025.56 not [024]. 2.4 Centred Heading/Centred Entries Sometimes a span of numbers are used to define a subject for which no

193 specific number is provided in the schedule. For example, 620.21 - 620.25 Applied Acoustics (Acoustical Engineering) and the entry is placed in the schedule in the central place. Such entries are not used to assign for a document containing all the aspects that are considered in the span. In such cases the note 'class comprehensive works in

should be followed, So, Applied Acoustics is assigned by the number 620.2 from which the span of numbers is drawn. The centred headings are preceded by a symbol in the schedule as follows : ? 251 - 254 Local Christian Churches ? 281.1 - 281.4 Early Christian Churches It is important here to note that the instruction 'class comprehensive works in.....' appeared under centred heading / entries are followed to consider the numbers for such topics covered by span of numbers.

2.5 Number building / Synthesis of Class Numbers DDC is an almost enumerative scheme where we find readymade class numbers for subjects considered in the structure of the scheme. Almost all subjects in the past, the present and the anticipatable future are incorporated in it. Initially, the scheme does not provide any mechanism which the classifier himself can build number for such subjects that are not considered in the scheme. In the successive editions of DDC several provisions were introduced to construct class numbers freely by the classifier. Each new edition of DDC provides distinct facility to create new numbers. Any class number in the schedule may be further extended or synthesis of class numbers is possible in DDC in the following manner : (a) Without any instruction provided in the schedule. (b) With proper instruction in the schedule. Provision of seven Auxiliary Tables in Edition 19 facilitates the number building procedure in DDC The Auxiliary Tables are used with any class numbers to show various approaches of a subject, like form of presentation, areas point of view, racial point of view, etc. So, when a subject is being treated from any of the above approach, the classifier can use such number from the Tables. Of the seven Auxiliary Tables, Table-1 can be used with any number from the schedule (base number) without any instruction. This table is used freely for extension of any class numbers. But Tables 2-7 are used with any 194 base number with proper instructions provided in the schedule where they are appropriate. The common instruction appeared in DDC schedule referred to as "add-to" instructions, Add notes are generally appeared under an individual entry like 327.3 - .9 Foreign policies between specific nations, instructed to use 'area notation' from Table-2. In some places a common instruction note is appeared at one place in the schedule and their use is indicated by the symbol asterisk (*) and dagger (+) prefixed by the number. For example, 491.44 * Bengali Language The description of the symbol * is appended at the foot note as 'add as instructed under 420-490'.

2.6 Summary In this unit we have discussed the various notes and instructions described in the schedules of classification. It is also discussed here the use of such notes and instructions in number building process by the classifier. It is also discussed the number building or synthesis of class numbers in DDC and the mechanism of synthesis with or without proper instructions. The provision of centred heading/entries is explained in this unit for the user of the scheme. Notes and instructions are explained with examples from the schedule to make it clear to the learners.

195 UNIT-3 □□□□□

Ascertaining specific subject of a document and assigning class number to it. Structure 3.1 Introduction 3.2 Sources of Obtaining Information about the Subject 3.2.1 Titles of document 3.2.2 Other sources of information for ascertaining specific subject of a document 3.3 Subject Analysis 3.4 Sources of Readymade Numbers 3.5 Deciding the View Points or Forms of a Subject 3.6 Searching the Class Numbers 3.6.1 Steps in arriving at the class number 3.6.2 Classification by discipline 3.7 Defining Non-Subject Elements in the Class Number 3.8

Summary 3.1 Introduction The first step in practical classification of any classification scheme is to ascertain the specific subject of a document. After ascertaining the specific subject,

the next step is to find the appropriate class numbers from the Schedules and Tables. In this phase of work, Index part may help you to find the numbers. But one thing to be kept in mind that the numbers taken from Index alone is not adequate. The exact location in schedule should be compared with the numbers considered from Index. Finally, with proper instructions a number can be assigned to any document. 3.2

Sources of Obtaining Information about the Subject 3.2.1 Titles of document

Normally, the subject contents of a document is reflected in its title. So, title of a document help us to ascertain specific subject of a document. Titles

196 are varieties in nature. So it is a critical task to frame a subject statement of a document. Such variations are found from the following examples. Titles like, 'Asian Drama', 'Tiger's Milk', 'Third Wave', etc., do not clearly indicate the specific subject described in the above title. These titles are ambiguous and the specific subjects are not shown explicitly in the titles. Their meaning is allusive and hidden. The actual subject matter as known from their subtitles are : "Economic condition of the Third world countries" ; "A book on housewives and their routines"; "A futuristic book on the society of the near future". There are some other titles which are very much clear but the terms used in the titles are not familiar to the classifiers. For example, (a) Introduction to Entomology ; (b) Fundamentals of Acoustics ; (c) Text book of mycology ; Though the statements of the title are very clear but the terms used in the titles are technical terms. But the classifier may not be conversant with the terms used and in such a situation one must consult the dictionary or an encyclopaedia to determine the meaning of the terms and probable location in the scheme of classification through the index part of the scheme. In case of Literary Titles, i.e. the creative writings fallen within the class 800 Literature, the titles of the book hardly matters. In literature class, language, form and periods form the basis of classification of literature class. In this case most writings present a specific literary pattern of a specific language and the subject matters are ignored. Hence the class numbers are defined by language, form and periods. So, the different works of an individual author in literature will have the same class number if the author fully devotes a particular form. For example, all the works of Sarat Chandra Chattopadhyay will have the class numbers under Bengali fiction of a particular period. Sometimes titles are incomplete or vague. In such a situation it is difficult to ascertain the actual subject matter. For example, 'Battle of Panipat', 'Reign of Akbar' and these are read from the view point of Indian history, but the word 'India' is not available in the stated titles. To make the title a complete one, we have to depend on other sources of information where India is figured. In some cases redundant words are available in the title which contain many adjunct or superlative words. These words are removed from the

197 titles when specific subjects are to be ascertained. For example, 'Elements of library classification', 'Prolegomena to library classification' etc. The terms 'elements' and 'prolegomena' do not carry any subjective meaning and hence the stated titles indicate only 'library classification' as their specific subject. 3.2.2

Other sources of information for ascertaining specific subject of a document

In previous section we found some titles did not display specific subjects. In such situations sub-titles are consulted for specific subjects. If in any case subtitles also are inadequate, then preface made by the author of a document, table of contents, the text itself, are consulted to derive specific subject of a document. Sometimes, book jacket or from the brief biographical sketch of the author in the jacket help us to determine the specific subject of a document. Hence it is vital to decide specific subject before assigning the class number of a book. 3.3 Subject Analysis The work of subject analysis is of paramount importance in practical classification. The sources that help in identification of specific subject of a document is its title and subtitle, if any. This phase of work in practical classification requires careful thinking of the meaning and concept appears in the titles of document. Title or subtitle, if any will not always sufficient to determine the specific subject of a document. In such cases, the subject matter of the book must be ascertained from other parts of the book. Some other additional features appear in a book which helps us to decide subject matter are : about the book ; author's preface ; table of contents ; on the back of the paper back edition, etc. Bibliography, series if any and subject index also give us useful clues in determining subject of a book. Sometimes reviews of books published in journals or in newspapers help to decide subject of a book. 3.4 Sources of Readymade Numbers In some situations readymade numbers are available from the bibliographical data entered in the book itself. This source may include 'Cataloguing-in-198 Publication' or the data given on the verso of the title page. National bibliographies like Indian National Bibliography, British National Bibliography provide classified list of books published in India and Great Britain. These outside sources are also used to make an analysis and deciding subject statement of documents when the basic sources are not adequate for the purpose. 3.5 Deciding the View Points or Forms of a Subject Library classification is a knowledge

classification with certain adjustments require for the physical forms of books. A book may be presented in various forms and the forms of presentation must be recognised. Any core subject may be presented from the view point of theory or historical presentation. For example : Theory of micro economics History of medical sciences Research in economics In the above examples, the basic or core subjects are micro economics, medical sciences and economics. Similarly for example Philosophy of religion History of mathematics Here the subject 'religion' is studied from philosophical point of view and the subject 'mathematics' is presented in historical point of view. Sometimes a document may be presented in physical forms such as an encyclopaedia, a periodical or a serial. These physical forms must be identified in classification keeping in mind the purpose of documents. For example : Encyclopaedia of social sciences Dictionary of biological terms Advances in Library & Information Science In the above examples, the terms encyclopaedia, dictionary and advances have no relation with the core subjects but simply how information on such core subjects presented in documents. These forms of presentation are called outer forms while theory, history, research, etc. are categorised as inner forms of documents.

199 3.5 Searching the Class Numbers After deciding the specific subject of a document, we have to assign class number for the document. There are two ways of arriving at the appropriate class number. We can locate a class number for a specific subject through the Index since Index entries are attached with class numbers. On the other hand, one can search class numbers through the hierarchical chain. 3.6.1 Steps in arriving at the class number In order to get the appropriate class number we can proceed step by step in the schedules of classification or from the Auxiliary Tables in Volume - 2. Step by step process is illustrated as below : Consider the example : 'Snakes culture in Texas' To classify the above title, we find that the core subject is within the discipline Applied Sciences/Technology enumerated at 600 Applied Sciences and Technology. The discipline is further divided into subdivision where the core subject appears is 630 Agriculture and related studies. The subdiscipline 630 is further divided into section as 639 Non-domesticated animals and finally to its subsections in 693.3 culture of cold blooded vertebrates ; 639.39 as Reptiles and 693.396 Snakes. The hierarchical structure of the above classification is shown in the following diagram. 600 Applied Science & Technology ? 630 Agriculture & related studies ? 639 Non-domesticated animals ? 639.9 Culture of cold blooded vertebrates ? 639.93 Reptiles ? 639.936 Snakes The above figure demonstrates step by step searching of classification number from a hierarchical schedule. Further the subject is treated from specific area point of view which can be identified by area number from Auxiliary Table - 2 designed for area notation.

200 In order to give area number to such base number, it is introduced by inserting -09 (From Table -1) defining historical and geographical point of view. Since 'add area' instruction is not appeared at the required class number i.e. here it is at 639.936 Snakes, -09 is added to introduce Texas -764 (From Table -2). Hence the required class number of the above example is : 639.936 Snakes - 09 Geographical Treatment - 764 Texas. By putting the numbers side by side, we get the following results : 639. 936 097 64 Snakes culture in Texas. 3.6.2 Classification by discipline DDC is a classification by discipline. These disciplines are broader areas of knowledge. A subject is divided by discipline. A subject, say, coal may come in different disciplines and therefore there is no one single number for coal. Coal is enumerated in different places depending upon the context of the disciplines. If coal is studied from technological point of view it is coming at Technology, if mining point of view is coming under mining as the subject, if studied from economic points of view coming under economics and so on. in division we proceed from general to specific. Thus for example, 519.5 Statistical mathematics which is coming under 5 Pure Sciences, the division 51 is mathematics, the section 519 Probabilities and Applied mathematics and the subsection 519.5 statistical mathematics. Thus the hierarchical order of the above classification is as follows : 500 Pure Sciences 510 Mathematics in general 519 Probabilities and applied mathematics 519.5 Statistical mathematics Thus searching by discipline is achieved through hierarchical order of classes.

3.7 Defining Non-Subject Elements in the Class Number A document may consists of core subject and sometimes in combination with some qualifying concepts. These qualifying concepts may be of various view-points or forms of presentation. At the first instance the subject proper and the view points or forms are separated. For example, 'A dictionary of medical terms'. The analysis gives us two component terms in the title, one is 'medical terms' and the other is 'dictionary', Dictionary is a form of presentation and its number is taken from Table - 1 Standard Subdivisions of the Auxiliary Tables. The subject proper 'medical science' is considered from the schedule and finally synthesis is done as per rules. These additional non-subject elements are scheduled in the Tables of auxiliaries. There are seven such auxiliary tables in DDC characterising seven distinct features. Such Tables are as follows : No

Name
Table -1 Standard Subdivisions Table - 2 Areas Table - 3

Subdivisions

of Individual Literatures Table - 4 Subdivisions of Individual Languages Table - 5 Racial, ethnic, National Groups

Table - 6 Languages Table - 7 Persons 3. 8

Summary In this unit we have explained the analysis of a specific subject. The main points discussed in this unit are : (i) The work of classification involves three states, i.e. (a) analysis of the document; (b) deciding the specific subject of a document; and (c) finding out appropriate class numbers for the specific subject. (ii) Discussed how variety of titles of documents affect the work of classification. (iii) In analysing a specific subject of a document, the other features are also identified. (iv) The class number of a document is assigned with help of DDC schedules for the core subject and non-subject elements from the Auxiliary Tables. (v) In order to decide subject proper, the various sources of information for obtaining specific subject is discussed and some other sources providing readymade class numbers of documents are discussed.

202 UNIT 4 □□□□□

Synthesis of Class Numbers and Number Building Process Structure 4.1 Introduction 4.2 Process of Number Building in DDC 4.2.1. Building numbers with the addition of standard subdivision 4.2.2. Number building with proper instructions 4.3 Addition of a Full Number 4.4 Addition of a Segment or Part of a Class Number 4.4.1. Addition of a segment from other parts of the schedule 4.4.2. Addition of a segment from the same division or section 4.5 Addition of Numbers from the Same Division with 0 (zero) as Facet Indicator 4.6 Collective Add-note Instruction 4.7

Summary 4. 1 Introduction DDC is primarily an enumerative scheme. In order to meet the challenge the requirements of the growing tendency of the universe of subjects, DDC provides some mechanism for synthesis of class numbers. With the gradual passage of time, DDC takes the form of a faceted structure. In this unit we are discussing how number building process is undertaken in D.D.C. 4. 2 Process of Number Building in DPC Most of the subjects in DDC have ready made numbers in the schedule of classification. Besides enumeration of the specific subjects in Main Tables, DDC provides synthesis. Synthesis is a process of making a number more specific through the addition of segments taken from other parts of the schedule. There are two ways of making synthesis followed in DDC. Generally, synthesis is made possible in DDC with the general instruction 'add-note'. The add-note is provided in the schedule where combination 203 requires from different parts of the schedule. Addition means to place the required number at the right end of the base number. 4.2.1 Building numbers with the addition of standard subdivisions Any class number in the schedule may be further expanded with the help of standard subdivisions in Table-1 of the Auxiliary Tables. For this purpose there is no need of any instruction. Since the notation for standard subdivisions begins with zero, the use of zeros sometimes influences numbers in the schedule. In that case, instruction appears at the respective classes for the addition of standard subdivisions. For example, 300 Social Sciences 300.1 – .9 Standard subdivisions applied to the class 300 and Notations are taken from Table - 1. The classifier uses these numbers whenever a subject requires subdivision by standard subdivisions notation. The classifier can use of their own. 4.2.2 Number building with proper instructions In different places in the schedules of classification, it is instructed to add numbers either from the schedules or from Tables 2-7. In such cases instruction appears in the form of "Add to....." in the entries where addition requires. This "add to" instruction is a number building note. 4.3 Addition of a Full Number Sometimes a class number requires extension by an another main number in the schedule. An instruction in the form of 'add 011 - 999' at the entries in the schedule. The span of numbers 001 - 999 is the whole range of subjects in the schedules in Volume - 2 of the DDC Let us take an example : 'Agricultural libraries' which is a combination of two basic numbers i.e. Agriculture and Libraries. Our first consideration is to decide whether Agriculture or Libraries as the base number. It is clear from the title that the agricultural libraries is a kind of libraries devoting a specific field of studies. Thus a kind of libraries is classed at Library Science 020, not under agriculture 630. Scanning the divisions of 020 Library Science, we found 026 Libraries devoted to specific disciplines and subjects. Thus we get :

204 020 Libraries devoted to specific disciplines and subjects. Various notes are provided under this entry in the schedules and we find the relevant instruction which serve our purpose : Add 001 - 999 to the base number 026 The span of numbers 001 - 999 organises whole of knowledge in the schedules in Volume - 2 of DDC and the class number 630 reads Agriculture. Thus the above title have the class number as : $026 + 630 = 026.63$ Addition of numbers means placing numbers side by side and a dot is used after three digits from the left. The last digit 0 (zero) is not used at the extreme right since the numbers are decimal numbers. Similarly, some other examples of same nature are as follows : $026 + 610 = 026.61$ Medical Libraries $026 + 620 = 026.62$ Engineering Libraries $026 + 200 = 026.2$ Religious Libraries $026 + 330 = 026.33$ Economics Libraries $026 + 530 = 026.53$ Physics Libraries Let us take another example : 'Technological Museums' is a combination of two basic field of studies, i.e Technology and Museums. This complex subject requires analysis for identification of base number. From the title it is clear that technological museum is a kind of museum where technological objects are displayed and organised. So the base number for the above subject will be Museums and this class is at 060 General Organisations and Museology. By scanning the sections of 060, the required place is at 069 Museology and one of its subsections 069.9 devoting specific disciplines and subjects. Thus, we find 069.9 Museums devoted to specific disciplines and subjects Under this entry the relevant instruction reads as follows : "add 001-999 to the base number 069.9". Thus the required class number for the above title will be : $069.9 + 600 = 069.96$ Technological Museums. Some other examples of similar nature are : $069.9 + 700 = 069.97$ Art Museums $069.9 + 500 = 069.95$ Science Museums $069.9 + 750 = 069.975$ Museums of painting. Another example "Curriculums in Physics". 205 It is Evident from the title that the document deals with the courses and curriculums in a specific subject, physics. So, courses and curriculums are the aspects of education and its class number is 375 curriculums. Scanning the divisions of 375 we find 375.01 - .99 Curriculums and courses of studies in specific subjects. Under this entry, the instruction appears to identify the specific subject is "add. 010 - 990" to the base number 375 Curriculums. Thus the required number of the above title will be $375 + 530$ (From 010 - 990) = 375.53 Curriculums in physics. Similar examples of same nature are : $375 + 020 = 375.02$ Curriculums in Library Science $375 + 900 = 375.9$ Curriculums in History $375 + 570 = 375.57$ Curriculums in Biology $375 + 540 = 375.54$ Curriculums in Chemistry $375 + 510 = 375.51$ Curriculums in Mathematics Self-Check Exercise - 1 Build Class numbers for the following titles : 1. Bibliography of mathematics 2. Museums of motor cars 3. Libraries devoting films 4. Curriculums of Indian History 5. Selection and Acquisition of paintings 6. Classifications of mathematics books 1. 2. 3. 4. 5. 6. 4.4

Addition of a Segment or Part of a Class Number

In some occasions the segment or part of a class number is added to a designated base number. Such a segment or part number may be treated as secondary component of a subject. These may be of two kinds :

206 (a)

Addition of a segment number from other part of the schedule. (b) Addition of a segment number from the same division of the schedule. Instead of adding the full number classifier is asked to add a part of* a number. Such instruction appears in the form of "Add to the base number.....the numbers following in". 4.4.1

Addition of a segment from other parts of the schedule

When relation occurs between two concepts from two distinct disciplines, then the segment number is added to a designated base number. Let us take an example. "Co-operative milk production." The analysis of the title gives us two factors i.e. co-operative production and milk. Co-operative production is coming under 334 Co-operatives and Milk is at 637.1. By scanning the schedule, the specific number for co-operative production is 334.6 which is further extended to 334.68 Production in specific industries and groups of industries. The number 334.68 further extended to 334.682 - .689 Production in extractive, manufacturing, construction. The instruction reads under this entry is that "Add to the base number 334.68 the numbers following 6 in 620 - 690". Here the span 620 - 690 enumerates extraction, manufacturing and construction industries. So the class numbers for the above title will be : $334.68 + 6 \ 37.1 = 334.68371$ Let us consider another example : 'Rice trade'. Rice and Trade are two distinct areas of knowledge. Our consideration is Trade of a specific agricultural product, 'rice'. By scanning the schedule either directly through hierarchical order or through the Index we find 380 Commerce, etc. which has its subsection 381 Internal commerce (Domestic Trade). The number once again extended to 381.4 Trade in specific commodities which further extended to 381.41 Products of agriculture from Trade Point of view. Under 381.41 Products of agriculture, instruction reads as "add to the base number 381.41, the number following 63 in 633 - 638".

207 The crop rice is classed in the span of number 633 - 638 and whose number is 633.18. Thus the class number for the subject 'Rice trade' will be $381.41 + 63 \ 3.18 = 381.41318$ Self-Check Exercise - 2 Classify the following titles : 1. Wages in textile industries 2. Employment in electronic industries 3. Petroleum trade 4. Export of coal 1. 2. 3. 4. 4.4.2

Addition of a segment from the same division or section Sometimes a segment or a part number from the same division or section of a class number is added to a designated base number. Let us take some examples to illustrate the technique. Consider the example : 'Reference services in university libraries' Here both the component 'Reference services' and 'university libraries' belong to the same field of studies, i.e. Library Science. The number for the studies is 020 Library and Information Science. By scanning the divisions and subdivisions of the class 020, we find 025.527 information and Reference services in specific type of libraries. The instruction reads under this entry 025.527 is as follows : "add to the base number 025.527 the numbers following 02 in 026 - 027". The number for 'university libraries' is obtained from the span of numbers 026-027 and, here it is 02 7.7. Thus the class number for the above subject will be : $025.527 + 02 \ 7.7 = 025.52777$ Similarly, Reference services in public libraries will be $02 \ 5.527 + 027.4 = 025.52774$.

208 Self-Check Exercise - 3 Classify the following titles : 1. Religious experience in Buddhism 2. Hindu yogic meditation 3. Use of Government libraries 4. Administration of hospital libraries 5. Physiology of insects 6. Acquisition of manuscripts in libraries 7. Scriptures in Jainism 2. Reference services in school libraries 1. 2. 3. 4. 5. 6. 7. 8. 4.5 Additive

of Numbers from the Same Division with 0 (zero) as Facet indicator

Sometimes a part or segment number from the same division is added to a designated base number with 0 (zero) as facet indicator. The facet indicator distinguishes the base number and the part number. Consider the example : 'Physiology of flowering plants' Scanning the schedule and we find the number for flowering plants 582.13. The number 582.13 is identified by asterisk mark for further extension. As per instruction at the foot note 'add as instructed under 582-539'. The specific subdivision 04 under the span 582 - 589 is added with the designated base 582.13 to introduce part of 581.1 Physiology. Thus the class number of the title will be : $582.13 + 04 + 581 \ .1 = 582.13041$ Similarly for another example : 'Morphology of insects'

209 The number for insects 595.7 595.701 - .708 General principles of insects Instruction reads under 595.701 - .708 as follows :

Add to the base number 595.70 the numbers, following 591 in 591.1 - .8'. Thus the class number for

the title will be $595.70 + 591.4 = 595.704$ Self-Check Exercise - 4. Classify the following titles : 1. Genetics of fishes 2. Morphology of the vertebrates 3. Reproductive organs of worms 4. Anatomy of spermatophyta 1. 2. 3. 4. 4.6 Collective Add-note Instruction A common instruction appears in many places in the schedules for synthesis of series of numbers enumerated in the schedules and the series of numbers are identified by asterisk symbol. The common instruction is appended at the foot note. Consider the series of numbers from the schedule : $523.41 * Mercury$ $523.42 * Venus$ $523.43 * Mars$ $523.45 * Jupiter$ $523.46 * Saturn$ $523.47 * Uranus$ The symbol * indicates "to add as instructed under 523.41 - 523.48 The above instruction means addition of component numbers at 523.41 - 523.48 where the instruction reads as follows : 523.41 - 523.48 Specific planets

210 Add to each subdivision identified by asterisk mark (*) the numbers following 523.3 in 523.31 - 523.37, eg. 'Orbit of Mars'. $Mars\ 523.43 + 523.3 = 523.433$ Let us take another example : $547.01 * Hydrocarbons$ $547.02 * Halogenated\ compounds$ $547.031 * Alcohols$ $547.035 * Ethers$ $547.037 * Acids$ $547.038 * Esters$ 547.08 * Silicon Compounds *mark directs the classifier to "Add as instructed under 547. In 547 Organic Chemistry, we find the instruction as under : Add to notation for each term identified by * (asterisk) as follows. 04

Special topics of general applicability 044 Theoretical Chemistry Add to 044 the numbers following 541.2 in 541.22 - 541.28, e.g. molecular structure 0442 045 Physical Chemistry Add to 045 the numbers following 541.3 in 541.34 - 541.39, e.g. radiochemistry 0458 046 Analytical Chemistry 0464 Qualitative 0465 Quantitative Now consider the title : 'Molecular structure of hydrocarbons' The number for hydrocarbons is 547.01 and that for molecular structure 541.22. As per instruction under 547, the class number will be : $547.01 + 044 + 541.2 = 547.010442$

211 Self-Check Exercise - 5 Classify the following titles : 1. Orbit of Venus 2. First aid in heart diseases 3. Plastic surgery in face 4. Pathology of brain tumours 5. Atomic structure of heavy water 6. Treatment of malaria 7. Conservation of Greek architecture 8. Abuse of forest lands. 1. 2. 3. 4. 5. 6. 7. 4.7 Summary In

this unit we have discussed the method of synthesis or number building process in DDC The main features of this unit are : (i) Synthesis of numbers is achieved by extending a specific base number with the help of main schedules or with the help of Auxiliary Tables. (ii) The process of synthesis is completed with proper instructions in the schedules where such extension demands. The instruction is called "add-note" (iii) Addition of numbers becomes possible in two ways : (a) Addition of any other number from the span of numbers 001 - 999 with any designated base. (b) Addition of segment or part of a number following the instruction 'add to the base number following in'. (iv) In order to use add-note for synthesis, it is vital to understand the instructions properly. Any arbitrary addition is inadmissible in DDC

212 (v) The Table -1 of the auxiliary schedules may be used freely with any base number without any instruction since these are commonly applicable terms for fields of knowledge. Answers to Self-Check Exercises Exercise - 1 Exercise - 2 1. 510.16 1. 331.277 2. 069.96292 2. 331.12921381 3. 02679143 3. 380142282 4. 375.954 4. 382.42282 5. 025.287 6. 025.4651 Exercise - 3 Exercise - 4 1. 294.3442 1. 597.015 2. 294.543 2. 596.04 3. 025.5875 3. 595.10446 4. 025.197662 4. 582.04 5. 595.701 Exercise - 5 6. 025.2812 1. 523.423 7. 294.482 2. 616.120252 8. 025.52778 3. 617.520592 4. 616.9928107 5. 546.224 6. 616.936206 7. 722.80288 8. 333.75

213 UNIT - 5 □□□□□

Use of Relative Index Structure 5.1 Introduction 5.2 Need and Purpose 5.3 Relative nature of the Index 5.4 Scope of the Index 5.5 Organisation of the Index 5.5.1 Searching through key terms 5.5.2 Location of numbers in the Index 5.5.3 Abbreviations used in the Index for the classifiers 5.6 Entries from the Seven Tables 5.6.1 Cross-References used in the Index 5.7

Summary 5.8 Answers to Self-Check Exercises 5.1 Introduction The Relative Index is an integral part of the Dewey System. It serves as a key to the Main schedules where classified entities are arranged in the order of class numbers. Index is a list of terms arranged alphabetically and the index terms are attached with their corresponding numbers. The Index is a Relative one which accommodates distributed relatives at one place. A subject having relation with other subjects are brought together which we call collocation. 5.2 Need and Purpose An Index is an alphabetically arranged list of terms that represent subject matter of documents, it helps the classifiers to locate a particular topic in the classified sequence of the schedules. The subjects are arranged logically following whole - part or genus - species relationship. The class numbers attached to the terms determine the location of a subject in the schedules. Knowledge of classifiers about the subjects are restricted to limited areas of studies. He can understand the subjects of his areas only and sometimes

214 some related subjects also. So, to find the actual position of a subject unknown to him in the map of knowledge, Index plays a significant role in this respect. Index not only listed the terms that are used in the schedules but also its synonyms and near synonyms. Since the Index is a relative one, related subjects are brought together under the heading to which they are related. 5.3 Relative nature of the Index The Index is called Relative Index. It is one of the innovative feature of the Dewey's system. In the schedules the subjects are scattered by disciplines while the Relative Index brings at one place all the scattered aspects of a subject. Index shows a term and its various aspects in relation to one another. For example, a subject 'coal' . It may have various aspects scattered in the schedules, such as in mining, in technology, in geology, in commerce and so on. The index entry shows as follows : Coals 553.24 econ. geol.....553.24 mining law..... 343.07752 spec. jur. 343.3 - .9 technology.....622.334 prospecting622.1824 So from the above example, it is observed that all the aspects of 'coals' scattered in the schedules are brought under one heading i.e. coals. 5.4 Scope, of the Index The Index consists of the following terms in one single alphabetical sequence. (i) All the key terms or concepts in the schedules whether simple terms or compound terms. (ii) All the concepts that are considered in all the seven Auxiliary Tables. (iii) Cross-reference entries for synonymous terms and for related terms. (iv) Compound concepts are attached with numbers by number building processes.

215 The Index does not contain names of persons or any individual organisations and institutions. For example, Biography of Mahatma Gandhi, Kolkata University, American Library Association, etc. In such case we should not consult under the headings rather we should consult under 'Biography' or under 'Universities' or under 'library associations'. Similarly, we should not look into the index for Rabindranath Tagore or Saratchandra Chattopadhyay rather to look into Bengali poetry and Bengali fiction respectively. Self-Check Exercise - 1 Under which terms you will consider from the Index (1) Indian Library Association (2) Sir C.V. Raman (3) Jesus Christ (4) Delhi University (5) Srinivas Ramanujam. 1. 2. 3. 4. 5. 5.5

Organisation of the Index Each page of the Relative Index has been divided into parts by a vertical line in between two columns. An entry in the Index is either a single term or a phrase followed by a corresponding number or a reference from one heading to another heading or phrase. Let us consider an entry in the Index : Monastic buildings architecture 726.7 buildings 690.67 rel. purpose 291.35 The-above entry is related to three headings as follows : Architecture of monastic buildings 726.7 Construction of monastic buildings 690.67

216 Monastic buildings for religious purpose 291.35 Another example from the Index entry : Emotional disturbances see Mental illness illness see Mental illness It shows that the concepts 'Emotional disturbances' and 'Emotional illness' have been entered under the heading Mental illness. So to get the numbers for ; the above two headings it is directed to consult 'Emotional illness' which has its number in 364.24 and 362.2. Another form of reference entry shows, for example, the entry heading 'Aeronautics' has the following form : Aeronautics technology 629.13 s.a. spec, appls. e.g. Military engineering s.a. Aviation In the above example, the s.a. (see also) refers the classifier to Military engineering and Aviation. So for the subjects Military engineering aeronautical viewpoint and Aviation, the classifier is directed to consult Military engineering and Aviation as their locations. 5.5.1 Searching through key terms In case of compound subjects consisting one concrete object and another term reflecting action or effect or techniques applied to the concrete terms, searching be made through the concrete terms. For example, Manned flight to Mars. To locate the class number of the stated example, searching be made under the heading 'Mars'. If there is specific process or technique related to different objects, searchers be made through the process terms. For example, plant metabolism where metabolism is a specific process applied not only to plants but also to animals, to cells, etc. located at 'Metabolism'. 5.5.2

Location of numbers in the Index Sometimes identification of key terms is not an easy task. Such terms which we are looking for may not be in the Index and for the purpose it is essential to select the appropriate key terms. For example 'primary education'. Here primary and education are two approaches but no entry : s made for primary. So to find the location of the subject, classifier has to consult the term, 'elementary' instead of primary as the entry point. 217 So it is essential to select appropriate key terms, otherwise confusion will arise. It is advised to compare the numbers from the schedules for confirmation. Self-Check Exercise - 2 Identify the terms in the Index for the following subjects 1. University Education 2. Medical libraries 3. Female education 4. Agricultural diseases 5. Prime ministers 6. Plant physiology 1. 2. 3. 4. 5. 6. 5.5.3 Abbreviations used in the Index for the classifiers In every entry in the Index there are some abbreviations used to save space. It will be clear to the user of the Index for their recurrent applications. The list of abbreviations used has been given in the beginning of the Relative Index, Volume-3 (Pages xi-xiii). Some useful abbreviations that we found in many occasions are the following : B.C. British Columbia Biog. Biographical, biography Biol. Biological, Biology Cent. Century Coll (s) Collected, collecting, collections Ed. Education (al) Eng. England Gen. General Gen. wks. General works Geog. subd. Geographical subdivisions Hist. Historical, history

218 Hist. subd. Historical subdivisions Illus. Illustration (s) Ind. Indian OT. Old Testament s.a. See also soc. social spec. specific Spec. jur. Specific jurisdiction All states of United states of America are given in abbreviated form, such examples are : la. Iowa Ida. Idaho Ill. Illinois Tex. Texas Wash. Washington The above is a cross-section of the abbreviated terms. For more details, users may consult the pages xi-xiii of the Index volume (i.e. Vol.-3). Self-Check Exercise-3 Spell out the following abbreviations. 1. int. 2. Mass. 3. misc. 4. mt (s). 5. subj. 6. tech. 7. vet. sci. 8. zool. 1. 2. 3. 4. 5. 6. 7. 8.

219 5.6 Entries from the Seven Tables Terms used in seven tables are also entered in the Relative Index in one single alphabetical sequence. These terms show some variations in the entry format as follows : India area - 54 ancient area - 34 The above Index term 'India' is followed by area in italic forms and the area number is preceded by a dash. The term 'area' is used to indicate a specific place name. Similarly : Bengali people r. e. n. - 9144 The abbreviated term r. e. n. means racial, ethnic and national groups and the number for Bengali is - 9144. Descriptions of seven tables are given in the Relative Index as follows : Table Number Full description Abbreviations Table - 1 Standard Subdivisions s.s. Table - 2 Areas area

Table - 3 Subdivisions of Individual lit. sub. Literatures Table - 4 Subdivisions of Individual lang. sub. languages Table - 5 Racial, Ethnic, National

r.e.n. Groups Table - 6 Languages lang. Table - 7 Persons pers. 5.6.1 Cross-References used in the Index Two types of cross-references are mainly used in the Index to refer from one term to another. These cross-references are see and see-also. The underlines indicate that the terms are indexed in italics form. Such examples are "see" reference

220 In case of terms having same meanings otherwise called synonymous terms users are referred from the unused heading to the used heading. For example : Galleries (exhibit halls) see Museums Gallflies see Hymenoptera Hombills see Coraciiformes Horseflies see Orthorhapha Insects see Insecta Mutiny see Offences military law Myology see Muscles Myrtle family see Myrtales Myths see Mythology Rheology see Dynamics ; also Flow Phenomena Some complicated examples of see references are as follows : Retaining walls railroad engineering technology..... 625.13 other aspects see Permanent way structural engineering other aspects see walls. From the above example of entry term under 'Retaining walls', it is evident that for Permanent way and walls in the context are directed to use the terms followed by 'other aspects'.s 'See-also' references This kind of references are used from the terms having general meaning to the terms having specific meaning. In otherwords, it means that a specific subject is referred from the broader subject. Such examples from the Index terms used in the Index are : Retakeoff manned space flight gen. wks. lunar flights.....629.4545 planetary flights..... 629.455

221 s.a. spec, appls. e.g. Space warfare Retarding plant growth crop prod.....631.545 s.a. spec, crops ; also spec, types of culture e.g. Floriculture. Such types of references using see-also direct the classifier to explore related topics entered under different terms in the Index. From the above entries, we found that the subject 'retakeoff' in the context of space warfare, it directs us to go to the entry term simply 'Space warfare'. Similarly, 'plant growth' in the context of 'floriculture', the reference see-also directed to follow 'floriculture' only. With this type of reference it is suggested for other possible alternatives. 5.7 Summary In this unit we have discussed the need, scope, entry type, format and the use of the Relative index. The important features of this unit are : -The Relative Index is an essential supplement to the classified sequence of the schedules and tables which serve the subject approaches of documents. -The Relative Index gathers all the different aspects of a subject scattered in the schedules at one place by way of subordination. -Cross-references are used to relate synonymous terms and general - specific relationship. -Various abbreviated forms used in the Index save spaces and few abbreviated forms are shown as examples. -The Index is a key to access the schedules but Index alone is not adequate to locate a particular subject in the schedules. The numbers from the Index must be verified with main schedules.

222 5.8 Answers to Self-Check Exercises Exercise - 1 Exercise - 2 1. Organisations 1. Higher education 2. Physicists 2. Subject-centred libraries 3. Jesus Christ 3. Women education 4. Universities 4. Diseases 5. Mathematicians 5. Prime Ministers 6. Physiology Exercise - 3 1. interior, internal 2. Massachusetts 3. miscellaneous, miscellany 4. mountain (s) 5. subject (s) 6. technical, technique, technological, technology 7. veterinary science 8. zoological, zoology Further readings 1. Dewey, Melvil, 1979. Dewey Decimal Classification and Relative Index, 3 Vols. Ed. 19, Forest Press, Albany 2. Comoromi, John P. et. al. 1982. Manual for use of the

Dewey Decimal Classification, (Edition 19), Forest Press, Albany. 3. Satija, M.P. and John P. Comoromi, 1987. Introduction to the Practice of Dewey Decimal Classification. Sterling Publishers, New Delhi.

223 Information Processing (Practical Classification) Module - 2 DEWEY DECIMAL CLASSIFICATION Auxiliary Tables and its application in Number Building Unit - 6 Use of Table - 1 : Standard Subdivisions Unit - 7

Use of Table - 2 : Areas Unit - 8 Use of Table - 3 : Subdivisions of Individual Literatures Unit - 9 Use of Tables 4 and 6 Table 4 : Subdivisions of Individual Languages Table - 6 : Languages Unit - 10 Use of Table - 5 : Racial, ethnic, national groups. And Table - 7 Persons.

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Module-2 Auxiliary Tables and its application in Number building Introduction to the Block In the previous Blocks you have been acquainted with the structure and organisation of knowledge in three volumes, viz. Vol.1 - Tables and Summaries of classification ; Vol. 2 - Schedules of classification ; and Vol. 3 Relative Index. It is also discussed in earlier Blocks the art of practical classification and subject analysis of a document to be classified. You have to assign class number of a document with the help of schedules of classification in Vol. 1 There are various concepts which are repeatedly used to subdivide a class number by a variety of constant representation of the same aspect. These concepts are constantly denoted by the same notation where they are used. These concepts are never used alone in a given number. They have to be added to a basic number considering from a main schedule. Different series of numbers representing various characteristics are described in different tables. The tables are called Auxiliary Tables in DDC In DDC There are seven auxiliary tables. There are as follows : Table - 1 Standard subdivisions (s.s.) Table - 2 Areas Table - 3 Subdivisions of Individual Literatures (Lit. Sub.) Table - 4 Subdivisions of Individual Languages (Lang. Sub.) Table - 5 Racial, Ethnic, National Groups (r.e.n.) Table - 6 Languages (Lang.) Table - 7 Persons (Pers.)

This Block will acquaint you with the use of these tables in number building process in DDC The use and application of these tables are discussed with practical examples.

225 Unit - 6 □□□□□

Use of Table 1 : Standard Subdivisions Structure 6.1 Introduction 6.2 Features of Standard Subdivisions 6.3 How to Use Standard Subdivisions 6.3.1 Addition of a Standard Subdivision to a Main Class or Division 6.3.2 Addition of a S.S. to a Subdivision of a Principal Field 6.4 Variations in the Use of Several Zeros Together 6.4.1 Using Two Zeros 6.4.2 Using Three Zeros 6.5 Extension of a S.S. by Add-To-Instructions 6.6 Variations in the Meaning of Standard Subdivisions 6.7 Cooccurrence of Two or More Standard Subdivisions 6.8 When Standard Subdivisions are not Used 6.9

Summary 6.10 Answers to Self-Check Exercises 6.1 Introduction Identification of the specific subject of a document is the basic step in practical classification. In the analysis of a subject matter of a document, it is essential to take into account both internal and external characteristics of a document. Such Standard Subdivisions like philosophy, theory, history, methods are considered as internal characteristics while journal, pamphlet, manual, etc. are the examples of external characteristics. Internal characteristics and external characteristics are also known as internal forms and external forms of documents. A subject may be treated in a document in any one of these internal forms and the document itself has any one of these external forms. Sometimes a document contains both these forms. Consider the example, 'microfilm' on 'history of museums'. In this example, 'history' refers to internal form while micro-film to external form. History means how the subject matter described in a given document and micro-film is the physical

226 appearance of the document. These two forms have to be represented in a class number. These Standard Subdivisions (henceforth described as s.s.) are given in Table-1 of Vol. 1 (pp. 1-13). The nature and scope of the concepts along with their notations are summarily reproduced below. Table - 1 Standard Subdivisions -01

Philosophy and theory -02 Miscellany -03 Dictionaries, encyclopaedias, concordances -04

Special topics of general applicability -05 Serial publications -06 Organisations and management -07 Study and teaching -08 History and description of the subject among groups of persons -09 Historical and Geographical treatment 6.2

Features of Standard Subdivisions -Generally these subdivisions are recurring non-subject characteristics of documents. -These are applicable to any class number whether broad or minute. -These are applied to any class number without any formal 'add instruction'. -Every number is preceded by a dash, eg -01, -02, -03, etc. indicates that these notations never used alone but may be used only with some numbers from the main schedules. -A s.s. number consists of atleast two digits, of which the initial digit is a zero. In fact, '0' is its constant feature which serves as a facet indicator distinguishes the subject number and the non-subject number in the complete class number. -These numbers are extended decimally like other numbers in the schedules in DDC eg. -01 Philosophy and theory -015 Scientific principles etc. So, -01 and -015 displays hierarchical relationship.

227 6.3 How to Use Standard Subdivisions Initially, the title to be classified, you have to separate the subject proper of a given document from the concepts standing for the Standard Subdivisions. In next phase of work, identify the Standard Subdivisions in the Table. Some s.s., such as dictionaries, encyclopaedias, periodicals, biography, bibliography, organisations appear both in the Schedules and Table-1. Whenever documents get the above numbers irrespective of any subject treated in documents or documents not limited to a specific discipline, they are considered subdivisions when the subject matter limited to a specific field of knowledge. So, careful consideration requires the use of these numbers. Then assign the class numbers to the subject following usual process. (a) By searching systematically through the schedules and by further extension of the number by add to, if necessary. (b) Numbering also be possible with the help of the Relative Index. Find the notation of the required standard subdivision from Table - 1. The terms used in s.s. table are also indicated in the Relative Index (Vol. 3) and can be located from the Index also. Let us take an example, 'Encyclopaedia of Hinduism'. In the above title you find two components, viz. 'encyclopaedia' and 'Hinduism'. 'Hinduism*' is the subject matter which is denoted by the number 294.5 in the schedules of classification. 'Encyclopaedia' is a s.s. represented by -03 in Table - 1 Thus synthesis becomes : $294.5 + 03 = 294.503$ Similarly 'dictionary of algebra' will be $512(\text{algebra}) + 03 (\text{dictionary}) = 512.03$ Data processing in banking : $332.1 + 0285 = 332.10285$ Journal of optics : $535 + 05 = 535.05$ The underlined numbers in the above examples indicate standard subdivisions. Self-Assignment Exercise - 1

Note : (a) Spacers given below for your answers. (b) Compare your answers with those given at the end of the unit. Assign class numbers to the following titles : 1. Dictionary of physical chemistry 2. Encyclopaedia of Buddhism 3. Research in biology

228 4. Periodical on International economics. 1. 2. 3. 4. 6.3.1

Addition of a Standard Subdivision to a Main class or Division.

The general principle of addition of s.s. is to add a zero with the numbers. There are some exceptions. For example, 'Encyclopaedia of Sciences' $500 + 03 = 503$ 'Journal of Philosophy' $100 + 05 = 105$ Addition of various component numbers in a given situation means placing the numbers side by side following a logical order. In the above examples, it shows that there are several zeros coming at a specific number. Each and every digit in a class number indicates its own characteristics and is specifying a particular concept. Thus instead of three zeros side by side, a single zero is used in synthesis. The meaning of one zero and several zeros are same unless or otherwise directed to use s.s. number in a specific class number. The addition of several zeros will be discussed in the latter part of the unit. 6.3.2.

Addition of a s.s. to a subdivision of a principal field In

case of a subdivision of a principal field only one zero is used in the class number of a subdivision (i.e. 510 Mathematics), hence in the synthesis only one zero is dropped while adding s.s. to it. For example, 'Dictionary of mathematical terms' $51? (\text{Mathematics}) + 03 (\text{Dictionary}) = 510.3$ 'Symbols and abbreviations in mathematics' $51 + 0148 = 510.148$ 'Formulae of Mathematics' $51 + 0212 = 510.212$ 'Chemical formulae'

229 $51? + 0212 = 540.212$ Encyclopaedia of Chemistry $51? + 03 = 540.3$ Self-Check Exercise - 2 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Assign class numbers of the following titles : 1. History of Mathematics 2. Science periodicals 3. Dictionary of scientific terms 4. Journal of Philosophy 5. Research in Astronomy 1. 2. 3. 4. 5.

6.4 Variations in the Use of Several Zeros Together There are many situations where a s.s. is added with a base number with two or more zeros. The required number of zeros to be added is indicated in the respective class numbers where they are appropriate. In these cases a single zero is used in an enumerated class number to describe aspects other than s.s. and to assign s.s. you have to consult the schedules of classification where specific instructions are given for the addition of several zeros. For example, 025 Library operations Instruction reads here as : use 025.001 - 025.009 for Standard Subdivisions. Here s.s. with one zero after the class number indicate something different other than the s.s. Thus 025.06 is not organisations relating to library operations but something else. So, in that case 025.006 will be organisations relating to library operations.

230 6.4.1 Using two zeros It has been already discussed that use of how many zeros are required in a specific situation is instructed at the respective classes. For example, under the class number 342 Constitutional and administrative law, it is directed as under. use 342.001 - 342.009 for Standard Subdivisions. Hence 'Encyclopaedia of Constitutional and Administrative Law' will be $342 + 003 = 342.003$ Similarly : 'Dictionary of economics' Here 'economics' is the core subject and dictionary is the s.s. We have the schedules for economics as under : 330.01 Philosophy and Tbeory 330.02 - .08 Standard Subdivisions So, with the above enumerated provisions we find the number for the title 330 (Economics) + 03 (Dictionary) = 330.03 Similarly : Journal of economics will be $330 + 05 = 330.05$ The reason for this variation is that the schedules of classes enumerate subdivisions of a subject using several zeros. 6.4.2 Using three zeros. There are several situations where three zeros are added to introduce s.s. number. For example, from 351 Central Government, we find the following schedules : 351.0001 Philosophy and theory 351.0002 - 0003 Standard Subdivisions 351.0005 Serial Publications 351.0006 Reports 351.0007 - .0009 Standard Subdivisions It is seen from the above structure that three zeros are used for the addition of s.s. For example, A Journal on Central Government $351+0005 = 351.0005$ Study and teachings of the subject Central Government $351 + 0007 = 351.0007$

231 Self-Check Exercise - 3 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Assign class number of the following titles : 1. Tables and formulas in economics 2. A journal on the U.S. Government 3. Encylopaedia of Law 4. National Organisations on human diseases 5. Research in mammals 1. 2. 3. 4. 5. 6.5

Extension of a S.S. by Add-To-Instructions Some of the s.s. can be further extended with an add-to-instructions by an enumerated number or its part either taken from the schedules or from tables 2-7. In such cases specific instructions are available to do so in any particular number in Table - 1. Let us take an example to make it clear. -015 Scientific principles Instruction reads under this table to add the numbers following 5 in 510 -590 to the base no. -015. Let the topic be 'Principles of Mathematics' applied to a subject. So, we can add the number for mathematics following 5 is 10. Hence mathematical principles will be $-015 + 10 = -01510 = -0151$ Now we can complete an example with—0151 Mathematical principles as subdivision. So, 'mathematical principle of library classification' $025.42 + 0151 = 025.420151$ Similarly : Statistical principles of precoordinate indexing $025.482 + 015 + 195$ (From 510 - 590) = 025.482015195 Statistical principles of games of chance $795 + 015 + 195 = 795.015195$

232 Self-Check Exercise - 4 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Assign the class numbers of the following titles : 1. Optical principles of photography 2. Statistical principles to information search 3. Boolean algebra in information analysis 1. 2. 3. 6.6 Variations in the Meaning of Standard Subdivisions

In some areas of knowledge, class numbers are enumerated by synthesising the Standard Subdivisions. The enumerated numbers are meant for local use which differs from the Standard Subdivisions. For example, 600 Applied Sciences and Technology reads as under : 600 Applied Sciences & Technology 601 Philosophy and theory 602 Miscellany 603 Dictionaries, etc. 604 Generalia Technology 605 Serial publications 607 Study and Teaching 608 Inventions and Patents 609 Historical and geographical treatment In the above series, the number 608 is inventions and Patents in Technology class whereas it is a different concept in s.s. Table. So care should be taken to use Standard Subdivisions in this situation.

233 6.7 Cooccurrence of Two or More Standard Subdivisions Often a title of a document may contain two or more Standard Subdivisions. For example, A journal on economic theory. Here 'journal' and 'theory' both are s.s. Normally, we use one s.s. on preferential basis. In the beginning of Table - 1, There is a guidance of selecting the s.s. from the table of precedence. If we observe the table, we find that the s.s. are preferred in the following general order Methods Viewpoints Internal form External form You must consult this table of preference while selecting Standard Subdivisions from among the two. Let us take an example. 'A journal on the study and teaching of economies'. Here the core subject is Economics 330 Journal is a s.s. -05 (From Table - 1). Study and teachings is also a s.s. -07 (From Table -1) Hence we will ignore -05 and use -07 as s.s. and so the class number will be 330.07 Similarly, 'Illustrations in the techniques of cataloguing' Here core subject is cataloguing 025.3 illustrations s.s. -022 (from Table -1). Techniques also a s.s. - 028 (From Table - 1) Table of precedence directs us to use techniques (-028) ns s.s. with 025.3 ignoring -022. So the class number will be $025.3 + 028$ (Table-1) = 025.3028 Self-Check Exercise - 5 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Assign class numbers of the following titles : 1. Encyclopaedia of Library Associations 2. A directory of Law schools

234 1. 2. 6.8 When Standard Subdivisions are Not Used There are certain instances where s.s. are not applicable though we have discussed that s.s. are applicable to all subjects or classes. In case where standard subdivision is a part of the subjects, there is no need of using the Standard Subdivisions. Such documents appeared as form classes like encyclopaedia, dictionaries, periodical, philosophy, methods, etc. All these are considered as the subjects of such documents. For example, 'Dictionary of English language 423'. Here dictionary itself serves as subject. Hence there is no need of using -03 for s.s. Similarly 'Encyclopaedia Britannica' numbered 032 in schedule. It does not require -03 for s.s. Such other areas which does not require any s.s. like 050 General periodicals, 001.42 Research Method, in the class 900 History. Self-Check Exercise - 6 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Provide class numbers to the following : 1. Dictionary of German Language 2. History of China 3. Encyclopaedia Americana 4 A periodical in Spanish Language 1.

..... 2. 3. 4. 6.9 Summary In this unit we have discussed with the concept of Standard Subdivisions, their characteristics and use in number building process. The main features are: 1. Standard Subdivisions are recurring concepts used in the universe 235 of documents. Concepts are denoted by some standard terms with constant notation wherever they are used. 2. The s.s. always consists of at least two digits of which the initial digit is O as a facet indicator between the subject number and the Standard Subdivision number. 3. Usually a s.s. is added with a zero but sometimes a s.s. is added with two or even three zeros. Such exceptions are provided in the schedules. 4. In some areas of knowledge s.s. are used with local meaning. 5. Standard Subdivisions sometimes serve as a part of the subject, viz. General periodicals, general encyclopaedias, History of specific countries, etc. In these cases there are no need of using s.s. with the main classes. 6. If a document contains two or more Standard Subdivisions, it is directed to follow the table of precedence to use Standard Subdivisions in such cases. 6.10 Answers to Self-Check Exercises Exercise 1 Exercise 2 Exercise 3 1. 541.303 1. 510.9 1. 330.0212 2. 294.403 2. 505 2. 353.0005 3. 574.072 3. 503 3. 343.03 4. 337.05 4. 105 4. 616.006 5. 520.72 5. 599.0072 Exercise 4 Exercise 5 Exercise 6 1. 778.1535 1. 020.6 1. 433 2. 025.524015195 2. 340.071 2. 951 3. 025.401511324 3. 031 4. 056.1

236 UNIT-7

Use of Table 2 Areas Structure 7.1 Introduction 7.2 Divisions of the Areas - Table 2 7.3 Addition of an Area Number 7.3.1 Area number as a part of the class number 7.3.2 Addition of area number through Standard Subdivision 7.3.3 Addition of area number following Add-to-Instruction 7.4 Addition of Two Area Numbers 7.5 Insertion of Area Number between Two Aspects of the Same Subject 7.6 Extension of Area Number from Table-2 by Another Number from Table-2 7.7 Addition of Area Notation to a Standard Subdivision Other Than -09 7.8

Summary 7.9 Answers to Self-Check Exercises 7.1 Introduction In this unit we discuss the use of area table. Area number requires to subdivide a subject when areas are considered as an essential component of a subject. Area numbers are mostly used in social science subjects, Fine arts, Humanities. In these fields subjects are studied from a geographical point of view, For example, political situation in India, economic condition of Japan, French paintings, Libraries in UK, Banking in China, etc. All these subjects are treated from a particular area point of view. Hence area number forms an integral part of the class numbers of the stated subject. 7.2 Divisions of the Areas - Table 2 The major divisions of Areas Table are given below : -1

Areas, regions, places in general -2 Persons regardless of areas, region, place -3 The Ancient world 237 -4 Europe. Western Europe -5 Asia. Orient. Far East -6 Africa -7 North America -8 South America -9 Other parts of world and extraterrestrial worlds. Pacific ocean islands (Oceania). Each of the above digit is further extended hierarchically, divided into countries and further to provinces and sometimes to districts. Take the example of 5 (Asia). -5 Asia Ori. t. Far East -51 China -52 Japan -53 Arabian Peninsula and adjacent areas -54 South Asia. India -55 Iran (Persia) -56 Middle East (Near East) -57 Siberia (Asiatic Russia) -58 Central Asia -59 Southeast Asia

Each of the above digit further extended to smaller units like state or provinces. For example, -54 South Asia. India -541 Northeastern India -542 Uttar Pradesh -543 Madhya Pradesh -544 Rajasthan -545 Punjab region of India -546 Jammu and Kashmir -547 Western India -548 Southern India -549 Other Jurisdictions. Further, the digit -545 Punjab region has been extended into the following provinces -545 Punjab region of India -5452 Himachal pradesh -5455 Former Punjab state

238 -54552 Punjab -54558 Haryana -5456 Delhi 7.3 Addition of an Area Number Area number is added to any number in three ways : (1) It is already added with classes like History, Geography as a part of the class number (e.g. 915 Geography of Asia ; 954 -History of India). (2) Area number is also added with any class number when so instructed 'to add area notation from Table-2'. (3) Area number is added with the interposition of -09 (From Table 1) describing geographical treatment. 7.3.1 Area number as a part of the class number In many areas of knowledge area is an important characteristic in the formation of subjects. In such cases the subject is divided by the area number. Example of History and Geography show such structure. 940 History of Europe 550 History of Asia 960 History of Africa Similarly 914 Geography of Europe 915 Geography of Asia 916 Geography of Africa Here the main class 9 History and 91 Geography have been directly divided by areas in Table -2 and we have -4 Europe -5 Asia -6 Africa The above numbers are directly added with 9 and 91 respectively. This does not require any add area notation instruction. Farther divisions of -4, -5, and -6, etc are also added to the respective base numbers and are taken from Table - 2.

239 For example, 315

General statistics of Asia. 315.4 General statistics of India. 315.48 General statistics of Southern India. 315.482 General statistics of

Tamil Nadu. The above numbers are obtained by area numbers -54 India, -548 Southern India and -5482 Tamil Nadu with the base number 31 General Statistics. In these cases, classifiers are directed to use area notation from Table-2 to those classes identified by asterisk mark. Let us take an example, In 310 General Statistics, we find 315 *General Statistics of Asia It is found at the foot note of the explanation of asterisk mark which directs the classifiers to add area notation 4-9 from Table-4 to base number 31. Thus 'General statistics of India will be ; 31+54 (Table-2) = 315.4 Similarly 'Geography of Asia 1 is indicated by 915 which is marked by an asterisk. The asterisk directs to add area notation from Table-2 to the base number 91. Thus for the subject Geography and Travel in India will be : 91 + 54 (Table-2) = 915.4 Similarly History of a country is derived by add area notation 3-9 from Table-2 to the base number of 9 History. Hence History of India will be : 9 + 54 (Table-2) = 954. Self-Check Exercise 1 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit Classify the following titles using Table - 2 : 1. Higher education in India 2. Geology of Himachal Pradesh 3. History of India during British rule 4. Journalism in India 5. History of Kashmir 6. Geography and travel in China 1. 2. 3. 4.

240 5. 6. 7.3.2 Addition of Area Number Through Standard Subdivision

Some subjects require to be subdivided by an area and in such situations there is no instruction to add area notation in the schedules. In such cases area number can also be added through the interposition of s.s. - 09 (From Table -1) describing historical and geographical treatment of a subject. The treatment of -09 (From Table-1) as under : -091 Treatment by area, regions, places in general -093-099 Treatment by specific continents, localities, extraterrestrial worlds. Here instructions appear to add area notation : "Add 'Areas notation.....From Table - 2 to base number-09.....". It means that the area numbers covered by the span 1 or 3-9 may be added since the s.s. -09 can be added to any number in the schedules. So area number can be added to any class number. For example, a topic 'Banking in India'. Here the core subject is Banking and its class number is 332.1 but there is no provision in the schedule to add area table. We can add area number through -093 - 099. Hence the class number will be : 332.1 + 09 (From Table-1) + 54 (Table-2) = 332.10954. Similarly, 'Women labour in Japan' will be 331.4 (women labour) + 09 (Table-1) + 52 (From Table- 2) = 331.40952. Self-Check Exercise - 2 Note : (a) Space provided below for your answers. (b) Compare your answers to those given at the end of the unit. Build class numbers of the following titles : 1. Freedom of speech in communist countries 2. Tax systems in India 3. Political rights in China 4. Naval forces in Japan 1. 2. 3. 4.

241 7.3.3 Addition of area number following Add-to-This instruction DDC enumerates some subjects in the schedules with the provision of addition of area number in the respective classes where area is an essential feature. This is possible with the instruction "add area notation from Table- 2". For example, "Political situation in India" Political situation is enumerated at 320.9 and under 320.91 - 320.99 instructions appear to add area notation 1-9 from Table-2 to the base number 320.9. Hence the required number will be : 320.9 + 54 (Table-2) = 320.954 Similarly : "Foreign Policy of China" Foreign policy is the core subject and the number is 327. Searching the schedule 327.3 - 327.9 reads foreign policy of and foreign relations between specific nations. Add area notation instruction appears under this entry. Hence the class number will be : 327 + 51 (From Table-2) = 327.51 Self-Check Exercise - 3 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. Economic conditions in U.S.A. 2. Foreign policy of United Kingdom 3. Higher education in India 4. Economic planning in Bangladesh 5. Journalism in Russia 1. 2. 3. 4. 5. 7.4

Addition of Two Area Numbers There are some subjects which require subdivision by two area numbers. 242 This happens when bilateral relations occur between two specific nations. DDC provides the addition of two area numbers with specific instructions. For example, Economic relation between two nations.

The instruction reads under 337.3 - 337.9 Add 'Areas' notation 3-9 from Table-2 to the base number 337, then add 0 and to the result add 'Areas' notation 3-9 from Table-2.

So, economic relation between United Kingdom and France $337+41$ (Table-2) + $0+44$ (Table-2) = 337.41044 Similarly : "U.S. economic aid to China" Base number for economic aid is 338,911 - 338.919 describes International assistance (Aid) by specific jurisdiction and groups of jurisdictions. The rule is : $338.91 + 73$ (From Table-2) + $0 + 51$ (Table-2) =

338.9173051 Self-Check Exercise - 4 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. Foreign relations between Japan and Germany 2. India's economic aid to Nepal 3. Economic policy between India and France 4. Trade relations between United Kingdom and Iran 5. Spanish colonial policies in Argentina 1. 2. 3. 5. 7.5

Insertion of Area Number between Two Aspects of the Same Subject

In some places like law, public administration, Political science, area numbers form the intermediate facets since area numbers are given more importance than the subordinate aspects of the field of studies. Let us consider the class law 342-349. The appropriate instruction is :

243 Major branch of Law + Country + subtopic of Law. The reason for insertion of area number is that it will help to arrange the major branches of law by country. Let us take an example : Law of evidence in India $347 + 54$ (Table. 2) + 06 (From 347.06) = 347.5406 Similarly : Law of Public health in Japan $344 + 52$ (Table-2) + 04 (From 344.04) = 344.5204 Legislature is at 328 extended to : 328.4 - .9. Legislative branch of specific jurisdictions in Modern World. For example, "Opposition in Indian Parliament". Instruction reads under 328.4 - .9 as "

add areas notation 4-9 from Table -2 to the base number 328. So the number is : $328 + 54$ (Table 2) + 076 (Special Table under 328.4 - .9) + $.9$ (From 328.369 following 328.36) = 328.540769 Similarly : Ministry of Defence, Govt. of China The required number is : $354 + 51$ (Table - 2) + 06 (As under 354.4 - .9) + 6 (From 351.06) = 354.51066 Self-Check Exercise - 5 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. Law of property in India 2. Ministry of Finance, Govt. of Japan 3. Debates in Indian Parliament 4. Socialist parties in Russia 1. 2. 3. 4.

244 7.6 Extension of Area Number from Table-2 by Another Number From Table-2 Two distinct characters of geographical entity are also combined in DDC For example, rural regions and India are two distinct features. Rural regions enumerated at -1 and India at -3-9. As per instructions under -1 Places in general or to any of its subdivisions and add 0, then add area notation 3-9 from Table-2. For example : Hilly areas of India -143 + 0 + 54 (Table-2) = -143054 Rural India will be -1734 (Table-2) + 0 + 54 (Table-2) = -1734054 So for the topic "Elementary education in Rural India", the class number will be : $372.9 + 1734054$ (Table-2) = 372.91734054 An alternative method of combination is instructed under -3-9 (Table-2). Add 009 with any base number from 3-9 and to the result add the numbers following -1 in -11 -19. For example, "Geography of hilly areas of India" will be : $91 + 54$ (Table-2) + $009 + 43$ (From -143 of Table-2) = 915.400943 Self-Check Exercise 6 Note:(a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. Wages in developed countries of Europe 2. Geography of coastal regions of India 3. Civil rights in Islamic nations of Asia 1. 2. 3. 7.7

Addition of Area Notation to a Standard Subdivision Other Than -09

In DDC there are some Standard Subdivisions permitting the addition

245 of area table without insertion of -09 (Table-1). Such Standard Subdivisions are directly extended as per 'add area notation 1 instruction. These compound area numbers may be added to any class number in the schedule. For example in Table-1 -07 Study and Teaching -0701 - 9 Geographical treatment of study & teaching Instructions read under this entry to "add area notation 1-9 from Table- 2 to the base number -070....." So, for example, the topic "Study and teaching of mathematics in India" $510 + 070$ (Table-1) + 54 (Table-2) = 510.7054 Again, the s.s. -0711 describes colleges and universities extended by means of area notation as per "add area notation" instruction. Thus the topic "Teaching library science in universities of India" will be $020 + 0711$ (Table-1) + 54 (Table-2) = 020.71154 Self-Check Exercise - 7 Note (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles with the help of Table -1 and Table-2 simultaneously : 1. Study and teaching mathematics in the universities of India 2. Science organisations in France 3. Research in economics in U.S.A. 4. Library science curriculums in United Kingdom 1. 2. 3. 4. 7.8 Summary We have explained in this section the various applications of Table-2 i.e. "areas". (1) The area numbers are preceded by a dash indicate some insertion to be made in the gap. (2) The area numbers are used with any base number in two ways. It can be added with "add area notation" instruction in the schedules of

246 classification and can also be added with the interposition of s.s. -09 (Table-1). So area numbers are freely added to any base number where they are appropriate. (3) Two distinct area numbers are also added to meet the specific requirements. (4) Some s.s. (Table-1) are also extended with the addition of area numbers (Table-2) and also vice-versa. 7.9 Answers to Self-Check Exercises Exercise - 1 Exercise - 2 Exercise - 3 1. 378.54 1. 342.0583 1. 330.973 2. 555.452 2. 336.200954 2. 327.41 3. 954.03 3. 323.50951 3. 378.54 4. 079.54 4. 359.00952 4. 338.95492 5. 954.6 5. 077 6. 915.1 Exercise - 4 Exercise - 5 Exercise - 6 1. 327.43052 1. 346.5404 1. 331.29172404 2. 338.915405496 2. 354.52062 2. 915.400946 3. 337.54044 3. 328.5402 3. 323.4091767105 4. 382.0941055 4. 324.247074 5. 325.3146082 Exercise - 7 1. 510.71154 2. 506.044 3. 330.072073 4. 020.71141

247 UNIT-8 □□□□□

Use of Table-3 : Subdivisions of Individual Literatures Structure 8.1 Introduction 8.2 Divisions of Main Class 800 Literature 8.3 Introduction to Tables-3 and-3A 8.4 Classifying Works of Individual Authors 8.4.1 Class numbers of some English Writers 8.4.2 Class numbers of some American Authors 8.4.3 Class numbers of some Indian Writers 8.5 Anthologies and Critical Appraisals of General Literatures of More than One Language 8.6 Anthologies and General Criticism of Literary Works in a Specific Language 8.7 Anthologies, History, Critical Appraisal of Literatures of a Specific Language, Form and Period 8.8 Use of Table-3A with Other Classes 8.9

Summary 8.10 Answers to Self-Check Exercises 8.1 Introduction All works of literature class are placed in 800 Literatures (Belles Letters). The literary forms are extended with the introduction of Table-3 and Table- 3A displaying subject values or additional elements other than form numbers. The literary form numbers are collectively called form classes. Literary criticisms and Literary collections are considered in Table-3. 8.2 Divisions of Main Class 800 Literature The entire class 800 has been divided in the following order : 800 Literature (Belles Letters) 801 Philosophy and theory

248 808 Rhetoric and collections 809 History, description, critical appraisal of more than one literature 810

American Literature 820 English Literature 830 German Literature 840 French Literature 850 Italian, etc. Lit. 860 Lit. of Spanish and Portuguese languages 870 Latin Lit. 880 Greek Lit. 890 Literature of other languages. In the above order numbers 801-809 is applicable for general consideration and the series 810-890 describes Literatures of Individual Languages. The individual languages which are not included in 810-890 are considered in 890 other language literatures.

8.3 Introduction to Tables-3 and-3A Class numbers for works in literature class are rarely enumerated in the schedules. Literary subdivisions which are recurrently used in every literature are listed in Tables-3 and-3A with their constant numbers and uniform meaning. These literary subdivisions along with their extended schedules are given in Tables-3 and 3A. A general instruction is given under the heading 810-890 to add numbers from Table-3 and-3A. Table-3A lists the various themes and subjects treated in literature and are added to meet the various demands of specific works. A summary of Table-3 is as follows ; -01-07 Standard Subdivisions. -08 Collections -09 History, description, critical appraisal -1 Poetry -2 Drama -3 Fiction -4 Essays -5 Speeches -6 Letters

249 -7 Satire and Humour -8 Miscellaneous writings Each of the forms has been further subdivided by type or kinds and by periods (a) Standard Subdivisions attached with two zeros, eg. -1001 - 1009 Standard Subdivisions of poetry (b) by types or kinds of that literary form, eg. -1 Poetry -102 Dramatic -103 Epic -106 Descriptive -108 Light or ephemeral The other forms, -2 Drama, -3 Fiction, are also extended according to their types. (c) Period divisions in literary forms are as follows : -11-19 Poetry of specific periods -21-29 Drama of specific periods -31-39 Fiction of specific periods, etc.

Specific periods are individualised by the period table from the respective literature of individual language. All these subdivisions in Table-3 are to be combined with the numbers from the schedules indicating literature of specific language. Specific language literatures are identified by an * asterisk mark which facilitates expansion with the help of Table-3. For example, 81 * American Literature 82 * English Literature 83 * German Literature 891.43 * Bengali Literature With the provision indicated by asterisk mark the above literatures can be extended to their forms of presentation. Thus, 811 American Poetry 812 American Drama 821 English Poetry 822 English Drama 831 German Poetry 832 German Drama 891.441 Bengali Poetry 891.442 Bengali Drama 813 American Fiction 823 English Fiction

250 833 German Fiction 891.443 Bengali Fiction 8.4 Classifying Works of Individual Authors The citation order of components in literature of individual works is Base number + Form Number + Period. (1) Base number is considered from the schedules of literature class. (2) The literary form number is collected from Table-3 (3) Period means literary periods given at the literature of specific language. For example, Period divisions for English literature are : 820 English Literature 1 Early period, 1066 - 1400 2 Pre-Elizabethan period, 1400 - 1585 3 Elizabethan period, 1588 - 1625 4 Post-Elizabethan period, 1625 - 1702 7 Early 19th Century, 1800 - 1837 8 Victorian period, 1837 - 1900 9 1900 - 91 20th Century 912 Early, 1900 - 1945 914 Later, 1945 - 8.4.1 Class numbers of some English Writers The class numbers of individual authors in English literature are as follows: John Milton (1608 - 1674) Paradise Lost 82+1+4 (Period : Post-Elizabethan) = 821.4 Poetry of John Keats (1795 - 1821) 82 + 1 + 7 = 821.7 Poems of Robert Browning (1812 - 1892) 82 + 1 + 8 = 821.8 David Copperfield by Charles Dickens (1812 - 1870) 82 + 3 + 8 = 823.8

251 8.4.2 Class numbers of some American Authors Scarlet Letter : A novel by Nathaniel Hawthorne (1804 - 1892) 81+3 + 3 (Period from American Literature) = 813.3 Death of a salesman, a play by Arthur Miller, a contemporary playwright 81 + 2 + 54 = 812.54 Poems of R. W. Emerson (1803 - 1882) 81 + 1 + 4 = 811.4 Essays of R. W. Emerson will be 81 + 4

(Essays) + 4 (Periods) = 814.4 8.4.3 Class numbers of some Indian Writers Period table for Indian writers is given under 891.4 Indie Literature of the Schedules as follows : 1 To 1345 2 1345-1645 3 1645 - 1845 4 1845-1895 5 1895-1920 6 1920-1940 7 1940 - Some works of Individual authors in Indie Literatures are the following : Godan – a Hindi Fiction by Munshi Premchand (1880 - 1936) 891.43 + 3 + 5 = 891.4335 Plays of Tagore (1861 - 1941) 891.44 + 1+5 (Period) = 891.4415 Poems of Tagore will be 891.44 + 1 + 5 = 891.4415 Poetry of Shankar G. Kurup (b. 1901 -) a Malayalam Poet 894.812 + 1+6 (Period) = 894.81216 Self-Check Exercise - 1 Note : (a) Space is given below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles of literary works : 1. Selected poems of Robert Browning (1812 - 1889) 2. 20th Century English Drama

252 3. Kanyasulkam, a drama by G. V. Appa Rao (1862-1915), a Telegu writer 4. Geetanjali by R. N. Tagore (1861 - 1941) 5. Battle of Books - a satire by Jonathan Swift (1667 - 1745) 6. Selfish Giant, an English novel by Oscar Wilde (1894 -) 7. Urvashi - a long Hindi poem by Ramdhari Singh (1908 - 1974) 1. 2. 3. 4. 5. 6. 7. 8.5

Anthologies and Critical Appraisals of General Literatures of More than One Language Collections and Critical study of literary works

of more than one language are I given under the class "808.8 Collections from more than one literature", and "809 History, description, critical appraisal of more than one literature". 808.8 Collections from more than one literature 808.8001 - .8005 Collections from specific periods. Instructions appear under this entry "Add to the base number 808.800 the numbers following 090 in "Standard Subdivisions" notation 0901 - 0905 from Table-1". Thus the topic "Anthology of 18th century Literature", will be : 808.800 + 9 3 (Table-1) = 808.8003 808.801 - .803 Collections displaying specific features Instructions to individualise the above series read as "Add notations 1 - 3 b from Table-3A to the base no. 808.80". Thus the topic "An Anthology of Romantic literature" 808.80 + 145 (Table-3A) = 808.801 45 253 Similarly : "An Anthology of Tragedy" 8.80 + 16 (Table-3A) = 808.8016 Self-Check Exercise - 2 Note : (a) Space provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles of literary works : 1. An anthology of 20th century literature 2. Collection of poetry describing realism 3. Critical study of Epic poetry 4. Collections of love stories 5. Collections of Historical plays 6. Critical study of poetry about animals 7. Critical appraisal of 18th century literature 1. 2. 3. 4. 5. 6. 7. 8.6

Anthologies and General Criticism of Literary Works in a Specific Language.

In this section we discuss about the application of synthesis for works on literature in a specific language. The methods of number building are described under 810-890. Let us take an example : "An Anthology of Bengali Literature" 891.44 + 08 (Table 3) = 891.4408 Similarly : "An Anthology of Bengali Literature displaying Romanticism" 891.44 + 080 (Table-3) + 145 (Table 3A) = 891.44080145

254 Similarly : 'History of Bengali Literature' 891.44 + 09 (Table-3) = 891.4409 "History of Bengali Literature displaying comedy" 891.44 + 09 (Table-3) + 17 (Table-3A) = 891.440917 Self-Check Exercise - 3 Note: (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. A collection of English literature on idealism 2. A history of Bengali literature from 1845 to 1895 3. History of English literature of Victorian Period 4. A critical appraisal of Hindi literature on religious themes 5. An Anthology of French literature on comedy 1. 2. 3. 4. 5. 8.7

Anthologies, History, Critical Appraisal of Literatures of a Specific Language, Form and Period

In this section we introduce you the treatment of literatures of specific languages with specific literary forms and specific periods. It also discusses the specific themes displayed in specific forms. Specific themes are introduced with the help of -08 for collections and -09 for critical study. Hence the citation order of components consists of form, period and themes is as follows : Base number + Form (Table-3) + Period (From Schedule of specific literature) + 080/09 + Theme/viewpoint (Table-3A). Let us take a title of works. Collections of 20th century English poetry

255 82 + 1+91 (Period) + 08 (from 1008 Table-3) 821.9108 Similarly : "History of English poetry of 20th century displaying Realism". 82 + 1+91 (Period) + 09 (The number following 10 in 1009 Table-3) + 12 (Table-3A) = 821.910912 Collections of Bengali fiction by writers living in London 891.44 + 30080 (Table-3) + 9 (Table-3A) + 4212 (Table-2) = 891.443008094212 Collections of Bengali science fiction for the children 891.44 + 30876 (Table-3) + 08 (Table-3) + 9282 (Table-3A) = 891.4430876089282 Self-Check Exercise - 4 Note : (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. Collections of English poetry describing idealism 2. Critical study of German fiction of 20th century displaying humanity 3. Collections of 20th century French drama displaying revolution 4. History of English one-act plays displaying religious themes 5. Depicting Bengal in Bengali poetry of 20th century 1. 2. 3. 4. 5.

8.8 Use of Table-3A With Other Classes Table 3 is exclusively used to subdivide literature class 800 but only exception of its use as a component of the class 792 theatre for obvious relation between the theatre and literature. The number which includes Table 3A is 792.0909. 256 792.0909 Special aspects of theatre It is instructed here to add notation 1-3 from Table-3A to the base number 792.0909. Thus for the title "Treatment of sex in the theatre" 792.0909 + 353 (Table-3A) = 792.0909353 Table-3A also used to subdivide 792.1 - .8 by inserting the numbers 0909 following 792 in 792.0909. Thus the title "Treatment of social themes in historical drama". 792.14 + 0909 (From 792.0909 following 792) + 355 (Table-3A) = 792.140909355 Self-Check Exercise - 5 Note : (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. Treatment of social themes in theatre 2. Treatment of violence in historical drama 3. Love in Ballet 1. 2. 3.

8.9 Summary In this unit we have explained the use of Table 3 and 3A for the works in literature class. General collections and critical appraisals of literature regardless of language are discussed here. All individual literatures are marked with an asterisk called base numbers. A brief account of Table-3 and its application to subdivide an individual literature is given in this unit. It is also discussed here the application of Table-3A for literatures of specific language with specific forms and period division. Table 3A can also be added in the class 792 as per instruction under 792.0909 and 792.1 - .8.

257 8.10 Answers to Self-Check Exercises Exercise - 1 Exercise - 2 Exercise - 3 1. 821.8 1. 808.8004 1. 820.8013 2. 822.91 2. 808.91912 2. 891.4409004 3. 894.82725 3. 809.13 3. 820.9008 4. 891.4415 4. 808.8385 4. 891.430382 5. 821.912 5. 808.82514 5. 840.8017 6. 823.8 6. 809.1936 7. 891.4317 7. 809.033 Exercise - 4 Exercise - 5 1. 821.008013 1. 792.0909355 2. 833.9109384 2. 792.140909358 3. 842.9108358 3. 792.80909354 4. 822.0410842 5. 891.44109325414 258 UNIT-9 □□□□□

Use of Tables 4 and 6 Structure 9.1 Introduction 9.2 Introduction to Table-4 9.3 Use of Table - 4 9.4 Introduction to Table - 6 9.4.1 Use of Table - 6 9.4.2 Use of Table - 6 with Table-4 9.5

Summary 9.6 Answers to Self-Check Exercises 9.1 Introduction In this unit Tables-4 and 6 are discussed. Table - 4 Subdivisions of individual languages are used to subdivide individual language from linguistic problem and Table-6 is used to subdivide a class from language point of view. 9.2 Introduction to Table-4 Table-4 includes notations which are recurrently used with all languages 420 - 490. The summary of this table is as follows : -1 Written and spoken codes of standard form of the language -2 Etymology of the standard form of language -3 Dictionary of the standard form of language -5 Structural system (Grammar) of the standard form of

language -7 Non-standard form of language -8 Standard usage of the language (Applied Perspectives Linguistics) These numbers and their subdivisions can be combined with any base number from the schedule of 420-490. The individual languages are identified by asterisk symbol indicating some guidance to the classifier for the addition of subdivisions in Table - 4.

259 9.3 Use of Table - 4 Any number in the language class (i.e. 400) marked with asterisk symbol leads us to follow instructions at the foot note "add as instructed under 420 -490". Let us take an example : French grammar This title deals with the subject French Language. Its number is 44 and the number for grammar is -5 (Table-4). Hence the complete class number is 44 + 5 (Table-4) = 445 Similarly : Bengali grammar will be 491.44 + 5 (Table - 4) = 491.445 Dictionary of English etymology 42 + 2 (Table - 3) + 03 (Table - 1) = 422.03 German Vocabulary 43 + 824 (Table - 4) = 438.24 It may be noted here that the numbers without asterisk mark cannot be extended with the subdivisions of language table. Such aspects of linguistic problems are classed with the language number itself. For example, Dictionary of Nepali language is classed with 491.49. Bilingual problems are solved with the help of Table - 6 (Languages). Self-Check Exercise - 1 Note : (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. German pronunciation 2. Dictionary of Hindi language 3. Grammar of Oriya language 4. Etymology of French 1. 2. 3. 4.

260 9.4 Introduction to Table - 6 This table includes notations used for specific languages. These language numbers are used only with specific instruction "add language notation 1- 9 from Table-6" in the schedules. The purpose of this Table is to show the subject where language is an important component. The summary of this table is as under : -1 Indo-European (Indo-Germanic) Languages -2

English and Anglo-Saxon Languages -3 Germanic (Teutonic) Languages -4 Romance Languages -5 Italian, Romanian, Rhaeto-Romanic -6 Spanish and Portuguese -7 Italic Languages -8 Hellenic Languages -9 Other Languages

Each of the above notation has been further divided hierarchically, e.g. -8 Hellenic Languages -81 Classical Greek -87

Post-classical (Hellenistic and Byzantine) Greek -89 Modern Greek. 9.4.1 Use of Table - 6 The notations of this Table is applicable in the schedules and Auxiliary Tables where specific instruction "add language notation from Table-6" exists.

For example, Bengali version of the Bible Here the base number is Bible 220 It has its subdivisions as 220.5 Modern translations and versions of the Bible 220.53 - .59 Bible in other languages Instruction reads as "add language notation 3- 9 From Table-6 to the base number 220.5". Thus the class number will be : $220.5 + 9144 \text{ (Table-6)} = 220.59144$

261 Similarly, Bible in German language $220.5 + 31 \text{ (Table - 6)} = 220.531$ Similarly, auxiliary number -175 (From Table-3)

Regions where specific languages predominate can be extended through language table with the instruction under this entry as "to add language notation 1 - 9 from Table - 6 to the base number -175". Hence the topic 'Regions where English language predominate' is numbered as $-175 + 21 \text{ (Table - 6)} = -17521$. General encyclopaedias and general periodicals have been divided by language notation from Table-6. Thus, General encyclopadeia in Bengali $039 + 9144$

(Table-6) = 039.9144 Similarly : General periodicals in German $05 + 31 \text{ (Table-6)} = 053.1$ Self-Check Exercise - 2 Note :(a)

Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. French language encyclopaedia 2. General periodicals in Oriya language 3. Bible in Punjabi language 4. Social structure of Bengali speaking people 1. 2. 3. 4.

..... 9.4.2 Use of Table - 6 with Table-4 Notation for Dictionary appears as a subdivision of Table-4 can be divided by the numbers in Table-6. Such situation occurs in case of Bilingual Dictionaries. -3 Dictionaries (Table -4) -32- 39 By languages Add language notation 2-9 from Table - 6 to the base number -3.

262 The order of citation using Table-4 and Table - 6 is Base number + Table -4 + Table - 6. Thus the topic : French - German dictionary the class number is $44 + 3 \text{ (Table - 4)} + 31 \text{ (Table - 6)} = 443.31$ In case of bilingual dictionary, there are two preferences : (i) libraies in a specific language speaking will give preference to the language which is unknown to those people i.e. the unknown language is cited first in the sequence and (ii) If both the languages are equally significant, libraries where both the languages are unknown, the language number which is coming later in the schedules of classification will be cited first in the sequence. Several subdivisions in Table-4 are extended with the help of Table-6. For example : -24 Foreign elements -834 Audio-lingual approach to expression for those

whose native language is different -864 Readers for those whose native language is different Thus the topic "English words in Bengali" $491.44 + 24 \text{ (Table - 4)} + 9144 \text{ (Table - 6)} = 491.44249144$ Similarly : French readers for German speaking people $44 + 864 \text{ (Table - 4)} + 31 \text{ (Table -6)} = 448.6431$ Self-Check Exercise - 3 Note :(a)

Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit. Classify the following titles : 1. English - Bengali dictionary 2. Hindi-Marathi dictionary 3. Audio-lingual approach to German for the English speaking people 4. Learning French through English 5. English - French dictionary 1. 2. 3. 4. 5.

..... 263 9.5 Summary In this unit we have explained how Table - 4 and Table - 6 are applied. Table - 4 listed various subdivisions of language such as dictionary, etymology, grammar, etc, The use of these aspects of language is possible with the "add language subdivisions notation from Table - 4". The base languages marked with asterisk symbol leads us to follow the- instruction at the foot note. General instruction for addition of language subdivisions appear at 420 -490. Table - 6 listed systematical the individual languages of the world grouped according to their family affiliation. This individual language number is added with any desired base number only with the instruction "add language notation from Table - 6". Bilingual dictionaries are numbered through the use of Tables-4 and 6 together. 9.6 Answers to Self-Check Exercises Exercise -1 Exercise -2 Exercise -3 1. 431.52 1. 034.1 1. 423.9144 2. 491.433 2. 059.9145 2. 491.4639143 3. 491.45 3. 220.59142 3. 438.3421 4. 442 4. 305.79144 4. 448.6421. 5. 443.21

264 UNIT-10 □□□□□ Use of Table-5 Racial, ethnic, national groups and Table-7 Persons Structure 10.1 Introduction 10.1.1. Use of Table-5 10.1.1.1 With specific instructions 10.1.1.2 Use of Table - 5 with the help of Standard Subdivision 10.2 Introduction to the Use of Table - 7 Persons Notation 10.2.1 Use of Table-7 directly with "add instructions" 10.2.2 Use of Table -7 with the help of Standard Subdivision 10.3

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Summary 10.4 Answers to Self-Check Exercises 10.1 Introduction to Table-5 In this unit we discuss the use of Table-5 racial, ethnic and national groups. This table listed the persons according to their race, ethnic background and are used to divide the classes according to the racial, ethnic point of view. This table is used with specific provision of 'add racial, ethnic, national group's numbers from Table-5 to any desired base number". These notations can also be applied with the interposition of -089 (Table 1) to any number from schedules where racial aspect is appropriate. A summary of the Table-5 is reproduced below :

-1 North Americans -2 Anglo-Saxon, British, English -3 Nordics -4 Modern Latins -5 Italians, Romanians, related groups -6 Spanish and Portuguese -7 Other Italic people
 265 -8 Greeks and related groups -9 Other racial, ethnic, national groups Each of the above notations has been further divided hierarchically. Each notation is preceded by a dash. The table is denoted by the abbreviation r.e.n. for example, Russian, people r.e.n. -9171 10.1.1 Use of Table-5 10.1.1.1 With specific instructions The notation for specific race is added with any defined base number following the instructions "add r.e.n. notation from Table-5". Let us take an example : Ethnopsychology of Indians Ethnopsychology 155.84 (From schedules) Indians -91411 (Table-5) As per instruction, the class number will be $155.84 + 91411$ (Table-5) = 155.8491411 Similarly : Social stratification of the Indian people $305.8 + 91411$ (Table-5) = 305.891411 Welfare services to Indians $362.797 + 91411$ (Table-5) = 362.79791411 Racial aspect and place are combined using 0 as a facet indicator, e.g. 'Russians in India' -9171 + 0 + 54 = - 9171054 So, the title 'Social studies of Russians in India' $305.8 + 9171$ (Table-5) + 0 + 54 (Table-2) = 305.89171054 In some places r.e.n. notation is directly added with area notation, e.g. - 68 Spanish Americans - 687 - 688 National groups

Add 'areas' notation 7-8 from Table-2 to the base number - 68, e.g. Brazilians.

$266 - 68$ (Table-5) + 81 (Table-2) = -6881 So for the title "Ethnopsychology of the Brazilian people' : $155.84 + 68$ (Table-5) + 81 (Table-2) = 155.846881 10.1.1.2 Use of Table - 5 with the help of Standard Subdivision These notations also be used with any base number with the interposition of -089 (From Table-1) with -089 (Table-1), the specific r.e.n. number from Table-5 can be added to obtain specific race, e.g. -089 (Table-1) + 924 (Table-5) = -089924. So for the title, 'Ceramic arts of the Jews' 738 (Ceramic art) + 089 (Table-1) + 924 (Table-5) = 738.089924 Self-Check Exercise - 1 Note (a) Space is provided below for your answers. (b) Compare your answers with those at the end of the unit. Classify the following titles : 1. Psychology of Chinese people 2. Social studies of Japanese people in Kolkatta. 3. Dravidian Minority in Srilanka 4. Use of libraries by Indians in U.S.A. 5. Social structure of Negroes in U.K. 1. 2. 3. 4. 5.

10.2 Introduction to the Use of Table - 7 Persons Notation This Table is defined as a table of notations designating persons by 267 various occupational and other characteristics. There are two groups of persons in this Table, viz. Persons by general classes and persons by specialists on specific subjects. The summary of this Table is reproduced below : -01 - 09

Persons occupied with various occupational characteristics -1-9 Specialists Persons occupied with specific discipline, subjects and activities -1 Persons occupied with philosophy and related discipline -2 Persons occupied with Religion -3 Persons occupied with social sciences -4 Persons occupied with linguistics, lexicography -5 Persons occupied with pure sciences -6 Persns occupied with applied sciences -7 Persons occupied with Fine Arts -8 Persons occupied with Literature -9 Persons occupied with History, Geography and Biography. This Table is used with any base number following add instruction like "add persons notation" 01-99 from Table-7 and with the interposition of -088 (Table-1).

10.2.1 Use of Table-7 directly with "add instructions" For example : Professional ethics of librarians. $174.9 + 092$ (Table-7) = 174.9092 This Table is also used with notations from Table-1 s.s. The notation - 024 works for specific types of users. -024 may be subdivided by persons notations from Table-7. For example : -024 (Table-1) + 62 (Table-7) = -02463 represents works for engineers. This auxiliary number can be added with any base number from the schedule. Thus the title "Mathematics for engineers" $510 + 024$ (Table-1) + 62 (Table-7) = 510.2462.

268 Similarly, the auxiliary number-176 (Table-2) Regions where specific religions predominate. -1762 - 1769 other religions. Instruction appears under this entry reads "add to the base number -176 the numbers following 29 in 'persons' notation 292-299 from Table-7". Thus with -176 the number 71 is added following 29 gives us -17671 regions where Islam predominates. Thus the title History of Islamic countries, the class number will be $909.09 + 7671$ (Table-2 following -1 from -17671) = 909.097671. Self-Check Exercise - 2 Note :(a) Space is provided below for your answers. (b) Compare your answers with those at the end of the unit. Classify the following titles : 1. Ethics of Journalists 2. Costumes of lawyers 3. Customs of dramatists 4. Lawyers as artists 1. 2. 3. 4.

10.2.2 Use of Table -7 with the help of Standard Subdivision If a subject requires to be subdivided by persons notation but no instruction is provided for such addition, then with the interposition of s.s. notation -088 from Table-1, persons notation can be added in such cases. For example, ceramic arts by the blind. The class number is : $738 + 088$ (Table-1) + 08161 (Table-7) = 738.08808161 Similarly :

269 Musics by Mentally retarded persons 780 + 88 (Table-1) + 0826 (Table-7) = 780.880826. Self-Check Exercise - 3
Note: (a) Space is provided below for your answers. (b) Compare your answers with those given at the end of the unit.
Classify the following titles : 1. Paintings by poets 2. Information services to scientists 3. Instrumental music to the blinds
4. Handicrafts by the girl students 1. 2. 3.

4. 10.3 Summary In this we have explained you the use of Tables-5 and 7 with examples. The notations in Table 5 is added with any class number directly with add r.e.n. number from Table 5 instructed where r.e.n. subdivisions appropriate. This Table is also added with the interposition of s.s. number -089 from Table 1 and extended through Table-5. The notations in Table-7 can be added with any base number from schedules * either directly with 'add persons notation' from Table-7 or with the interposition of s.s. number -088 from Table-1. 10.4 Answers to Self-Check Exercises Exercise - 1 1. 155.84951 2. 305.895205414

270 3. 305.894805493 4. 025.5891411073 5. 305.896041 Exercise -2 1. 174.9097 2. 391.04344 3. 390.482 4. 704.344
Exercise -3 1. 750.8881 2. 025.5270245 3. 780.008808161 4. 745.5088375

271 Information Processing (Practical Classification) Module - 3 COLON CLASSIFICATION UNIT -1 Colon Classification : Introduction UNIT -2 Formation and Sharpening of Isolates UNIT -3 Facet Analysis and Synthesis in Physical and Biological Sciences UNIT -4 Facet Analysis and Synthesis in Humanities and Social Sciences

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Module-3 COLON CLASSIFICATION Introduction This block presents the techniques and practices of the classification system devised by Shiyali Ranamrita Ranganathan, the father of Library Science in India. The first edition of the system was published under the title 'Colon Classification' in 1933. Ranganathan used the symbol colon (:) for the combination of component ideas in a specific subject and for that reason, the system is called 'Colon Classification'. The units discussed in this block include the basic concepts of the system, various principles and postulates used in practical classification. The successive units of this block also give you the ideas of practical problems in various disciplines. Since the system does not provide readymade class numbers, the techniques of combination of component ideas in a given problem is explained. The various steps followed in classifying a document is indicated in the beginning of this Block. These steps provide a systematic way of analysing the subject contents of documents to identify the facets of a Main Class belonging to Fundamental Categories.

273 UNIT-1 □□□□□ Colon Classification : Introduction Structure 1.1

Introduction 1.2 Structure and Out-Lines of Main Classes in the System 1.3 Notation Used in the System 1.4 Faceted or Analytico-Synthetic Pattern 1.5 Call Number 1.6 Class Number and the Out-Lines of Main Classes in CC 1.7 Facet Analysis and Fundamental Categories 1.8 Rounds and Levels of Manifestations 1.8.1 Rounds of Manifestaion 1.8.2 Levels of Manifestation 1.9 Steps of Classifying a Document 1.10

The Index 1.11 Summary 1.12 Answers to Self-Check Exercises 1.1 Introduction The first edition of 'Colon Classification' appeared in 1933 by S. R. Ranganathan. So far seven editions have been published. The seventh edition appeared in 1987 which considers only schedules of classification. The Index part is not yet published. Since the seventh edition is not complete, we are using 6th. edition for practical classification. The successive editions, the second, the third, the fourth and the fifth, are published respectively in 1939, 1950, 1952 and 1957. The bibliographical details of sixth edition are as follows : COLON CLASSIFICATION, devised by S. R. Ranganathan, 6th edition, 1960. 1.2

Structure and Out-Lines of Main Classes in the System

The scheme has been divided into three parts : Part -1 : Rules

274 Part - 2 : Schedules

of Classification Part - 3 : Classics and Sacred books Part - 1 : This part contains rules of classifying various subjects, definitions and examples. Chapters 01 - 04 deal respectively with Cafl Number, Class- Number, Book Number and Collection Number. Chapter 05 introduces the concept of facet and shows the part played by the connecting symbols colon and other symbols in the construction of Facet Formulae and Class Numbers. It also introduces the concept of Focus and gives the Devices by which Foci may be formed in the Facets of Class Numbers. Chapter 06 gives a list of the

contractions used. Chapters 07 and 08 gives the canons of Classification and Principles for securing helpful sequence. Chapter-1 is on the Main Classes, and Chapter-2 is on the Table of Common Isolates. Chapters 3-5 deal with Time, Space and Language Isolates. Chapter 6 introduces the concept of Phase, Intra-Facet and Intra-Array Relation Chapter-7

deals with Classic Device which help in

organising the classics in Indology and other fields. The remaining chapters are devoted one to each of some of the Main Classes. The rules in these chapters deal only with the peculiarities in the classification of the Main Classes concerned. At the end of this part an Index is provided to locate specific concept in the rules. Part 2 : This part gives the schedules of classification. It is also divided into chapters. Chapter 02 gives the schedule of form divisions for book number. Chapters 1-5 give respectively the basic sequence of

the Main Classes, the Common, the Time, the Space and the Language Isolates. Chapter 6 gives the schedules for the phase, Intra-facet and Intra-Array Relations.

The schedules for the several facets of the several Main Classes are given in the remaining chapters.

The

Alphabetical Index to the schedules of Space Isolates and the personality isolates of Botany and Zoology are given in Part-2 immediately after the respective schedules themselves. Index to all the constituent terms in the schedules of Main classes are given at the end in one single Alphabetical sequence.

275 Part-3 This part provides the worked out class numbers of classics in Indology. The Indologica! schedules will also be of use in classifying Manuscripts Libraries. At the end of this part an Index to this part is provided. There is an annexure for some changes and corrections in the rules and schedules at the beginning of this book. 1.3 Notation Used in the System Notation means the symbols used in the scheme to represent classes and isolates in a scheme for classification.

The notation in this scheme may be divided into two groups : substantive digits or rich digits to denote classes and isolates ; and indicator digits or connecting symbols for introducing different facets of a class. Colon Classification uses a Mixed base notation i.e. a combination of Indo-Arabic numerals, Roman Capital Letters, Roman small Letters and two Greek symbols. The scheme of symbols are as follows : Sl. No. Type of digits used No.of digits 1. Indo-Arabic Numeral (1-9) 9 2. Roman Capital Letters (A-Z) 26 3. Roman Small Letters (a-z) excluding i, l, o) 23 4. Greek Symbols (A Delta & 2 Sigma) 2 5. Punctuation marks as connecting 6 Symbols : Inverted comma (') Dot (.) Colon (:) Semi colon (;) Comma (,) Hyphen (-) 6. Parenthesis () 2 7. Zero as a connecting symbol 1 8. Arrows : 2 Forward --< Backward >--

276 1.4 Faceted or Analytico-Synthetic Pattern

Colon Classification (CC) is an analytico-synthetic scheme which differs from other schemes like Decimal Classification or the Library of Congress Classification

scheme. The schedules of classification consist of standard terms belonging to different facets of different classes.

By combining the numbers in different facets, class numbers for all possible subjects are constructed. The process of classification in CC involves two steps : (a) Analysis of the specific

subjects into Facets and transforming them into five Fundamental Categories, and (

b) Synthesis of the facets, using facet formula with their corresponding facet indicator. 1.5 Call Number Call number may-be defined as the number denoting the relative position of an individual document in the library and position of its entry in the catalogue. It helps in locating a book

in the library. The call number consists of three parts : -

Class Number - Book Number - Collection Number

The class number specifies the subject of the

book while book number individualises a book in the collection. The only scheme Colon Classification provides not only the class numbers but also the Book Number and the Collection

Number. 1.6 Class Number and the Out-Lines of Main Classes in CC

The class number of a document is the translation of the subject embodied in a document from natural language to classificatory language of ordinal numbers.

In

CC the universe of knowledge has been first divided into traditional divisions, i.e. Natural Sciences, Humanities and the

Social Sciences. Each broad division of the universe of classes has been further divided into

277 Main Classes. The

out-lines of Main Classes in CC are as follows : Main classes in CC (In Chapter-1 of Part-2) z Generaha Class

†

Spiritual experience & Mysticism 1 Universe of Knowledge Mz Humanities and Social Sciences 2 Library Science MzA Humanities 3 Book Science N Fine Arts 4 Journalism NX Literature & Language A Natural Science O Literature AZ Mathematical Sciences P Linguistics B Mathematics C Physics Q Religion D Engineering R Philosophy E Chemistry S Psychology F Technology E Social Sciences G Biology T Education H Geology U Geography HX Mining V History I Botany W Political Science J Agriculture X Economics K Zoology Y Sociology KX Animal Husbandry YX Social Work L Medicine LX Pharmacognosy Z Law M Useful Arts Some of the Main Classes, viz. Mathematics (B), Physics (C), Geology (H), Pharmacognosy (LZ), Useful Arts (M), Fine Arts (N) and Philosophy (R) have been further divided into traditional divisions of a Main Class which are considered as Canonical Classes. Example : The Main Class 'C Physics has been further divided into the following Canonical Classes as follows :

C Physics C1

Fundamentals C2 Properties of Matter C3 Sound

278 C4 Heat C5 Light, Radiation C6 Electricity C7 Magnetism C8 Cosmic hypothesis

A Main Class or its Canonical Division is said to be a Basic Class. Each Basic Class is divided on the basis of one or more trains of characteristics known as Facets. Each individual entity in a facet is said to be an Isolate Focus or simply 'Isolate 1'. According to CC, Class Numbers are of three types : (1) Basic Class Number: A subject having only the Main Class or a Canonical Class, e.g. Mathematics, Physics, Chemistry, Botany, Zoology, etc. (2) Compound Class Number : A subject composed of a Basic subject and one or more isolate ideas is called a Compound Class Number, e.g. in a subject 'Libraries in India' where Library Science is the Main Class and India represents isolate idea. (3) Complex Class Number :

A subject formed by combining two or more basic subjects on the basis of some relation between them is a

complex class and the corresponding number is a Complex class Number, e.g. Statistics for Librarians, Engineering Mathematics, Philosophy influences Religion, etc. Main Classes are denoted by the Roman Capital Letters while isolate ideas are denoted by Indo-Arabic Numerals. Any book dealing with more than one subject in the universe of knowledge is to be classed at Generalia class. Any book dealing with more than one subject within the purview either of Natural Sciences or of Humanities or of Social Sciences, is placed either at Natural Sciences or at Humanities or at Social Sciences. 1.7 Facet Analysis and Fundamental Categories Facet Analysis The basic principle of Colon Classification is the facet analysis. It means that a subject may be analysed on the basis of one or more facets. The process of determining the facets of a subject is known as facet analysis. Let us take the following examples :

279 (a) On flowering plants ; (b) on pathology of plants ; (c) on pathology of flowering plants. The above three subjects belong to the Main Class 'Botany'. Example (a) belongs to one facet of the Main Class 'Botany' based on family of plants, i.e. flowering plants. Example (b) belongs to another facet of the Main class 'Botany' based on the problems of the study of Botany. Example (c) deals with the relationship between two units of knowledge, i.e. pathology and flowering plants. If it is put on either of the facet, it will not be a proper classification. Thus from the above analysis, it is clear that facet analysis is the only solution to these problems and by which the above three documents will be classified in the following manner ; (a) Botany - Flowering plants ; (b) Botany - Pathology of plants ; (c) Botany - Flowering plants - pathology. The sequence of various facets in a subject may be made on the basis of helpful order. Thus, a facet may be defined as the sum total of isolates derived by a single train of characteristics. Fundamental Categories S. R. Ranganathan for the first time considered that a scheme of classification may be devised with the introduction of facet analysis. According to him a subject may be characterised by varieties of attributes. Facet analysis of subjects led him to devise the Postulate of Fundamental Categories. These categories are the result of the discovery of relationships between the diverse characteristics that may form the basis of division of subject. There are varieties of characteristics but are the manifestations of few basic constants. For example, these varieties of colours but all these varieties are the manifestations few basic colours. In a similar manner there are innumerable characteristics by which divisions of subjects may be obtained but all these characteristics may be resolved into five fundamental categories. The five categories are termed by him as

Personality (P), Matter (M), Energy (E), Space (S) and Time (T)

or simply as P, M, E, S, T. The sequence of categories are derived on the basis of the 'Principle of

280 decreasing concreteness' and five categories are cited in a given problem in the order of PMEST. The sequence of fundamental categories in the order of increasing concreteness to achieve general - to - specific sequence in a scheme of classification are as follows : Fundamental Category Symbol for the Faut Connecting symbols used Time [T] Inverted Comma (') Space [S] Dot (.) Energy [E] Colon (:) Matter [M] Semi colon (;) Personality [P] Comma(,) Let us take an example to make a clear understanding of the Facet analysis of a subject on the basis of fundamental categories, e.g. Circulation of newspapers in public libraries of West Bengal in 2003. The analysis of the title reveals the component terms belonging to five fundamental categories as follows : circulation (Energy), newspapers (Matter), public libraries (Personality), West Bengal (Space) and 2003 (Time). All those key terms constitute the subject field Library Science as Main Class. Thus the analysis takes the form as under : Library Science Main Class Public Libraries (Personality) Newspapers (Matter) Circulation (Energy) West Bengal (Space) 2003 (Time) The order of components cited in the subject is as follows : Library Science : Public Libraries : Newspapers : Circulation : West Bengal : 2003 and the transformation of the key terms in numbers are 2 (Library Science), 2 (Public Libraries), 44 (Newspapers), 6 (Circulation), 4475 (West Bengal) and P03 (Year 2003). Finally, with the help of connecting symbols specified for the purpose, the synthesis of numbers is done. Thus the class number for the above title will be : 22 ; 44 : 6.4475 'P03 Since personality isolate, i.e. public libraries is the core element of the subject, it is attached directly with the Main Class without the connecting symbol comma prescribed for the purpose.

281 1.8 Rounds and Levels of Manifestations Repeated manifestations of the same category in a subject indicate the presence of rounds and levels. The concept of Round denotes the cyclic recurrence of the Fundamental category Energy more than once in analysing the facet of a subject. The concept of Level denotes the recurrent appearance of one and the same fundamental category within a Round. Since the fundamental categories Space and Time are common facets, the presence of Personality, Matter and Energy form a Round. Thus the appearance of Energy completes a Round. 1.8.1 Rounds of Manifestation.

The fundamental category 'Energy' may manifest itself in one and the same subject more than once.

The first occurrence of the category energy is taken to end Round 1 of the manifestations of Personality, Matter and Energy and is denoted as [IE]. The second, third, etc. manifestations of Energy in one and the same subject are respectively denoted as 2nd Round Energy (2E), 3rd Round Energy (3E) and so on. In a similar manner, the fundamental categories Matter and Personality may have repeated manifestations after 1st Round Energy, 2nd Round Energy, etc. and are denoted as (2P) and (2M) or as (3P) and (3M). Let us take an example : The title is Prevention of Alcoholism in Slum Dwellers. Sociology (Main Class) y Sociology (Main Class), Slum dwellers.(P) 57 Sociology (M.C.), Slum dwellers (P), Alcoholism (1st, Round Energy) 411 Sociology (MC), Slum dwellers (P), Alcoholism (E), Prevention (2E) (2nd. Round Energy) y 57 : 411 : 5 The Fundamental categories Space and Time manifest themselves only in the last of the Rounds in a subject. 1.8.2 Levels of Manifestation

Any of the fundamental categories -Personality and Matter may manifest itself more than once in one and the same Round within a subject

and similarly with Space and Time in the last Round. These repeated manifestations

282 are called Levels of Manifestation and are symbolically expressed as follows : [1P 2] or [P 2] 1st Round 2nd. Level Personality [2P 2] 2nd Round 2nd Level Personality [1MJ or [M 2] 1st Round 2nd Level Matter [2M 2] 2nd Round 2nd Level Matter Let us consider the example : The title is 'Physiology of tissues in flowering plants.' Facet analysis reveals Botany is the Main Class, Flowering plants is its Personality level 1 (P.), tissues are another personality after (P^ and is denoted as (P 2) and physiology is Energy (E). The facet formula for Botany is I(P), (P 2) : (E). So the class number is I 5, 12 : 3. Here both flowering plants and tissues are manifestations of the same fundamental category 'Personality' (P) more than once and are denoted as (P 1s) and (P 2) respectively. Self-Check Exercise - 1 Construct the class numbers of the following titles and compare your answers given at the end of this unit : 1. Treatment of lung diseases 2. Roots of the rice plants 3. Iron metabolism 4. Collections of Bengali Poetry 5. Physiology of animal cells 6. Relief measures to the flood-affected victims 1. 2. 3. 4. 5. 6.

1.9 Steps of Classifying a Document The process of assigning

the Class Number to a document is Classifying or Classification.

It is the translation of the name of the subject of a document

283 from a natural language to the artificial language of ordinal numbers,

forming classificatory language. Classifying a document consists of the following steps in succession : Step 0 : Raw Title Title as found in the document Step 1 : Full Title The expressive title of the document. The Raw title of the documents may not sometimes be fully expressive in the sense that Basic subject term or some isolate terms may be missing. In this stage Raw Title is transformed into expressive title by filling the missing terms. Step 2 : Kernel Title Remove all the auxiliary or connecting words such as preposition, conjunction, article, etc from the expressive title. Step 3 : Analysed Title Kernel Title with each kernel term marked by a symbol, denoting fundamental category of which the idea denoted by the term is a manifestation and also the round and level of manifestation. Step 4 : Transformed Title Rearrange all the kernel terms according to the symbols of analysis attached to them. Step 5 : Title in Standard Terms Replace the kernel terms by the standard terms wherever necessary as are found in the appropriate schedules, Step 6 : Title in Facet Numbers Kernel terms are replaced by their equivalent numbers from the schedules. Step 7 : Class Number Removing the symbols of analysis and insert the appropriate connecting symbols prescribed for the purpose. Step 8 : Verification of the assigned number. It is the retranslation of the assigned number into natural language.

284 Let us take an example to illustrate the Eight-step method of classification. The Title is : 'Research libraries in India during 1995'. Step 0 : Raw Title : Research libraries in India during 1995. Step 1 : Full Title : Research libraries (in Library Science) in India during 1995. Step 2 : Kernel Title : Research libraries, Library Science, India, 1995 Step 3 : Analysed Title : Research Libraries (P), Library Science (M.C.), India (S), 1995 (T). Step 4 : Transformed Title : Library Science (M.C.), Research Libraries (P), India (S), 1995 (T), Step 5: Title in Standard Terms : Library Science (M.C.), Research (P), India (S), 1995 (T). Step 6 : Title in focal numbers : 2 (M.C.), 36 (P), 44(S), N95 (T) Step 7 : Class Number : 236.44 'N95

In order to assign connecting symbols in step-7, the facet formula with appropriate connecting symbols be followed in each Main Class. In case of retranslation of the synthesised class number, the digit by digit transformation excluding the connecting symbols provided in the class number. The comparison starts from the very beginning of the class number.

Self-Check Exercise - 2 Construct the class numbers of the following titles by Eight-step Method : 1. Documentation in university libraries in Srilanka in 1996. 2. Audio-visual method of teaching in primary schools in China. 1.

..... 2. 1.10 The Index Alphabetical Index to the schedules is provided at the end of the Part- 2 (Page-2.124) of Colon Classification. It

is an Index to the fundamental constituent terms in the schedules of classification in Part-2. This Index recognises the Main Class and facet of a given isolate term.

Some typical isolate terms in the Index are as follows : 'Abdomen' G [P], K [PJ, L (P), 14 It means 'Abdomen' has the Isolate Number 14 in the Personality Facet of G Biology, Second Level Personality Facet of K Zoology and Personality of L Medicine.

285 Similarly, 'Abnormal' S, T [P], 6.x [E], 9P. Z [PJ, 16 It means the isolate term 'Abnormal' has the isolate Number 6 in the personality Facet of S Psychology and T Education. It has also the isolate number 9P in the Energy facet of X Economics and 16 in the Second Level Personality Facet of Z law. Compound isolate terms like "Abnormal structure' has the following form : Abnormal - labour L9F [E], 354 - structure L [E], 4 [2P], 71. y[E], 24 The above structure shows that the isolate term Abnormal has two entries as 'Abnormal Labour' L9F [E], 354 and 'Abnormal structure' L [E], 4 [2P], 71. y[E], 24. In the first entry 'abnormal labour' has the isolate number in Energy Facet of L9F Female Medicine and in the second entry 'abnormal structure 1 has the isolate number 71 in the Second Round Personality Facet for Isolate Number 4 of the Energy Facet of L Medicine. It has also the isolate number 24 in the Energy Facet of Y Sociology. So from the above example we find the Main Class Numbers and the facets of Isolate terms in a given subject where such isolate terms appear.

Self-Check Exercise - 3 Find the isolate numbers for the following isolate terms using the Index. 1. Basic organ 1. 2. Bridge 2. 3. Classification 3. 4. Distillation 4.

..... 5. Documentation 5. 6. Lymphatic gland 6. 7. Milk 7. 8. Nucleus 8. 1.11 Summary Colon classification is an analytico-synthetic

scheme of classification which is formulated by facet analysis. The introduction of

Five fundamental categories—Personality, Matter, Energy, Space and Time are the basis of

286 subject

analysis in CC. Class numbers constructed in CC involves the following steps. - Recognition

of the fundamental categories in a subject. - Recognition of Rounds and Levels of manifestations of Fundamental categories. - Arrangement of isolate ideas

with the help of helpful sequence. - Finding the isolate numbers for each isolate in the schedules of classification. - Synthesis of class numbers is done with the help of connecting symbols. Ranganathan suggested Eight-step Method for deriving the class-number of a document. The index provided at the end of Part-2 Schedules of Classification ideas. 1.12 Answers to Self-Check Exercises Exercise - 1 1. L45 : 4 : 6 2. J 381, 3 3. G : 33 ; (E182) 4. 0157, 1x 5. K, 11 : 3 6. y : 4355 : 67 Exercise - 2 1. Documentation in University libraries in Srilanka in 1996. Step 0: Documentation in University libraries in Srilanka in 1996. Step 1: University libraries Documentation (Library science) in Srilanka in 1996. Step 2 : Documentation, Univ. libraries, Library Science, Srilanka, 1996. Step 3: Documentation (E), Univ. libraries (P), Library Science (MC) Srilanka (S) 1996 (T) Step 4: Library Science (MC), Univ. Libraries (P), Documentation (E) Srilanka (S), 1996 (T) Step 5: Libran/ Science (MC), University (P), Documentation (E), Ceylon (S) 1996 (T). Step 6: 2(MC), 34(P), 97 (E), 4498 (S), N96 (T). Step 7: Class Number : 234 : 97.4498 'N86

287 2. Audio-visual method of teaching in primary schools in China. Step 0 : Audio-visual method of teaching in primary education in China. Step 1 : Audio-visual method, primary education (Education) in China. Step 2 : Audio-visual method, teaching, primary education, Education, China Step 3 :Audio-visual (2P 2), teaching (E), primary education (P), Education (MC), China (S). Sep 4: Education (MC), Pnmary education (P), Teaching (E), Audio- visual (2P 2), China (S). Step 5 : Education (MC), Elementary (P), Teaching (E), Audio-visual (2P 2), China (S). Step 6 : T (MC), 15 (P), 3 (E), 1 (2P 2), 41(S). Sep 7 : Class number is T 15 : 3, 1.41 Exercise - 3 1. Gl; l, 1 ; K, 1 ; L1 2. D416 3. 2 : 51 ; E : 91 ; G : 111 ; HI : 811 4. E : 835 5. 2 : 97 6. G : 396 ; K , 396 7. Kz 31 : 7 8. c9B3 : G 113.

288 UNIT-2 Formation and Sharpening of Isolates Structure 2.1

Introduction 2.2 Chronological Device (CD) 2.3 Geographical Device (GD) 2.3.1 Creation of a new Isolate-Number 2.3.2 Sharpening of an existing Isolate 2.4 Subject Device (S.D.) 2.4.1 Creation of a New Isolate Number 2.4.2 Extension of an existing Isolate Number 2.5 Mnemonic Device (MD) 2.6 Aphabetical Device (AD) 2.7 Super-Imposition Device 2.8 Use of Parallel Schedules 2.9

Summary 2.10 Solutions to Self-Check Exercise 2.1 Introduction Colon Classification applied some mechanism in the schedules and rules for creation and extension of an isolate number. The creation and sharpening are achieved with the help of some Devices. The use of Devices maintains economy in the schedules. Such Devices are : Chronological Device (CD), Geographical Device (GD), Subject Device (SD), Mnemonic Device (MnD), Super-Imposition Device (SID) and Alphabetic Device (AD). 2.2 Chronological Device (CD) The Chronological Device (CD) consists in using the appropriate chronological characteristic for the formation or the subdivision of an isolate, capable of chronological formation or subdivision.

CD helps to individualise an isolate

or sub-isolate on the basis of

period of origin or birth, or on the year of

first investigation or on the year of discovery or on the year of initiation or commencement or on the year of occurrence or on the year that

289 may be definitely associated with the respective isolates in any other manner

or for any other reason. The use of CD is

generally indicated in the schedules or in the rules. In

this case appropriate chronological number is taken as the Isolate number for such Isolate ideas. For example : Systems Facet in the Main Classes Medicine, Education, Economics, etc are created by CD. L Medicine LL Homoeopathy (L indicates the period 1700-1799) LM Natural treatment (M indicates 1800-1899) The above systems Homoeopathy and Natural Treatment have originated during the period indicated. Similarly, Author facet in literature and various religious sects in Religion are obtained by CD. The facet formula for Literature class reads as under : O(P), (P 2), (P 3), (P 4) The above formula shows Personality has four levels where Personality level 3 i.e. (P 3) is the author number and Isolate number for author is got by CD. So, Shakespeare is identified by 'J64' as the isolate number for Shakespeare whose date of birth is 1564 (J stands for the period 1500 - 1599) 2.3 Geographical Device (GD) Geographical

Device (GD)

consists in using the appropriate geographical characteristics for the formation or subdivision of an isolate idea. In this case

the individualisation of the isolates or sub-isolates may be made on the basis of

place of origin that may be definitely associated with the respective foci.

The cases

where this Device may be applied are generally indicated in the schedules

and rules. 2.3.1 Creation of a new Isolate-Number GD is used to create a new isolate number wherever geographical area i.e. country, state, district, etc. influences such isolate idea. For example : Personality facet in Main Classes History, Fine arts and Law, (P) is obtained by G.D. So Indian History, Indian Architecture and Indian Law, all the different fields of studies are qualified by area number. Since the place

290 makes the subject more concrete, 'place' though a geographical division but here acts as Personality. Thus the above subjects will have the numbers as : V History NA Architecture Z law Foci in (P) By G.D. Foci in (P) By G.D. Foci in (P), By G.D. 44 India 44 India 44 India Hence, Indian History V44 Indian Architecture NA44 Indian Law Z44 So the new isolate number for the Personality facet is created by G.D. 2.3.2 Sharpening of an existing Isolate An existing isolate idea may be extended or subdivided with the help of G.D. For example in Linguistic class, dialect number may be further divided by the addition of the Geographical number. So the subject, Yorkshire dialect will be P111, 9D56175. In the above class number the isolate number in (P 2) i.e. '9D Dialect' is further extended by the area number '56175' which stands for Yorkshire'. 2.4 Subject Device (S.D.) Subject

Device (SD)

consists in using the appropriate subject characteristics for the formation or subdivision of an isolate number. The SD usqd to individualise

the isolates or sub-isolates may be made to depend conveniently on

a class that may be definitely associated with respective foci. In this case the borrowed class numbers are attached with the isolate numbers using a parenthesis. The use of SD. is stated either in the rules or in the schedules. 2.4.1 Creation of a

New Isolate Number A new Isolate number is created with the help of Subject Device. For example : 'Paintings in Religious Libraries' and the isolate idea 'Paintings' are considered as library materials and are taken from the Main Class 'NQ Paintings'. Thus the above subject is analysed as follows : 2(P) ; (M) : (E) Cum (2P) Library Science. ; In the facet formula for Library Science,. Matter stands for library materials

291 and in this case 'Paintings'. So the isolate idea 'Paintings' is numbered with 'NQ' and is taken within parenthesis. 2.4.2

Extension of an existing Isolate Number Subject Device is also used to subdivide an existing number. For example, in the Main Class Library Science, Personality facet constituted by the kinds or types of libraries. The schedule for Library science is as follows : 2(P) ; (M) : (E) Cum (2P) Library Science. Foci in (P) 1 Transtocal 2 Local 3 Academic 4 Business Others by (SD) In the above structure we find '4 Business' may be extended further by (SD), thus libraries devoting medical science will be considered as Medical Libraries and the isolate number will be : 4(L) where medicine is numbered with L within parenthesis. Similarly : Religious libraries will be 4 (Q) and Science libraries will be 4(A) and so on. 2.5

Mnemonic Device (MD)

The Mnemonic Device consists in choosing the digit for the further division of a class, i.e. the formation or the sharpening of a focus, in accordance with a convention in regard to the different possible significances of the digits available for use. In

this case whenever the same concept available in different classes with different terms denoting the concept used the same numbers in whatever classes they appear. For example, the concept 'function', 'activity', 'role', 'function' and 'physiology' are represented by the same number under the same facet in whatever classes they appear Thus, the above concept is denoted by the digit l 3' accordingly : Social activity is y : 3 Plant Pnysiology is 1:3 Animal Physiology is 1:3

292 Role of the President is V,1 : 3 Function of the Prime Minister is V, 21 : 3 Since the terms activity, physiology, role and functon carry the same meaning and is denoted by the same digit l 3 l in Energy facet though they occur in different classes Sociology, Botany, Zoology, History, respectively. 2.6 Aphabetical

Device (AD)

Alphabetical Device consists in

using first, or first two or first three initial letters of the name of an entity,

existential or conceptual,

for the formation or the subdivision of an Isolate.

In this

case universally accepted names of the entity are used. In the Space facet the names of countries, provinces or states are enumerated but to denote districts, talukas, etc. AD is used for their formation. For example, the Isolate number Bangalore is derived from the number 4413 represents Karnataka state. So, Bangalore will be 4413.B Calcutta will be 4475.C Madras will be 4411.M Physiographic features in the Space facet are denoted by, A.D. For example, the isolate idea deserts is denoted by small letter 'd' as is recommended in C.C. 2.7 Super-Imposition Device Generally, Colon Classification enumerates simple concepts in the schedules of Main Classes. Compound concepts represented by compound terms require construction by the mutual denudation of two of the scheduled isolates. This means that imposing one isolate number upon another isolate number and a connecting symbol hyphen (-) is used for the purpose. For example, in Sociology class, two isonNumber '31' and '15' respectively. Thus the compound concept 'rural women' will have the isolate number as '31- 15'. Similarly, in organ facet of the Main Class Medicine, 163 is arms and 36 is veins. So, veins of arms will be '163-36'.

293 2.8 Use of Parallel Schedules A series of isolate ideas are sometimes required to be appropriate in different Main Classes. The terms used to denote Isolate ideas are more or less same in different Main Classes. The isolate ideas are used consistently in whatever classes they appear with the same set of isolate numbers. The Main Classes where such consistent applications are observed are illustrated below : For example, in Main Class a Generalia Bibliography reveals as under : a (P). (P 2) (P 3), (P 4) Generalia Bibliography Foci in (P) 1 By mode of production 11 Tablet 12 Manuscripts 128 Archive 13 Sound book 14 Printed book 15 Photoreproduction. 17 Map 3 By Language (To be divided by Language) 4 By nature of Publication 43 Book 44 Newspapers 45 Recreative 46 Periodical 47 Reference book 48 Patent 494 Thesis 8 Social group of readers (To be divided as in Sociology) The above series of Isolate ideas denoting documents of various forms are also appropriate to represent various forms of documents as reading materials in the Main Class Library Science. The schedules of the Main Class Library Science along with its facet formula is as follows : Library Science 2 (P) ; (M) : (E) (2P) In the above facet formula (M) stands 'Matter' isolates in the Main Class

294 'Library Science'. The enumeration of the Matter isolates in Library Science is as follows : Foci in (M) Same as Foci in (P) for Generalia Bibliography The above instruction directs us to consider Personality isolates of Generalia Bibliography to be used for 'matter isolates' of Library Science. So, 'Thesis', as reading materials in the Main Class Library Science will have Isolate number as '494' from Generalia Bibliography. Similarly, 'Manuscripts' as reading materials will be '12' from the same class Generalia Bibliography. Thus the Foci in (M) for Library Science will be as follows : 2 Library Science Foci in (M) 12 Manuscripts 128 Archival records 13 Sound book 14 Printed Book 17 Maps 43 Books 44 Newspapers 46 Periodicals 47 Reference book 48 Patent 494 Thesis etc. etc. In the above example, the isolate number 8 Social group readers in Generalia Bibliography is divided by the same series of isolate numbers from the Main Class Sociology. Thus the Isolate number 8 is extended by the specific numbers enumerated in the schedule of y Sociology. The Main Class 'Sociology-y' reads as under : y (P) : (E) (2P) : (2E) (3P) Schedules of Personality facet (P) are : Foci in (P) 11 Child 12 Youth 15 Women 16 Man etc etc. etc. From the above schedules of isolate ideas along with the same Isolate

295 numers are used for the subdivision of the isolate number '8 J Social groups of readers in Generalia Bibliography. So, Children readers will be 811 Young readers will be 812 Women readers will be 815 and so on. From the above discussions it is clear that parallel divisions avoid unnecessary enumeration of the same concepts appropriate in different Main classes. This achieves the law of Parsimony. Self-Check Exercise - 1 Find the class numbers of the following titles : 1.

Bibliography of Children's books. 1..... 2. Organisation of religious libraries 2..... 3. Sociology of rural women 3..... 4. Classification of thesis in University libraries 4..... 5. Biography of S. R. Ranganathan

(Born in 1892) 5..... 2.9 Summary This unit explains the application of various devices used in Colon Classification. These devices are used in the formation of a new isolate number or the extension of an existing isolate number. Such devices are

Chronological device (CD.), Geographical Device (G.D.), Subject Device (S.D.), Mnemonic Device (MD), Alphabetical Device (AD)

and Super-Imposition Device (S.D). The use of devices helps autonomy to the classifier. This unit also discusses the use of a series of isolate numbers in any facet of a Main Class are sometimes appropriate in other Main classes. The isolate numbers are got by the use of parallal divisions. 2.10 Solutions to Self-Check Exercise Answers to Exercise - 1 1. a 43 - 811 2. 24(Q) : 2 3. y 31 - 15 4. 234 ; 494 : 51 5. 2w M92

296 UNIT-3 □□□□□

Facet Analysis and Synthesis in Physical and Biological Sciences Structure 3.1 Introduction 3.2 Mathematics 3.3 Treatment of Main Class Physics 3.4 Biological Sciences 3.4.1 Botanical Science 3.4.2 Zoology 3.5

Summary 3.6 Answers to Self-Check Exercises 3.1 Introduction This unit introduces you with the facet structure and notational synthesis of class numbers in Physical and Biological Sciences. It also introduces the canonical Divisions and the structure of some of the Main Classes in Physical Sciences. Main Classes like Mathematics, Physics, Geology enjoy such divisions. 3.2 Mathematics The schedule of Main Class Mathematics is a very complex one since it has several canonical divisions. Each canonical division has its own facet structure. Some of the canonical divisions in Mathematics have been divided directly by decimal numbers and the extended numbers of canonical division are attached with facet formula. Main Class Mathematics has the following canonical divisions. B Mathematics

B1

Arithmetic B2 Algebra B3 Analysis B4 Other methods

297 B5 Trigonometry B6 Geometry B7 Mechanics B8 Physico-mathematics B9

Astronomy

Some specific concepts are directly extended in some canonical divisions while some other enjoy different facet structure. For example : B1 Arithmetic B11 Lower arithmetic B114 Approximation B12 Concept of Number B13 Integer (Theory of Numbers) The subdivision B13 has the facet formula as follows : B13 (P), (P 2) : (E) (2P) Where (P) is the Number ; (P 2) is the Theory ; and (E) is the Method of solution All the above facets are enumerated in the schedules and some Isolate numbers are further extended by Chronological Device, such as : Pell' equation is 3K - <1600 - 1699 A.D. which means Isolate Number '3' has been expanded by the Time of origin of Pell's equation i.e. during the period 1600 - 1699 A.D. Similarly, other forms and special arithmetic functions are expanded by Chronological Device. Other instruction appears in Isolate Number '39' of (E) is expanded by the divisions of canonical class B39, e.g. Method of integral of algebraic function is 392 in (E). Let us take an example : The title is 'Elementary algebraic method of distribution of Prime numbers' : (MC) - Mathematics B (CC) Arithmetic B1 Subdivision of (CC) integer B13 (P) Prime number B131 (P 2) Distribution 2 (E) Algebraic method 21

298 Thus the class number is B131, 2 : 21 Similarly, 'Reimannian function of single variable'. Facet formula is B37 (P) : (E) (2P) Real variable B37 (Canonical Class) Single Variable 1 Reimannian function 1M5 Thus the class number is B371 : 1M5

Consider another example : The title is 'Eclipses of the sun'. Mathematics B Astronomy (Canonical Class) B9 Sun (P) 3 Eclipse (E) 57 Thus the class number is B93 : 57 Self-Check Exercise - 1 Classify the following titles : 1. Eclipses of the Moon 2. Principles of Hyperbolic geometry 3. Differential geometry 4. Turbulent motion of liquids 5. Numerical solution of second order ordinary differential equations 6. Practical three dimensional geometry 1. 2. 3. 4. 5. 6.

3.3 Treatment of Main Class Physics Like Mathematics, the Main Class Physics has the following canonical divisions :

C Physics C1

Fundamentals

299 C2 Properties of matter C3 Sound C4 Heat C5 Light, Radiation C6 Electricity C7 Magnetism C8 Cosmic hypothesis

Each of the above canonical divisions has its own facet formula except C1 Fundamentals which is further expanded by decimal divisions as follows : C1 Fundamentals C13 Matter C131 Weight C18 Gravitation C14 Energy C15 Space C166 Time Let us consider few examples in Physics. The title is 'velocity of sound'. The facet formula for the canonical class sound is as follows : C3(P) : (E) (2P) Sound In the above facet formula (P) and (E) (2P) are enumerated in the respective canonical class. In the example, the facet analysis reads as follow : (MC) - Sound - C3 as Canonical Class (P) - x x (E) (2P) - Velocity 21 So the class number is : C3 : 21 Similarly, for the title 'Diffusion of gases'. The facet analysis for the above subject is : (MC) - Properties of matter C2 (P) - Gases 8 (P 2) - Diffusion 93 So, the class number is C28, 93 Take another example, 'Scattering of cosmic rays. The facet formula is C9B3 (P) : (E) (2P) (MC) - Physics - C Nucleus - C9B3 as Special facet (P) Cosmic rays 8 (E) Scattering 58 (From (E) cum (2P) of C5 Radiation)

300 Thus- the class number is : C9 B38 : 58 Self-Check Exercise - 2 Classify the following titles : 1. Density of liquids 2. Introduction to thermodynamics 3. Reflection of light 4. Thermo-electricai effect 5. Atomic physios 1.

..... 2. 3. 4. 5.

3.4 Biological Sciences Main Classes in this field are general Biology, Botanical sciences and Zoological Sciences. The facet formula for Bioigy is as follows : G(P) : (E) (2P) Isolates in (P) denotes basic biological organs and biology of specific environments and the isolates in (E) (2P) Problems in Biology. Let us consider some examples : The title : Physiology of Cells. The facet analysis reads as foliows : (Main Class) Biology G (P) Ceils 11 (E)(2P) Physiology 3 Thus the class number is G11 : 3. Another example, Microscopic techniques in biology. The facet analysis gives us two components where Biology is the Main Class and Microscopic techniques is a method applied in biological studies. Thus the class number will be G : 19

301 3.4.1 Botanical Science In Botany various families of plants are considered within the purview of Personality Level one while Basic organs like cells, tissues, etc. are considered as Personality Level Two. Thus the facet formula appears in the following form : I(P), (P 2) : (E) (2P) Foci in (P) is Natural group facet in the schedules Foci in (P 2) is Basic organs Foci in (E) cum (2P) are same as in G Biology with minor additional isolate. Thus for example, the title is : 'Metabolism of flowering plants' Facet analysis gives us flowering plants as personality isolate and Metabolism is energy isolate.

Considering the isolate numbers from the schedules, the class number will be : I 5 : 33 The above facet formula be extended to I(P), (P 2) : (E) (2P) ; (2M) which includes Matter facet in the Second Round. The isolate number for Matter is taken from the Main Class E Chemistry. This is called substance facet and is added with Subject Device (SD). Thus for example, Iron metabolism in plants. The facet analysis gives us three key terms in the title, i.e. plants, metabolism and iron. The isolate idea plants constitute the field of studies i.e. Botany, Metabolism is a process and Iron qualifies the process. Since metabolism is a biological phenomena and has the isolate number '33' from the Main Class biology. Thus the class number will be : I : 33 ; (E 182) In the above example Iron is taken from the Main Class E Chemistry and is attached within Parenthesis. In the schedules of the Main class Botany, Foci in (E) (2P) are same as are appeared in G Biology. Various functional units such as respiratory systems, reproductive systems, etc. are taken from the schedules of L Medicine with the instruction given in Personality Level two. For example : Respiratory systems in plants

302 (MC) - Botany I (P 2) - Respiratory systems 4 (From L-Medicine). Thus the class number will be : I, 4 3.4.2 Zoology Main class Zoology enumerates natural group facet of animals as its personality. The facet structure of Zoology is as follows : K(P), (P 2) : (E) (2P) Zoology Foci in (P) Natural group of animals Foci in (P 2) Organ facet same as (P 2) of Botany Foci in (E) cum (2P) isolate numbers same as G Biology with minor adjustment. So the title 'animal physiology' has two component ideas Animal and Physiology. Animal goes with the Main Class Zoology itself and Physiology is taken from G Biology. So the class number is K : 3 Consider another example : The title is Metabolism of animal cells. Facet analysis shows as under : (MC) - Zoology - K (P 2) - Cells 11 Same as I-Botany (E) - Metabolism 33 Same as G-Biology So the class numbers will be K, 11 : 33. The facet formula has been extended to include Matter facet as follows : K (P), (P 2) : (E) (2P) ; (2M) So the title Iron metabolism of animals will be assigned class numbers as under : K : 33 ; (E 182) Self-Check Exercise - 3 Classify the following titles : 1. Anatomy of Plant cells 2. Plant ecology 3. Effect of radio-active radiation 4. Animal Genetics 5. Respiratory systems of the invertebrates

303 6. Microscopy in plant tissues 7. Reproductive methods in vertebrates 1. 2.
 3. 4. 5.
 6. 7. 3.5

Summary In this unit we have discussed some of the Main Classes in Physical and Biological Sciences. We have also discussed the canonical divisions of Mathematics and Physics. Facet structure of Physics and Mathematics given in the respective canonical classes are discussed. The application of parallel divisions used to identify the energy isolates of Botany and Zoology are shown with examples. 3.6 Answers to Self-Check Exercises Exercise - 1 1. Astronomy (MC) B9 Moon (P) 122 Eclipse (E) 57 Class number is B9122 : 57 2. Mathematics (MC) B Geometry (CNC) B6M5 Class number is B6M5 3. Mathematics (MC) B Geometry (CNC) B6 Differential (E) 3 Class number is B 6 : 3

304 4. Mathematics (MC) B Mechanics (CNC) B7 Liquids (P) 5 Turbulent motion (E) 353 Class numbei is B75 : 3S 5. Mathematics (MC) B Differential and integral equation (CNC) B33 Ordinary (P) 1 Second order (P 3) 2 Numerical solution (E) 1 Class number is B331, 2 6. Mathematics (MC) B Geometry (CNC) B6 Three dimensional (P) 3 Practical (E) 4 Class number is B63 : 4 Exercise - 2 1. Physics (MC) C Properties of Matter (CNC) C2 Liquid (P) 5 Density (P 2) 13 Class number is C25, 13 2. Physics (MC) C Heat (CNC) C4 Thermodynamics (E) 7 Class number is C4 : 7 3. Physics (MC) C Radiation (CNC) C5 Light (P) 1 Reflection (E) 22 Class number is C51 : 22 4. Physics (MC) C Electricity (CNC) C6 Thermoelectricity (E) 44 Class number is C6 : 44 5. Physics (MC) C

305 Atomic Physics (Specials) C9B2 Class number is C9B2 Exercise - 3 1. Botany (MC) I Cells (P 2) II Class Number is I, H 2. Botany (MC) I Ecology (E) 5 Class Number is I : 5 3. Biology (MC) G Radio-active radiation (E) 55955 Class number is G : 55955 4. Zoology (MC) K Genetics (E) 6 Class number is K : 6 5. Zoology (MC) K Invertebrates (P) 1 Respiratory systems (P 2) Class number is KI, 4 6. Botany (MC) I Tissues (P 2) 12 Microscopy (E) 19 Class number is I, 12 : 19 7. Zoology (MC) K Vertebrates (P) 9 Reproductive method (E) 67 Class number is K9 : 67

306 UNIT-4 □□□□□

Facet Analysis and Synthesis in Humanities and Social Sciences Structure 4.1 Introduction 4.2 Literature 4.2.1 Application of Common Isolates 4.3 Linguistics and Languages 4.4 History and Political Science 4.5 Psychology and Education 4.6 Economics and Sociology 4.7 Law 4.8

Summary 4.9 Answers to Self-Check Exercises 4.1 Introduction In this unit we are discussing the facet structure, manifestations of rounds and levels and the synthesis of the Main Classes belonging to Humanities and I Social Sciences. The application of various devices in the formation of isolate numbers are explained with examples in various Main Classes. 4.2 Literature The facet structure of the Main Class literature enjoys the various levels of personality on the basis of language, literary forms, literary periods, specific work of an individual author. The separate sets of Common Isolates are used in this Class which are different from other Main Classes. The Facet formula for the Main Class Literature is as follows : O [P], [P 2] [P 3], [P 4] Where isolates in (P) are derived for the Language Table, isolates in (P 2) are enumerated as literary forms in the schedules of literature. Isolates in (P 3) indicate the specific author number and are derived from the Chronological Device i.e. the date of an individual author concerned. Isolates in (P 4) indicate the specific work of an individual author and are calculated

307 from the work number of an individual author. In the above facet formula, the personality has been manifested in four levels, as (P 1) (P 2), (P 3), (P 4) The work numbers of an individual author are calculated in the following order. (1) If the works of an author are within eight, they may be identified according to the numerical sequence 1, 2, 3, , 8. (2) If the number of works exceeds eight but within sixty four, they are divided into eight groups and each group contains eight works identified by 1, 2, 3,....., 8. The distribution of works in eight groups are as follows : 1 - 8 First Group 9-16 2nd Group 17 - 24 3rd Group 25 - 32 4th Group 33 - 40 5th Group 41 - 48 6th Group 49 - 56 7th Group 57 - 64 8th Group In order to assign work number of a work belonging to any of the groups, there are two digits of which the first digit is the group digit and the second one indicates its work number. For example, 17th work will be denoted by '31' where 3 denotes the third group and 1 represents the serial number of the work in the third group. (3) If the works exceeds 64 but does not exceed 512, then the figure first divided into 8 major groups containing 64 numbers and further 64 into 8 minor groups containing 8 numbers and in each minor group the works are denoted serially by 1, 2, 3,8. In this case the work number will be three- digit number of which first one is the major group, second digit is the minor group and the third digit is the serial number of the work. Thus, 67th work of an author is denoted by '213' where 2 is the indication of major group of 64 numbers, 1 is the minor group and 3 is the serial number of the work. Let us take an example to understand the facet analysis and synthesis of works in this class. The title is, Hamlet written by William Shakespeare whose date of birth is 1564 and Hamlet is his 37th work. The facet formula is

308 O (P), (P 2), (P 3), (P 4) Language (From Language Table) Form facet (Enumerated) Author facet (From date of birth of the author) Work (Calculated from the number of work) In the above formula the isolate numbers are : (P) English 111 (P 2) Drama 2 (P 3) Shakespeare J64 (J indicates 1500 - 1599 and 64 is the specific year in this century) (P 4) Hamlet 51 (From work number 33 which completes four groups of eight members and thus the class number for the above title is : 0111, 2 J64, 51 4.2.1 Application of Common Isolates Some common terms repeatedly used to subdivide a class number of literature class. Such common terms are : Collections, critical studies, biography, etc. These common terms are separately used in this class and the Isolate numbers are : d Index of titles of work of an author e Index of first lines of works of an author, w Biography of an author x Collections The above common isolate numbers are used with any class number of literature without any connecting symbol. The common isolate 'criticism' is attached with any class number using (:) colon as the connecting symbol. So, Criticism of Hamlet is 0111, 2J64, 55 : g. Biography of William Shakespeare is 0111, 2J64w. Collected works of Shakespeare is 0111, 2J64x

309 Each of the above common isolates w, x and g have been further extended by Subject Device and Chronological Device if warranted. In case of collected works, biographies and critical studies of several authors, u, x and g have been subdivided by Chronological Device using Latest Effective Decade (LED). For example : Love in English poetry : 0111, 1 : g (S : 55) Collections of English poems : 0111, 1 x N 3 (the youngest author born in 1932) The cases where both Subject Device and Chronological Devices are used may be seen from the following examples : "Authology of English mystical poems" : 0111, 1 x (A) N3 The above example shows collection number 'x' is subdivided initially by the subject Mysticism A and finally by the chronological number N3 meaning the youngest author of the collections born in 1932 and the isolate number is got by LED. Similarly for the examples : Biography of English romantic poets is 0111, 1 w (S : 55) N3 (The youngest author born in 1932) Critical study of English romantic poems is 0111, 1 : g (S : 55). Self-Check Exercise - 1 Classify the following titles : 1. Collections of Bengali poems of Rabindranath Thakur (Tagore born in 1861) 2. Critical study of emotion in German poetry 3. Biography of French novelists (The youngest author born in 1875) 4. Abhigyan Shakuntalam of Kalidas (Kalidas in Sanskrit Literature, born in A.D. 40 and it is the first work of the author). 5. 23 rd Work of a Bengali Poet Space provided below for your answers 1. 2.

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310 3. 4. 5. 4.3 Linguistics and Languages The study of science of language has the facet formula as follows : P Linguistics is attached with the facets as P(P), (P 2) (P 3) : (E) cum (2P) where, (P) denotes language (Numbers are sometimes enumerated and are taken from Language Table) (P 2) Variant, stage (Enumeration by C D) (P 3) Element (Enumerated in the schedules of Linguistics) (E) (2P) Problem (Enumerated in the schedules) Variant like 'dialect' is further subdivided by Geographical Device appropriate to the area concerned, e.g. Yorkshire dialect is '9D56175'. Here the area number 56175 for Yorkshire is used as the basis of division of 9D- Dialect. Let us take some examples ; English grammar : (Main Class) Linguistics P (Personality) English Language 111 (Energy) Grammar 5 So, the class number is P111 : 5 Another example : Analysis of sentences in Modern English. The class number is P111, J 6 : 33 Syntax of words in Hindi is P152, 3 : 3. Self-Check Exercise - 2 Classify the following titles : 1. Dictionary of Bengali Languages 2. Analysis of Clauses in Hindi 3. Anglo-Indian Jargons of the 18th Century 4. Slangs in French Space Provided for your answers.

311 1. 2. 3. 4. 4.4 History and Political Science These two Main Classes are very close to one another in many respects. Community or Nation is considered as core element of the classes. The facet structure of these two classes are as follows : History V(P), (P 2) : (E) (2P) Political Science W(P), (P 2) : (E) (2P) Community or the areas concerned are the 'Personality' isolates in History class and the isolate numbers are derived from geographical divisions whereas 'Personality' isolates in Political Science are nature or forms of states as the core element. For example : History of India is V44 Politics of India is W.44 The (P 2) i.e. Personality Level 2 appears in both the classes denote different organs of the community or state. Such as President, Prime Minis :ers, Upper and Lower houses, arious functional units, etc. are (P 2) in both the classes and hence the same isolate numbers are used through parallel divisions. Because they are used with the terms and same numbers, these isolates ire appeared in the Main class V-History and are applied in Political Science W with directions in (P 2) of W-Political Science. For examples : President of the Indian Union is V44, 1 President as organ of the state of India is W, 1.44 In both the cases 'President' is denoted by the same number 1 which appears in the Facet formula as (P 2) i.e. Personality Level-2. Similarly, the isolate ideas in (E) cum (2P) are almost similar defining role, function, constitution, etc. either of a Head of the community or state organ. Since these are equally applicable in both the Main Classes, they are enumerated in the Main Class V-History and are applied in W-Political Science with the instruction. Thus for example : the titles are :

312 "Functions of the President in Indian Union" is V44,1 : 3 "Role of political parties in India" is W, 4 : 3.44 The unnecessary enumeration of the same isolate terms in these classes is avoided and the same is used with, parallel numbers. Self-Check Exercise - 3 Classify the following titles : 1. Role of British Prime ministers 2. Function of the opposition parties in Indian Politics 3. History of Germany 4. Constitution of China 5. Right to basic education in India 6. Religious freedom in Pakistan Space provided below for your answers. 1. 2. 3. 4. 5.

..... 4.5 Psychology and Education Psychology is considered as a separate discipline in C.C. and the facet structure of the subject is S(P) : (E) (2P) where (P) stands for an entity may be derived from the attributes, age, sex, abnormality, race, etc. i.e. human personalitias are the core element of the subject psychology. Foci in (E) (2P) describes various psychic phenomenon of the human mind such as love, emotion, intelligence, dreams, anger, etc. of the human kind. For example : The title and its class number 'Anger in children 1 is S1 : 524 Another example : 'Psychology of women and its class number' is S55. Emotion of young boys is S21 : 52. For Education, educands facet are treated as personality. Educand facet

313 characterised by age, sex, speciality, levels of education, etc. are manifested as personalities. The facet formula for the Main Class Education is T(P) : (E) (2P), (2P 2) where (P) is enumerated in the schedules and various educational problems such as teaching methods, educational measurements, curriculums, etc. are an indication of energy facet. For example : The title is 'Teaching biology in Secondary education' Its class number is T2 : 3 (G). Here (2P) is the subject taught and is got by Subject Device. Similary, in another title, the isolate ideas are organised as under : "Audio-visual method of teaching" The class number is T : 3, 1. where audio-visuai method is appeared as (2P 2) which means 2nd. level personality in 2nd Round. Self-Check Exercise - 4 Classify the following titles : 1. Psychology of Indians 2. Psychology of backward classes 3. Rural education in India 4. Teaching mathematics in primary education 5. Examination system in university education 6. Adult education in China Space provided below for your answers. 1.

..... 2. 3. 4. 5. 6. 4.6 Economics and Sociology The facet structure of the Main Class Economics is : X IP] : [E] [2P] Both the facet [P] and [E] [2P] are enumerated in the schedules of classification, in this class Matter isolates are also enumerated in Foci in [M].

314 Since matter' is applicable for 'Money', it is only applicable there. Hence [M] is not given in the facet formula. For example : the title is—'Paper currency in India' whose class number is X61 ; 4.44 by extending the Facet formula as X[P] ; [M] : [E] [2P].[S]. where [M] and [S] denote Matter and Space in this case. The isolates under '9 Personnel Management'

are organised in three sectors : (i) Least concrete sector 91 - 97 ; (ii) More concrete sector 9A - 9W ; (iii) Still more concrete sector A - R If a book covers more than one sector, the isolate number of

each sector should be made a level of [2P] after '9' in [E]. The

more concrete will be cited first in a compound subject dealing with more than one sector. For example : The title is 'Settlement of strike in jute industries in West Bengal' Facet analysis shows both 'strike' and 'settlement' appear in different sectors of 9 Personnel Management. Hence the class number will be : (Main Class) Economics X (Personality) Jute industries 8 (J 741) (Energy) Strike 979D (2P) Settlement 978 (Space) West Bengal 4475 Thus the synthesised class number will be : X 8 (J741) : 979D, 8.4475 In the Main Class Sociology, the facet formula reads as under ; y [P] : [E] [2P] : [2E] [3P] j' Here we find Energy facet has repeated manifestations and are indicated by (E) and (2E). The isolates in (P) are derived from various characteristics off social classes, such as age, sex, status, residence, occupation, etc. For example : Rural Sociology is assigned with class number as 'y31' ; Sociology of I women is 'y15'. The different manifestations of Energy denote 'problem' and 'solutions to the problem' respectively. Thus for example : the title of the document is 'Charity I among the rura' poor'. The class number is derived from the facet analysis as under :

315 Sociology (MC) y Rura! (P) 31 Poverty (E) (2P) 434 Charity (2E) (3P) 68 Thus the synthesis of class number is : y31 : 434 : 68 Another example : 'Asylum to the drug addicted victims'. The class number is y : 41 : 65 Self-Check Exercise - 5 Classify the following titles : 1. Wages of unskilled labour in coal industries 2. Banking in India 3. Personnel Management in iron industries 4. Principles of accountancy 5. Hindu customs in Nepal 6. Indian civilisation in the Far-East 7. Relief work to the earthquake-affected victims in rural areas Space provided below for your answers : 1. 2. 3. 4. 5. 6. 7.

4.7 Law The Main Class Law enjoys a separate facet formula as under : Z [P], PJ. PJ. [PJ Here [P] is the community facet, isolate numbers ae derived from geographical divisions and sometimes by (SD). [P 2] is enumerated in the schedules and is referred as Law 1 and [P 3] is denoted as Law - II.

316 Isolates in [P 3] are enumerated in the schedules depending upon the appropriate isolates in (P 2). For example isolate number for 'ownership' in (P 3 is T which is applicable only for the isolate number '2' for property' in (P 2). Similarly the isolate number 'Executor' in (P 3) in 198 applicable for the isolate number '3 for contract' in (P 2). For example : 'Ownership of Property Act in India' The facet analysis reveals : Law (MC) Z India (P) 44 Property (P 2) 2 Ownership (P 3) 1 Thus the class number is : Z44, 2, 1 Isolates in (P) is a small schedule which is only used for 7 Judgement and decree' in (P 3). Though [E] [2P] is not given in the facet formula but is scheduled in the Main Class Law at the end of the schedules. The isolate numbers in this facet are applicable only for the isolate number '98 Document' in (P 2). For example : Drafting of deeds The class number is Z, 98 : 1 The following isolate numbers in (P 2) are extended as under : A War B Land C Naval D Air All the four isolate numbers are extended by the numbers in (P 2) wherever appropriate. So for example, 'Diplomatic staff in Air warfare' is denoted by 'D145'. Common terms like 'law report' should be attached with the (ACI) number y 7 . The report of a particular case may require subdivision by chronological facet where date of commencement of 'trial' being used as the epoch. A periodical law report may require further division by (ACi) number in defining periodical in Common Isolates Table. For example : Trial for the assasination of Mahatma Gandhi : (Gandhi died in 1948).

317 The class number is Z44, 7, 5 y7N48 Self-Check Exercise - 6 Classify the following titles : 1. Indian Marrage Act 2. Judges of the Supreme court in India 3. Hindu Property Act 4. Drafting of Negotiable Instrument Act 5. Diplomatic war prisoners in air warfare 6. Marshall law during war Space given below for your answers : 1. 2. 3. 4. 5. 6.

4.8 Summary This unit discusses the facet analysis and synthesis of class numbers in Humanities and Social Sciences. In Humanities, Literature and Linguistics are included. The facet structure of Literature class is shown with examples. Application of common isolates in Literature class is demonstrated with examples. The facet structure of Liniguistics class and extension of variant facet is drawn by use of area number. In Social Sciences, the Main Classes like Psychology, Education, Economics and Law and their facet structures have been discussed with examples. In the Main class Economics, the Energy isolate Personnel Management has been treated in a different way.

318 4.9 Answers to Self-Check Exercises Exercise - 1 1. Literature (MC) 0 Bengali (P) 157 Poems (P 2) 1 Tagore, RN (P 3) M61 (BY CD.) Collections (Ac1) X Class number is 0157, 1M61x 2. Literature (MC) 0 German (P) 113 Poetry (P 2) 1 Critical Study (ECI) g Emotion (Subdiv) S : 52 (By S.D.) Class number is 0113, 1 : g (s : 52) 3. Literature (MC) 0 French (P) 122 Novel (P 2) 3 Biography (ACI) w Collected by CD M7 Class number is 0122, 3WM7 4. Literature (MC) 0 Sanskrit (P) 15 Drama (P 2) 2 Author by CD (P 3) D40 Work number (P 4) 1 Class number is 015, 2D40, 1 5. Literature (MC) 0 Bengali (P) 157 Poetry (P 2) 1 23rd. work (P 4) 37 Class number is 0157, 1, 37

319 Exercise - 2 1. Linguistics (MC) P Bengali (P) 157 Dictionary (ACI) K Class number is P157k 2. Linguistics (MC) P Hindi (P) 152 Clases (P 3) 5 Analysis (E) 33 Clauss number is P152, 5 : 33 3. Linguistics (MC) P Anglo-Indian (P) 111, 9J44 18th Century (P 2) L Class number is P111, 9J44, L 4. Linguistics (MC) P French (P) 122 Slang (P 2) 9B Class number is P122, 9B Exercise - 3 1. History (MC) V British (P) 56 By G.D. Prime Minister (P 2) 21 Role (E) 3 Class number is V56, 21 : 3 2. Political Science (MC) W Opposition parties (P 2) 45 Functions (E) 3 India (S) 44 Class number is W, 45 : 3.44 - 3. History (MC) V Germany (P) 55 Class number is V55

320 4. History (MC) V China (P) 41 Coustitution (E) 2 Class number is V41 : 2 5. History (MC) V India (P) 44 Rights education (E) 58 (T15) Class number is V44 : 58 (T15) 6. History (MC) V Pakistan (P) 44Q7 Religious freedom (E) 58 (Q) Class number is V44 Q 7 : 58 (Q) Exercise - 4 1. Psychology (MC) S Indians (P) 744 Class number is S744 2. Pshchology (MC) S Backward classes (P)87927 Class number is S87927 3. Education (MC) T Rural (P) 9(y31) India (S) 44 Class number is T9(y 31). 44 4. Education (MC) T Primary education (P) 15 Teaching (E) 3 Mathematics (2P) B (by Subject Device) Class number is T15 : 3 (B) 5. Education (MC) T University (P) 4 Examination (E) 5 Class number is T4 : 5

321 6. Education (MC) T Adult (P) 9(y4) China (S) 41 Class number is T9 (y4). 41 Exercise - 5 1. Economics (MC) X Coal industries (P) 8 (F 551) Wages (E) 93 Unskilled (2P 2) 99C Class number is X8 (F551) : 2. Economics (MC) X Banking (P) 62 India (S) 44 Class number is X62. 44 3. Economics (MC) X Iron industries (P) 8(F182) Personnel Management (E) 9 Class number is X8 (F182) : 4. Economics (MC) X Accountancy (E) 8H Class number is X : 8H 5. Sociology (MC) y Hindu customs (E) 356 (Q 2) Nepal (S) 44974 Class number is Y : 356 (QJ) 6. Sociology (MC) y Indian (P) 73 (P15) Civilisation (E) 1 Far-East (S) 19E Class number is y73 (P15) : 7. Sociology (MC) y Rural (P) 31 Earthquake (E) 436 Relief (2E) 67 Class number is v 31 : 436 :

322 Exercise - 6 1. Law (MC) Z India (P) 44 Marriage Act (P 2) 122 Class number is Z44, 122 3. Law (MC) Z Hindu law (P) 2 Property Act (P 2) 2 Class number is 2(Q 2), 2 4. Law (MC) Z Negotiable Instrument Act (P 2) 985 Drafting (E) 1 Class number is Z, 985 : 1 5. Law (MC) Z War (Air) (P 2) D Diplomatic staff (P 2) D 145 Prisoners (P 3) 6 Class number is 2, D145, 6 6, Law (MC) Z War (P 2) A Marshall law (P 3) 2 Class number is 2, A, 2

323 Information Processing (Practical Classification) Module - 4 COLON CLASSIFICATION UNIT -1 Treatment of Generalia Class UNIT -2 Common Isolates and its Application in Number Building Process UNIT -3 Phase Relations UNIT -4 Treatment of Systems and Specials UNIT -5 Construction of Book Number

324 Module-4 Colon Classification Introduction This block p-esents the classifying documents dealing with general materials. Such materials which are not limited to a specific discipline or subject are covered by this class. This block also contains various other techniques which are special features of Colon classification. The units discussed in this block include Generalia class, Application of Common Isolates, Phase relations in CC. and Treatment of Systems and Spe- f cials in CC. At the end of this block is the method of assigning Call Number, devised by S. R. Ranganathan.

325 UNIT-1 □□□□□

Treatment of Generalia Class Structure 1.1 Introduction 1.2 Studies about a Geographical Area 1.3 Studies about a Person 1.4 General Encyclopaedic Works 1.5 General Serials and Periodicals 1.6 General Biographical Works 1.7 Generalia Bibliography 1.8

Summary 1.9 Self-Check Exercises 1.10 Answers to Self-Check Exercises 1.1 Introduction This unit introduces the treatment of Generalia Class in Colon Classification. By Generalia we mean a class includes any publication which deals with several subjects which

cannot go into any other single main class enumerated in

Colon Classification. The base digit z (Roman small letter) is used to denote the class number for Generalia Class. The scheme of Colon Classification does not provide any schedule for generalia classes which is treated in the Rules Chapter of the Scheme (Chapter 9z, P. 1 62.) 1.2 Studies about a Geographical Area If the exposition of a document is confined only to generalia materials on a specific geographical area, the digit 'z' should be divided by Geographical Device (GD). In this case the area number is added with the digit z. For example, when a study is made on a specific area, say,. India and various studies like its political, economic, cultural, social, educational, etc. are directed towards India, then the subject matter ba general studies about India.

326 Hence, the title 'Indian studies' will be as follows : z Generalia Class Subdivide by Geographical device Thus 'z44' is the class number for the above title. Similarly, the title 'Japanese studies' will be z 42. 1.3 Studies about a Person If the exposition of a document is confined only to generalia materials by and on a specific person, the digit z should be amplified by Alphabetical Device (AD). In that case the name of the person concerned is used as a subdivision. The person concerned is not associated with any one main class and his association in many fields or subject. But this rule is applicable only to those persons who significantly dominates the subject. For example, Studies about Mahatma Gandhi. Here Gandhi is associated with several fields of activity such as social reformer, freedom movement of India, legal person, political activity, etc. Hence Gandhi cannot be placed in any one of the above fields. Hence he is considered as a person in Generalia class. Thus the class number for the above title will be as follows : z Generalia class Amplified by Alphabetical Device zG (The digit G is taken from Gandhi) 1.4 General Encyclopaedic Works Encyclopaedias contain subject matters covered by all fields of knowledge or sometimes contain all details of a specific subject, General encyclopaedias are such works which contains all knowledge. Colon Classification does not provide any class number in the outlines of Main classes. The numbers for such general works are taken from the Table of Common Isolates. Some of the digits of Common Isolates are considered as General materials. Encyclopaedias are denoted by the digit k (Roman small letter) in the Table of Common Isolates. The facet formula for Encyclopaedias is as follows : k(P). (P 2) Isolates in (P) are derived from geographical divisions as the place of

327 origin or purview of the document whereas isolates in (P 2) are derived from chronological division as the Epoch of origin. Thus for example, 'Encyclopaedia Britannica' will have the class numbers as follows : k Encyclopaedia 56 Great Britain L Period or Epoch (L denotes) (1700-1799 AD.) Hence the class number is : k 56, L 1.5 General Serials and Periodicals Serials or periodical publications are an important form of documents. A serial or a periodical may devote to any subject or discipline. A periodical may be a general one when it embodies knowledge from all fields. In other words, when a periodical is not limited to a specific field of studies it is considered as General Periodicals. In CC, the digits m (Roman small) and n denote periodicals and serials respectively. The facet formula for periodicals and serials are as follows : Periodical m (P), (P 2) Serials n (P), (P 2) In both the cases (P) and (P 2) denote area of purview and epoch of origin respectively. Let us take examples : Hindu Herald (It is a general periodical of India origin and started in the year 1937). Thus the facet analysis for Hindu Herald is : M Periodicals 44 India (From Geographical numbers) N37 1937 (From Chronological Tables) Thus the class number is : m 44, N37 Similarly, a serial publication entitled 'India - a reference annual, 2004'. The above is a serial publication since it publishes once in a year. The Facet analysis is as follows : n Serials (MC) 44 India (P) (From G.D.) Po4 2004 (P 2) (From CD.) Thus the class number is : n 44, Po4

328 1.6 General Biographical Works Biographical work is denoted by the digit 'w' (Roman Small Letter) in Common Isolates Table. When a biographical work contains life and activities of a person in specific discipline or subject, it is considered as personal biography. In such a situation, the subject is subdivided by the form biography. But if a work contains biographies of several persons belonging to several subjects, then it is considered as General Biography. The facet structure of General Biographies is as follows : w (P), (P 2) Geographical Isolate (G.D.) Chronological Isolate (CD.) Thus, for example the title is : Who's who in India, 1995 The facet analysis reads as under : w Biography (MC) 44 India (P) (From G.D.) N95 1995 (P 2) (From CD.) Thus the class number is : . w44, N95 1.7 Generalia Bibliography Colon Classification schedules provide only general materials Bibliography in the schedules of classification with its distinctive isolates in the various facets under consideration. The class is designed as Generalia Bibliography. The Roman small letter 'a' is used as the symbol of its denotation. The facet structure of Generalia Bibliography is as under : a (P), (P 2), (P 3), (P 4). In the above facet formula isolates in (P) and (P 2) are enumerated in the schedules while isolates in (P 3) and (P 4) are drawn from the provisions in the Rules for Generalia Bibliography (P. 1. 63). In the formula (P) indicates the form of publications included in the bibliography while (P 2) is the source of publications. Let us take an example : The title is 'Indian National Bibliography' (List of books published in India and started in 1957). The facet analysis reveals as under ; a Bibliography (MC)

329 43 Books (P) 1 From specific places (P 2) 44 India (P 3) Isolate numbers constructed with the N57 1957 (P 4) provisions in the Rules. Thus the class number is : a43, 144, N57 Let us see another example : 'Indian Book Reporter' by Prabhu Book Service. The above is a record of books published by Prabhu Book service as a Book seller. Thus the facet analysis reads as follows : a Bibliography (MC) 43 Books (P) 4 Book Seller (P 2) P Prabhu Book Service (P 3) (By A.D. provided in the Rules) Thus the class number is : a43, 4P Similarly, 'Union List of periodicals in Delhi'. The above is a collective catalogue of periodicals in several libraries of Delhi. So the union list is a library catalogue comprising periodical collections of several libraries. The facet analysis for the above title is as follows : a Bibliography (MC) 46 Periodicals (P) 21 Union Catalogue (P 2) 4481 Delhi (P 3) Thus the class number is : a46, 214481 1.8 Summary Documents which are general in nature are described in this unit. The facet formula and the facet analysis of each general class has been given with examples. The general classes discussed in this unit are General serials, General periodicals, General encyclopaedias, General biographies and General bibliographies. }

330 1.9 Self-Check Exercises (Classify the titles) Exercise -1 1. American studies 2. Encyclopaedia Americana 3. Hindustan year book (Started in 20th century) 4. Desh - a general periodical (Started in 20th century) 5. International! Who's Who, 2002. Exercise - 2 1. Bibliography of thesis 2. Catalogue of books published by D.K. Publisher 3. British union catalogue of periodicals 4. Catalogue of Govt. Publications 5. Bibliography of children's book 1.10 Answers to Self-Check Exercises Exercise - 1 1. American Studies Generalia (MC) Z American studies Z7 Subdivided by Geographical number '7' means America Class number is : Z7 2. Encyclopaedia Americana Encyclopaedia (MC) k America (P) 7 Class number is k7 3. Hindustan year book (Started in 20th Century) Serials (MC) n India (P) 44 20th Century (P 2) N Class number is n44, N 4. Desh - a general periodical (Started in 20th Century) Periodicals (MC) m West Bengal (P) 4475 20th Century (P 2) N Class Number is m 4475, N

331 5. General Biography (MC) w Serials (ACI) n International (P) I year 2002 (P 2) P02 Class Number is wn1, P02 Exercise - 2 1. Bibliography (MC) a Thesis (P) 494 Thus the class number is a 494 2. Bibliography (MC) a Books (P) 43 Publisher's Catalogue(P 2) 3 D.K. Publisher (P 3) D (By A.D.) Class Number is a 43, 3D 3. Bibliography (MC) a Periodicals (P) 46 Union Catalogue (P 2) 21 British (P 3) 56 Class Number is a46, 2156 4. Bibliography (MC) a Govt. Publications 55 Class Number is a 55 5. Bibliography (MC) a Books (P) 43 Children's (P) 811 Class Number is a43 - 811

332 UNIT-2 □□□□□ Common Isolates and its application in Number Building Process Structure 2.1 Introduction 2.2 Anteriorising Common Isolates (ACI) 2.3 Posteriorising Common Isolates (PCI) 2.4 Summary 2.5 Answers to Self-Check Exercise 2.1 Introduction Besides schedules of special isolates enumerated in various Main Classes, Colon Classification provides common subdivisions for the subdivisions of a specific subject. These common subdivisions are termed as Common Isolates in Colon Classification. Ranganathan categorised Common Isolates into two groups : Anteriorising Common Isolates (ACI) and Posteriorising Common Isolates (PCI). These Common Isolates play a significant part in the construction of class numbers in Colon Classification. Table of Common isolates is given in a separate table. 2.2 Anteriorising Common Isolates (ACI) Common Isolates may

be

defined

as an isolate idea denoted by the same isolate term and represented by the same isolate number,

quite irrespective of the compound subject in which it occurs or the basic subject with which the common subject goes.

In

other

words,

Common Isolate is an isolate which is common

to all main

classes.

Ranganathan

thought some Common Isolates are having anterior value since they are simply used to show the form of presentation of any document. These forms are considered approach materials. Hence he termed this category of Common Isolates as Anteriorising Common Isolates (ACI). Since these isolates do not increase the intention of the subject, ACI does not require any connecting symbol in its attachment with any class number. Ranganathan further divides ACI into three subgroups : (

a)

Anteriorising Common isolates applicable before space facet.

333 (b) Anteriorising Common Isolates after Space facet (c) Anteriorising Common Isolates only after Time facet.

AC1 applicable before Space facet

In the table of Common Isolates (Page 2.5) each isolate term is attached with its own facet formula and the provision for getting isolate number rules chapter for Common isolates are followed. Common Isolate table categorises itself about their application before or after Space facet. For example :

Periodical m (P), (P 2) Serial n (P), (P 2) Conference proceedings p (P), (P 2)

Biography (Individual) w (P) etc etc. In the above series of facet formula, the isolates in (P) are derived by geographical divisions and isolates in (P 2) are derived by chronological divisions except in w(P) where (P) got by chronological divisions.

For example : The title is 'Indian journal of Botany' (This journal started in 1978). Facet analysis reads as follows : Botany (MC) I Journal (ACI) m India (P) 44 1978 (P 2) N78 Thus the class number is Im44, N78 Similarly for the title :

'Journal of documentation' (This journal published from Great Britain and started in 1948). Facet analysis gives us : Library Science(MC) 2 Documentation (E) 97 Periodical (ACI) m Great Britain (P) 56 1948 Epoch (P 2) N48 Thus the class number is : 2 : 97m 56, N48 Isolate ideas Biography 'w' and Collection 'x' are treated in a separate way and are explained as under :

:

334 W [S], [T] Biography if general W [P] Biography if individual In case of General biography the facet formula is attached with Space and Time while in case of Individual biography facet formula is attached with chronological number, i.e. the year of birth of the individual concerned. Thus for example : Collected biographies of Mathematicians in India during 20th Century : Facet analysis shows : Mathematics (MC) B Biographies (ACI) w India (S) 44 Epoch (T) N Thus the class number is : Bw44, N For individual biography, for example : Sir Issac Newton-a great Physicist born in 1642. The class number is CwK42 Similarly, the ACI x works is further divided into following divisions: x (S), (T) If general collections x (P) If individual collections In case of individual author isolate number for (P) is derived from chronological number, that is year of birth of the author concerned. For example : The title is "Physics papers of Sir Issac Newton 1 (1642 - 1727). The class number is derived from the facet analysis : Physics (MC) C Collections (ACI) x Epoch 1642 (P) K42 Thus the synthesised number is : CxK42 ACI applicable after Space facet Anteriorising Common Isolates like administrative report 'r' and statistics 's' are applicable after Space facet in the following examples as follows : r administrative report For example, Report of higher education in India. Facet analysis reads as under Education (MC) T Higher level (P) 4 India (S) 44

335 Adm. report (ACI) r Thus the class number is : T4. 44r ACI applicable only after Time facet Some ACI like commission report, survey, plan, statistics (if stray), etc. are applied with any class number only after Time facet. t Commission report For example : Report of the Education Commission on higher education in India in 1986. Facet analysis shows as follows : Education (MC) T Higher level (P) 4 India (S) 44 Time 1986 (T) N86 Commission Report (ACI) t Thus the class number is : T4.44 'N86 t 2.3 Posteriorising Common Isolates (PCI) Posteriorising Common Isolates need a connecting symbol for their attachment with any class number, since the addition of PCI increase the intensity of the class to which it is attached. There are two types of Posteriorising Common Isolates : (1) Energy Common Isolates (ECI) (2) Personality Common Isolates (PCI) Energy Common Isolates need a colon (:) as the connecting symbol while a comma (,) is used as the connecting symbol for Personality Common Isolates. Energy Common Isolates are attached with a class number as follows : For example : 'Observation of Stars' Facet analysis shows as under : Astronomy (MC) B9 Stars (P) 6 Observation (ECI) f 2 Thus the class number is B96 : f 2 Personality Common Isolates (PCI) is added with any class number by the specific facet formula attached with any PCI.

336 The facet formula for a PCI is as follows : (CI), (P), (P 2) : (E) where (CI) stands for PCI (P) is got either by Alphabetical Device (AD) if a localised body or by Chronological Device (CD) if a non-localised body. In this case CD number should be preceded by a '9'. Isolate numbers in (P 2) and (E) (2P) are taken from the Main class "V History". For example : The title of the document is 'Delhi School of Economics' Facet analysis is as under : Economics (MC) X Delhi (S) 4481 Higher Institution (PCI) e 4 Subdiv. by AD D So, the class number is : X. 4481 e 4 D A PCI is generally added after Space facet. Another example : The title of the document is— 'Function of the President of the American Library Association (Founded in 1876)' Facet analysis is as under : Library Science (MC) 2 America (S) 7 Learned Society (PCI) g American Library Association (P) 9M76 (Non-Localised) President (P 2) 1 (From V History) Function (E) 3 (From V History) Thus the class number is : 2.7, g, 9M76, 1 : 3 In the former example 'Delhi School of Economics' is a localised body and hence its isolate number is got by AD while in the later example, American Library Association is a non-localised body and hence its number is derived by chronological number which is ultimately preceded by '9'. Self-Check Exercise - 1 Classify the following titles :

- 337 1. Biography of S.R. Ranganathan (Born in 1892) 2. Indian Library Association (Founded in 1933) 3. Indian journal of Physics 4. Encyclopaedia of Library and Information Science 5. Report of the Delhi College of Architecture 6. Statistics of rainfall in Assam in 1999 7. Proceedings of the Indian National Conference on Biological techniques, held in 2001. 8. International Who's who, 2003. Space provided below for your answers. 1..... 2..... 3..... 4..... 5..... 6..... 7..... 8.....

2.4 Summary In this unit we have seen how Common Isolates are applied in Colon Classification. The unit also explains the various kinds of Common isolates, viz. Anteriorising Common isolates and Posteriorising Common Isolates. 2.5 Answers to Self-Check Exercise 1. Library Science (MC) 2 Biography (ACI) w Individual (P) M92 (By C.D.) Class number is 2w M92 2. Library Science (MC) 2 India (S) 44 Learned body (PCI) g Non-Localised (P) 9N33 Class number is 2. 44, g, 9N33 3. Physics (MC) C

338 Journal (ACI) m India (P) 44 Class number is Cm 44 4. Library Science (MC) 2 Encyclopaedia (ACI) k Class number is 2k 5. Architecture (MC) NA Delhi (S) 4481 Higher Institution (PCI) e 4 Delhi College of Arch. D (By A.D.) Report (ACI) r Class number is NA.4481,e 4 , Dr 6. Geography (MC) U Rainfall (P) 2855 Assam (S) 4477 Time 1999 (T) N99 Statistics (ACI) S Class number is U 2855. 4477 'N99s 7. Biology (MC) G Techniques (E) 19 Proceedings (AC!) P National (P) 44 India Year 2001 (P 2) P01 Class Number is G : 19 P 44, P01 8. Biography (MC) w Serial (ACI) n International, (P) 1 Year 2003 (P 2) P03 Class number is wn1, P03

339 UNIT-3 □□□□□

Phase Relations Structure 3.1 Introduction 3.2 Kinds of Phase Relations 3.3 Inter-Subject Phase Relations 3.4 Intra-Facet Relation 3.5 Intra-Array Relation 3.6

Summary 3.7 Answers to Self-Check Exercise 3.1 Introduction This unit discusses the multidimensional characteristics of subjects. We found varieties of structures of specific subjects in the universe of subjects that are to be assigned with class numbers. When a subject exhibits some kinds of relations between them, they are treated as complex subjects. Complex subjects are drawn from the interaction between two disciplines which requires different treatments in assigning class numbers. The concept of phase is defined by Ranganathan as that part of a complex subject which is derived from one discipline. The relation between the different phases of a complex subject is called phase relations. Ranganathan also identified the mutual relation between two distinct isolate ideas of the same facet and between two distinct sub-isolate ideas of the same array isolates which he termed as Intra-facet Relation and Intra- array Relation respectively. In simple sense, *i° constituent parts of a complex subject indicate .he presence of phase of a multiphased subject. The treatment of phase relations is discussed in the later sections of this unit. 3.2 Kinds of Phase Relations In this section we will discuss the various kinds of phase relations treated in Colon Classification.,. When relation occurs between two distinct subjects or two subjects are studied in thier mutual relations is termed as Inter-subject phase relations,

340 e.g. Philosophy and Science. When relation occurs between two distinct sub-isolates of the same facet, it is termed as Intra-facet Relation, e.g. Buddhism and Jainism. When relation occurs between two distinct sub-isolates of the same array isolates, it is termed as Intra-array Relation, e.g. Rural culture differs from Urban Culture. Thus we find the different kinds

of phase relations as follows : (1) Inter-subject phase relation ; (2) Intra-Facet Relation ; and (3) Intra-Array Relation.

The complex subject is formed by combining two subjects in their relation while combination of two isolates is the formation of complex-isolate and the combination of two sub-isolates is indicated by Complex-Array Isolate. Colon Classification also identified five kinds of relations exist between the two subjects, between the two isolates or between the two sub-isolates. These five kinds are : General Bias Comparison Difference Influencing. While 0 (Zero) is used as the phase indicator, few Roman small letters are used to indicate five kinds of relations. The scheme of indicator digits in CC is as follows : Inter-Subject Intra-Facet Intra-Array General Oa Oj Ot Bias Ob Ok Ou Comparison Oc Om Ov Difference Od On Ow influence Og Or Oy It is also essential to identify the order of phases in a class number which he termed as sequence of phase. The phase which is the primary exposition is called First phase, and the phase which merely affects the first phase is the Second phase. The order or sequence of classification schedules determines the First phase and Second phase in case of General, Comparison and Difference relations.

341 In case of Bias and Influence Relation, the phase which is biased or Influenced is the First phase and the phase which is biasing or influencing is the Second Phase. The analysis of phases in a multiphased subject is called phase-analysis. 3.3

Inter-Subject Phase Relations Relations drawn from the different areas of schedules are as follows : Inter-Subject General Relation : For example, 'Philosophy and Religion'. Phase analysis gives two phases as 'Philosophy' R and 'Religion' Q.

Thus, 'Q' is the First Phase since it comes, first in the sequence of classes and 'R' is the Second phase comes later in the sequence of classes. In this case Oa is the relational symbol. Hence the class number is : Q Oa R Inter-Subject Bias

Relation : For example, 'Engineering mathematics'. Phase analysis gives us two phases as 'Engineering' and 'Mathematics' since these are, two distinct fields of studies. Here the subject 'Mathematics' has its biasness over 'engineering'. Thus Mathematics is the First Phase and Engineering is the Second phase. 'Ob' is the symbol for bias relation. Thus the class number is from the following : First phase - Mathematics - B Second Phase - Engineering - D Phase indicator Ob The class number is : BObD Inter-Subject Comparison Relation : For example, 'Physics compared with Chemistry' Phase

analysis gives us Physics (C) and Chenistry (E) are the two phases and respectively First phase and Second phase. Phase - 1 Physics C Phase - 2 Chemistry E Phase indicator Oc The class number is C OC E The sequence is determined by the sequence of classes in the schedules. Inter subject Difference phase : For example, 'History differs from Political Science' Phase analysis gives us two phases as 'History' and 'Political Science' denoted respectively by 'V' and 'W' in the schedules. 342 Phase - 1 History V Phase - 2 Political Science W Phase indicator Od Thus the class number is V Od W Inter-Subject

Influence Relation For example, the subject 'Geopolitics'. The analysis of the subject gives us two distinct fields of studies 'Geography' (U) and 'Political Science' (W). Here the subject Political Science is influenced by Geography. Thus phase relations is Influence Relation. Phase -1 Political Science W Phase - 2 Geography U Phase indicator Og Thus the class number is WOgU 3.4 Intra-Facet Relation

It is possible to have

books expounding the relations between two isolates in one and the same facet of a class. This is referred to as Intra-facet Relation.

The two isolates are combined together with five kinds of relations viz. General, Bias, Comparison, Difference and Influence. Intra-Facet General Relation. For example, 'Relation between Buddhism and Jainism'. The Phase analysis gives us two components 'Buddhism' and 'Jainism' belong to the same facet specification in 'Religion class. Here facet analysis shows as under : Religion (MC) Q Jainism (P) 3 Related by Intra-facet General relation indicated by Buddhism (P) 4 'Oj' Thus the class number is : Q 3 Oj 4 In the above class number, 3Oj4 is an example of Complex-Isolate number.

Intra-Facet Bias Relation : For example, 'Physiological anatomy'. Facet analysis of the subject gives us two component ideas 'Physiology' and 'anatomy' in Main class Medicine. Both the isolate ideas belong to the same facet 'Energy' of the same class Medicine. The analysis is as under :

343 Medicine (MC) L Anatomy (E) 2 Physiology (E) 3 In the above isolate numbers 2 and 3 are combined together with bias relation. The class number is : L : 20k3 Intra-Facet Comparison Relation : For example, 'Morphology Compared with Physiology'. The component ideas Morphology and Physiology appear in the same facet Energy in the Main Class Medicine and are combined with comparison relation. The analysis of the subject : Medicine (MC) L Anatomy (E) 2 Phase indicator 'Om' Physiology (E) 3 Thus the class number is : L : 2 Om 3 Intra-Facet Difference Relation : For example, 'Difference between Hinduism and Buddhism'. In the above subject both Hinduism and Buddhism belong to the same facet Personality of the Main Class Q Religion. The analysis of the subject is as follows : Religion (MC) Q Hinduism (P) 2 Phase indicator is On Buddhism (P) 4 Thus the class number is : Q 2 On 4 Intra-Facet Influence Relation For example, 'Influence of Jainism On Buddhism'. The analysis of the above subject gives two component ideas Jainism and Buddhism influenced one another. In this case Buddhism is influenced by Jainism. So Buddhism which is influenced is considered as First component in the sequence while Jainism influencing the First one is treated as Second component in the citation order. Thus the analysis shows as under : Religion (MC) Q Buddhism (P) 4 Phase indicator }

344 Or Jainism (P) 3 So the class number is : Q 4 Or 3 3.5 Intra-Array Relation It is also possible to have books expounding the relation of two Array- Isolates in one and the same array.

The complex number derived by Intra- array relation is called Complex-Array isolate Number. Such relations are of five kinds : Intra-Array General Relation For example, 'Relation between Lok Sabha and Rajya Sabha'. We find from the analysis of the above subject Lok Sabha and Rajya Sabha are two component ideas belong to the same array of organ isolates in the Main class History. The analysis of the subject is as under : History (MC) V Indian Community (P) 44 Lok Sabha (P 2) 32 p hase relations is indicated by of Rajya Sabha (P 2) 31 The class number is : V44, 31 ot 2 Intra-Array Bias Relation : For example, 'Chemical method used for examination of urine'. The analysis of the title gives us two component ideas chemical method and examination of urine in the same array isolates in 3 of Energy facet in the Main class L Medicine. Thus the analysis reads as under : Medicine (MC) L Disease (E) 4 Pathology (2E) 4 Chemical method (2E) 403 Combined with bias relation (ou) Examination of urine 45 The class number is : L : 4 : 403 ou 5 Intra-Array Comparison Relation For example, 'Comparison between rural folk and urban folk'. The two isolate ideas rural folk and city folk belong to the same array } }

345 in the Main class 'y' Sociology. The analysis reads as under : Sociology (MC) y Rural (P) 31 Combined by Intra-Array Relation (ov) City (P) 35 Folk (E) 351 Thus the class number is : y 31 ov 5 : 351 Intra-Array Difference Relation : For example, 'Difference between rural culture and urban culture'. The component ideas rural culture and urban culture is related with Difference Relation. The analysis is as follows : Sociology (MC) y Rural (P) 31 (Related by Intra-Array Relation, (ow) Urban (P) 33 Culture (E) 1 Thus the class Number is : y 31 ow 3 : 1 Intra-Array Influence Relation : For example : 'Influence of rural culture on urban culture'. The component ideas rural culture and urban culture are combined with Influence Relation in the sane: array isolates in Mam Class 'y' Sociology. Thus the analysis of the title reads as follows : Sociology (MC) y Rural (P) 31 Related by Influence Relation (oy) Urban (P) 33 Culture (E) 1 Thus the class number is : y 33 oy 1 : 1 Self-Check Exercise - 1 Classify the following titles : 1. Statistics for Physicists 2. Botany compared with Zoology 3. Influence of literature on society 4. Psychology and education 5. Influence of Jainism on Buddhism 6. Physiology of cells and tissues 7. Difference between qualitative and quantitative chemistry } } }

346 8. Analytical chemistry compared with physical chemistry 9. Relation between district libraries and city libraries 10. Difference between functions of the President and the Prime Minister in India. Space provided below for yours answers.

1..... 2..... 3..... 4.....
5..... 6..... 7..... 8.....
9..... 10.....

3.6 Summary This unit explains the concept of phase, phase analysis and phase relations in Colon Classification, it also explains the three kinds of relations between the different subjects, between the different isolates of the same facet and between the sub-isolates of the same array. The citation order of component phases is described in this unit. It further discusses five kinds of relations that may exist between the components of a multiphased subject. The applications of various relations in CC are demonstrated with examples. 3.7 Answers to Self-Check Exercise 1. Physics (MC) C Intersubject bias phase ob Statistics (MC) B28 Class number is : B 28 ob C 2. Botany (MC) I Intersubject comparison oc Zoology (MC) k Class number is : I oc K

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3.6 Summary This unit explains the concept of phase, phase analysis and phase relations in Colon Classification, it also explains the three kinds of relations between the different subjects, between the different isolates of the same facet and between the sub-isolates of the same array. The citation order of component phases is described in this unit. It further discusses five kinds of relations that may exist between the components of a multiphased subject. The applications of various relations in CC are demonstrated with examples. 3.7 Answers to Self-Check Exercise 1. Physics (MC) C Intersubject bias phase ob Statistics (MC) B28 Class number is : B 28 ob C 2. Botany (MC) I Intersubject comparison oc Zoology (MC) k Class number is : I oc K

347 3. Society (MC) y Influence phase og Literature (MC) 0 Class number : y og o 4. Psychology (MC) s Inter subject general oa Education (MC) T Class Number is : S oaT 5. Religion (MC) Q Buddhism (P) 4 Intra-facet Relation Jainism (P) 3 Class number is : Q 4 or 3 6. Biology (MC) G Cells (P) 11 Intra-array Relation Tissues (P) 12 Physiology (E) 3 Class number is : G 11 ot 2 : 3 7. Chemistry (MC) E Qualitative (E) 33 Intra-Array Difference Quantitative (E) 34 Relation Class number is : E : 33 ow 4 8. Chemistry (MC) E Physical (E) 2 Intra-Facet Pifference Analytical (E) 3 Relation Class number is : E : 2 on 3 9. Library Science (MC) 2 District libraries (P) 21 Intra-Array General City libraries (P) 22 Relation Class number is : 2 21 oj 2 10. History (MC) V India (P) 44 President (P 2) 1 Intra-facet Difference Prime Minister (P 2) 21 Relation Functions (E) 3 Class Number is : V44, 1 ow 21 : 3 } } } } }

348 UNIT-4 Treatment of Systems and Specials Structure 4.1 Introduction 4.2 Systems 4.3 Specials 4.4 Summary 4.5 Answers to Self-Check Exercise 4.1 Introduction Colon Classification recognises some subjects are grown with the help of different schools of thought These schools of thought later termed by Ranganathan as Systems and Specials. According to him, a system refers to the approaches to a subject and within the system there are some specific areas. Systems number is denoted by the Chronological Device (CD) i.e. the time of origin of the system is taken into consideration. Specials are denoted by Alphabetical Device (AD). Among the various systems in a Basic subject, there exists a Favoured system, The Favoured system is going with the Main class itself. So the Systems and Specials are denoted by (Smf) and (SpF) respectively. 4.2 Systems Systems numbers are enumerated in the schedules at the end of the different facets of a Main class under consideration. The following systems have been enumerated in the Main class Medicine. L Medicine LA Systems by (CD) LB Ayurveda LC Sidha LD Unani LL Homoeopathy LM Naturopathy 349 Similarly there are other fields of studies where systems exist such as Physics, Agriculture, Psychology, Education, Economics. Systems are treated as Basic Classes and are cited in a synthesis before personality facet. Since systems are narrower than the Main classes, they are followed by the Main class concerned. For example : Homoeopathic treatment of eye diseases. Facet analysis reads as under : Medicine (MC) L Homeopathy (SmF) LL Eye (P) 185 Disease (E) 4 Treatment (2E) 6 Thus the class number will be : LL, 185 : 4 : 6 Personality isolates if available are preceded by a comma. 4.3 Specials Unlike systems number, specials are also enumerated in the schedules concerned before systems facet. It appears after facets enumerated in the schedule. The Specials that are appropriate in Medicine are as follows : L Medicine L9

A Specials

L9B Embryo L9C Child L9D Adolescent L9E Old age L9F Female L9H Tropical L9T Aviation L9V War L9X Industrial Similarly, other classes where specials facet available are Chemistry,

350 Biology, Economics. Physics. Specials are also treated as Basic classes and are cited after the Main Class concerned but before personality facet. The personality is preceded by a comma. For example : Child diseases and their cure. Facet analysis reveals as under : Medicine (MC) L Specials (SpF) L9C (9C is the number for child) Diseases (E) 4 Cure (2E) 6 Thus the class number is : L9C : 4 : 6 Sometimes a document covers a system, a special and a personality. Since systems are wider than the specials, they are cited in the order of System -Special-Personality. Systems and Specials are separated by a comma. So also special number and personality number are seperated by a comma. The facets of the Main classes concerned are considered Facets of the Systems and Specials, The facet formula attached to the Main Class concerned is also applicable for Systems and Specials. For example : 'Homoeopathic treatment of virus diseases of eye of the children'. The Facet analysis reveals as under : Medicine (MC) L Homoeopathy (SmF) LL Child (SpF) L9c Eye (P) 185 Diseases (E) 4 Virus (2P) 23 Treatment (2E) 6 Thus the class number is : LL, 9c, 185 : 423 : 6 Since both Systems and Specials are derived from the concerned Main class, Main class number is omitted from the Specials number.

351 4.4 Summary In this unit we have explained the use of Systems and Specials in number building process. Systems and Specials are defined. Systems number is derived by Chronological Device while Special number is derived by Alphabetical Device. The order of citation of the component isolate numbers for Systems, Specials and the personality isolates are described with examples. Self-Check Exercise - 1 Classify the following titles : 1. Diseases in Tropical Medicine 2. Plant propagation in soilless agriculture 3. Labour management in private sectors 4. Pshycho-analytica! studies of women 5. Montessori method of teaching pre-school children 6. Ayurvedic treatment of liver in old age 7. Biochemical analysis of amino-acids 8. Physiology of embryo cells Space provided below for your answers. 1..... 2..... 3..... 4..... 5..... 6..... 7..... 8.....

4.5 Answers to Self-Check Exercise 1. Specials (MC) L9H Diseases (E) 4 Class number is : L9H : 4 2. Agriculture (MC) J Soilless farming (SpF) J9S Plant Propagation (E) 3

352 Class number is : J9S : 3 3. Economics (MC) X Private Sector (SpF) X9S Labour management (E) 9 Class number is : X 9S : 9 4. Psychology (MC) S Psycho-analytic (SmF) SM9 Women (P) 55 Class number is : SM9, 55 5. Education (MC) T Montessori method (SmF) TNI Pre-school children (P) 13 Teaching (E) 3 Class number is : TNI, 13:3 6. Medicine (MC) L Ayurvedic (SmF) LB Old age (SpF) L9E Liver (P) 291 Disease (E) 4 Treatment (2E) 6 Class number is : LB, 9E, 291 : 4 : 6 7. Chemistry (MC) E Biochemistry (SpF) E9G Aminoacids (P) 92Z Analysis (E) 3 Class number is : E9G, 92Z : 3 8. Biology (MC) G Embryology (SpF) G9B Cells (P) 11 Physiology (E) 3 Class number is : G9B. 11 : 3

353 UNIT-5 □ □ □ □ □ Construction of

Book Number Structure 5.1 Introduction 5.2 Components of Book Number 5.3 Facet Formula for Book Number 5.4 Collection Number 5.5

Summary 5.6 Answers to Self-Check Exercise 5.1 Introduction

The Book Number of a book is a symbol used to fix its position relatively to the other books having the same ultimate class,

in other words, a

Book

Number individualises a book among the books sharing the same class number.

It is the translation of the names of certain features of a book into artificial language of ordinal numbers other than the Class Number. 5.2 Components of Book Number

The

Book Number may consist of one or more of the following

successive facets : Language

Number; Form Number; Year Number; Accession Part of a Book Number; Volume Number; Supplement Number; Copy Number;

Criticism Number; and Accession Part of Criticism Number.

Colon Classification makes use of a facet formula to construct the Book Number. The same is based on the concept of facet analysis and provides for possible characteristics which are "likely to arise in the expression of an idea in forming a work and also the characteristics likely to arise in embodying a work in the form of a book" (Prolegomena, p. 507). 5.3

Facet Formula for Book Number The facet formula prescribed by CC is as follows : [L] [F] [Y] [SN]. [V] - [S] ; [C] [EVN] where L = Number of the Language of exposition, taken from the schedule of Language Isolates (Chapter-5, Part - 2 of C.C.).

354 F = Number for the Form of exposition, taken from the Form schedules (Chapter 02, Part-2 of C.C.). Y = Number for year of publication, taken from the Chronological Schedule. SN = Serial Number, used to distinguish the different books in the same ultimate class and having the same language and form numbers. This is made serially, beginning with 1 for the second book received in the library. V = Number for the volume, taken from the book itself. S = Number for the supplement, taken from the book itself. C = Number of copy, other than the first, serially made as for (SN). EVN =

Evaluation Number is used for pseudo-Jassics. The above facet formula is illustrated with examples : Title Class Number

Book Number Library Science (In English) 2 111 Symposium on Labour Economics X : 97 111 p7 (Book is in English) Colon Classification, 6th ed. 2 : 51 N3 111Ko (1960) (In English)' Year number is the most important feature of the Book Number.

If the work is in different editions, then the year of the edition will represent the year number. Accession Number

Accession number used in Book Number is the serial number denoting the sequence of acquisition of books having the same class Number and same number for the first three facets of Book Number. For example : Suppose a Library has 4 books on Indian History, the language is English and all 4 books published in 1980, then the book number for each book will be as follows : Class Number Book Number 1st Book V44 111M0 2nd Book V44 111 M01 3rd Book V44 111 M02 4th Book V44 111 M03

355 Volume Number The volume number is given for multivolumed works. The volume number is preceded by a dot (.).

Example : Title : Dewey Decimal Classification, 19th edition, 1979 in 3 volumes. Class Number Book Number 1st Volume

2 : 51M 111 L9.1 2nd Volume 2 : 51M 111 L9.2 3rd Volume 2 : 51M 111 L9.3 Supplement Number (S) A work may have supplementary volumes. In such cases Supplement Number is added to the Book Number. If a supplementary volume relates to more than one volume of an indivisible set of volumes, the number of the supplement should be attached to the Book Number of the last of such volumes in the set. The supplement number should be preceded by a hyphen (-).

Class Number Book Number 1st Supplement B3 K7-1 2nd Supplement B3 K7-2 Copy Number

The Book Number of the second, third, etc. copies of a book should consist of that of the first copy followed by a semicolon and thereafter by the digits— 1, 2, etc. respectively.

If the Book Number of the first copy is N49, those of other copies are as follows : 1st copy N49 2nd copy N49 ; 1 3rd copy N49 ; 2 4th copy N49 ; 3 If the Book Number is attached with Supplement Number, then the copy number is added after Supplement Number as follows ;

356 1st copy N 491.7 - 2 2nd copy N491.7 - 2 ; 1 3rd copy N491.7 - 2 ; 2 Criticism Number When a book is criticism, appreciation or review of any original work then the Criticism Number is indicated in the Book Number. The symbol (:g) is used to denote Criticism Number. A particular work may be criticised more than once. In such cases serial number should be added after the Criticism Number. Example Class Number Book Number Critical evaluation of Colon 2 : 51N3 KO : g Classification, 6th. ed. (1960) 2:51 N3 KO : gl 2:51N3 KO : g2 Accession Part of the Criticism Number is added after the first criticism number by the digits 1, 2, etc. respectively. The facet formula for Book Number in CC is a lengthy one. However, in general practice only the Year Number and Copy Number are used. Volume and Language number are required in certain cases. 5.4

Collection Number The collection number of a Book denotes the collection to which it belongs.

A collection number is a suitable symbol to be improvised by each library according to its needs. Different types of collection may be distinguished on the basis of the following characteristics : (a) Type of documents viz. pamphlets, periodicals, etc. (b) Size of documents viz. oversized, under-sized, etc. (c) Nature of documents viz. rare, popular, etc. (d) Based on administrative department or service viz. Reference Collection, Reading Room, etc. Collection Collection Number Reading Room RR {

357 Periodicals PC Secondary SC Tertiary TC Physics Department CD Examples : Title : Elementary Physics (Published in 1989) The book belongs to the Reading Room Collection. Call Number : C M9RR The above number 'M9RR' indicates Reading Room Collection. Self-Check Exercise : Find the Class Number and Book Number of the following : 1.

Telegraphy (Published in 1980). It is in two volumes. The favoured language of the Library is English 2. Ayurvedic cure (Published in 1985). It is in three volumes and one supplement number. 3. Critical evaluation of Dewey Decimal Classification. 19th edition, 1979, in 3 volumes. (In English) Space provided below for your answers. 1. 2. 3. 5.5 Summary The facet formula for Book Number is described in this unit. The Collection Number of a document indicates the collection to which the book belongs. 5.6 Answers to Self-Check Exercise 1. 1st Volume D665, 47 M01 2nd Volume D665, 47 M02 2. 1st Volume LB : 4 : 6 M5.1 2nd Volume LB : 4 : 6 M5.2

358 3rd Volume LB : 4 : 6 M5.3 Supplement Volume LB : 4 : 6 M5.3-1 3. 1st Volume 2 : 51M 111 L9.1 : g 2nd Volume 2 : 51M 111 L9.2 : g 3rd Volume 2 : 51M 111 L9.3 : g Further readings 1. Ranganathan, SR. 1989 Colon Classification, 6th edition, Sarada Ranganathan Edowment, Bangalore." 2. Mohindar Pratap Chand. Colon Classification : Its structure and working (A programmed Text), 1978. Sterling Publishers, New Delhi. 3. Ranganathan, S. R. 1962. Elements of Library Classification, 3rd. ed. Asia Publishing, Bombay. 4. Ranganathan, SR. Prolegomena to Library Classification, 3rd. ed. 1967.

Sarada Ranganathan Endowment,
Bangalore.

359 PAPER - VII Cataloging Practice Module : 1 - 4
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361 MODULE—1 Unit 1 □□□□□ Introduction to Cataloguing 1.1 Cataloguing 1.2 Structure of AACR 1.2.1 AACR 1 1.2.2 AACR 2 1.2.3 AACR 2 : 1988 1.2.4 AACR : 2002 1.3 Exercises 1.4 Selected Readings 1.1 Cataloguing Catalogues are a systematic means of retrieval of items in a collection and they bring order to the arrangement of that collection.

Cataloguing is the principal means whereby library users can find the contents of the collection. Cataloguing may be described as the art of making records in such a manner that they may be readily, identified, located and examined.

To be reliable the recordings must be in accordance with definite rules, which constitute a cataloguing code. The main objective of cataloguing is

to enable a person to find a book of which either the author, the title or the subject is known;

to

show what the library has by a given author, on a given subject or in a given kind of literature;

and to assist in

the choice of a book as to its edition (bibliographically) or as to its character (literary or topical).

Cataloguing can be divided into several types. The first division is into descriptive cataloguing and subject cataloguing. Descriptive cataloguing means describing the item, and allocating the access points to it that have nothing to do with its subject matter. Subject cataloguing comprises of classification and subject headings. To frame rules for cataloguing, a number of catalogue codes have originated from time to time. The first national cataloguing code was the French code of 1791. The British Museum code of 1841 was the first catalogue code to suit the modern library cataloguing. Cutter's code of 1876 is a very important code. A. A. code of 1908 was an attempt of a catalogue code across national borders. The ALA code came out in 1949. Classified catalogue

362 code of Dr. S. R. Ranganathan was published in 1934. AACR was the first international code based on the cataloging principles of ICCP. 1961. 1.2 Structure of AACR 1.2.1 AACR-1 The Anglo American Cataloguing Rules, 1967 popularly known as AACR, 1967 or AACRI is the first international catalogue code based on the cataloguing principles of ICCP (International Conference on Cataloguing Principles) 1961. There were two editions of AACR, the British text and North American text due to disagreement of some issues. In this code, the conditions of authorship have been considered for formulating the main entries and headings, and not the type of work or the document. The rules cover both the heading, and entry element as well as bibliographic description, the rules cover a wide variety of materials, books, serials, microforms, motion pictures, maps, filmstrips, music, graphic materials, manuscripts etc. The particular form and construction of heading of main entry has been treated as a problem of time, the choice of particular name, the form of the particular name and the information in which the name should be presented. The rules in AACR, 1967 were divided into three main parts. Part I concerns with entry and heading, part II with description, part III is concerned with specific types of non-book materials and special types of materials with rules for main entry and rules for description. A good number of modifications were made and the amendment bulletins have been issued from time to time. 1.2.2 AACR-2 AACR-2 is the Anglo-American Cataloguing Rules, second edition and it came out in 1987. As the documents became more and more complex, the rules for on-book materials in AACRI were considered inadequate. There have been increasing mechanization, the growth of centralised and cooperative bibliographic service and networks have been at a large rate and the introduction of a number of new media—all these factors led to the development of AACR-2. There were no more two separate texts as in AACRI, but AACR 2 emerged as a single uniform code.

It was prepared by the American Library Association, the British Library, the Canadian Committee on Cataloguing, the Library Association and the Library of Congress.

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AACR 2 contains a number of options indicated by "optional addition", "Alternative rule", or "Optionally". The rules recognize that libraries vary in the level of detail that they want in their catalogues, and so to some extent there are options within the rules to allow for this. Some options should be matters of policy for a library. Other kinds of option can apply on a case by case basis, depending on the nature of the item. AACR 2 has taken into consideration, the present-day requirements. It is based on the assumption that bibliographic records are meant to be put to multiple uses. The word "prominently" is important in case of AACR 2. In certain rules the word "prominently" is used, and it is important to realize that in AACR 2 it has a very specific meaning and is in a sense a technical term. The section on "Judgement and Interpretation" is also important, but in a different way. Cataloguers usually expect that the rules of AACR 2 will always provide an exact and uncontroversial answer to any cataloging problem. Such is not the case. The rules are deliberately framed in a general way, so as to show principles, and to make them as widely applicable as possible. It is therefore inevitable that there will come across instances where one has to use his own judgement in how to apply a rule. Another cataloguer might come to a different solution to the problem, and in many cases the alternative may be equally acceptable. AACR 2 divides cataloguing into two main processes—description and access points. The arrangement of the code depends on this basic distinction. 1.2.3 AACR 2 : 1988 The use of AACR 2 disclosed inconsistencies and posed problems for the cataloguers. Five professional bodies agreed to constitute a Joint Steering Committee to take further steps for revision and improvement. The Revision 1988 specifically concentrates to revise or reorganize rules for the treatment of computer files, cartographic materials, uniform titles for music, and materials for the visually handicapped. Other changes are in the areas of the selection of source for series titles, choice of main entry for revised texts, provision for subordinate entry for those subordinate corporate names that do not convey, the idea of a corporate body, deletion of articles from uniform titles and headings for corporate bodies. This edition has greatly limited the use of corporate entries and prefers title entry in most cases. The code here is also divided into two parts : Description and Headings. Part I contains rules 1-13 for Books, Serials, Non-Book materials and Computer Titles etc.

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Part II covers choice of Access Points, Headings for persons, Corporate Bodies, uniform Titles.

References and Appendices. Appendix A deals with Capitalization, Appendix B with Abbreviation, Appendix C with Numerals and Appendix D with Glossary. The applications of computer in cataloging has been developing at a tremendous rate, and AACR 2 has not been able to take library automation fully into account. So the editor of AACR 2, Gorman predicted that there will never be an AACR 3, but a new type of code which will deal with the creation of machine readable records for use in national and international networks, and the result was the AACR-2002 revision.

1.2.4 AACR 2002 AACR 2002 incorporates the amendments made in 1999, 2001 and 2000. The changes from AACR 2R (1988) were (i) in case of Rule 1-4D4 which was deleted here (ii) in case of chapter 3 (cartographic materials), there were 3 major type of changes—additional rules or additions to existing rules for the description of cartographic materials in electronic form ; miscellaneous changes to existing rules to bring them into line with current practices and editorial changes. The case of “Serials” was expanded to include “Continuing Resources”. Apart from these, there were revisions in case of electronic resources, works that report the collective activity of a conference, subordinate conference heading, terms of address of married woman and also in cases of appendices. 1.3 Exercises Q1. Define a catalogue. Mention its objectives and its various divisions. Q2. Discuss the characteristic features of AACR 1 and AACR 2 Q3. How does AACR 2002 differ from AACR 2 : 1988 ? 1.4 Selected Readings 1. Bakewell, K.G.S.—A manual of cataloging oxford, Pergamon Press, 1972 2. Hunter, Eric J.—Computerized cataloging, London : Clive Buigley, 1983. 3. Anglo American Cataloguing Rules 2nd ed. 2002 revision—Joint Steering Committee for Revision of AACR. Ottawa. 2002.

365 Unit 2 □□□□□ Standardization 2.1

ISBD 2.2 Standards 2.3 MARC 2.3.1 USMARC 2.3.2 UKMARC 2.3.3 UNIMARC 2.4 Information Interchange Format : ANSIZ 39.5 2.5

Exercises 2.6 Selected Readings 2.1 International Standard Bibliographic Description (ISBD) An important event in the history of cataloguing is the International Meeting of Cataloguing Experts held in Copenhagen in 1969 in which there was an issue to develop a standard order and content for the description of monographic material. A document entitled International Standard Bibliographic Description (ISBD) was issued in 1971. ISBD deals with the description aspect of cataloguing only, not with access points or forms of name. It lays down, for each physical form of publication, the sources of information to be used as the basis for the description, the order in which the elements must be transcribed, and the punctuation that should be used to separate the elements. The main purpose of ISBD was to create an international standard of description suitable for a machine readable format to enable quick transfer of information via computer.

The International Standard Bibliographic Description for Monographic Publication ISBD(M) came out in 1974 and served as the basis for rules of description of Monographic materials in AACR 2. In 1975, General International Standard Bibliographic Description ISBD(G) was developed. It served as a single framework for the description of all types of publications in all types of media, thereby ensuring a uniform approach in bibliographic description. This ISBD (G) was later on incorporated into AACR 2 as the general framework for bibliographic description. The aims of ISBD are to help make catalogue records more interchangeable between countries, so that libraries can use each others records more easily; to assist in interpreting catalogue records across language barriers, and to assist in converting records to machine- readable form. 2.2 Standards The relevance of standardization felt much more now than it was ever before. This is due to a number of reasons. In the first place, it seems sensible that libraries which acquire the same items should be able to copy each other’s catalogue records rather than each producing identical records individually. This is obviously only attainable if they are following the same codes and using the same structures. Secondly, it benefits library users if they find that catalogues in different institutions are compiled in the same way. They do not have to learn a new system to use a different catalogue. The advent of computerization have made cooperation and record—sharing much easier. Having records in a standard format is also very important from the point of view of automated library management systems. The existence of uniform standards, and the MARC format makes this very much easier. 2.3 MARC MARC stands for MACHine Readable Cataloguing. The idea of using computers to speed up catalogue production goes back to the 1950s but it was not until 1965 that MARC came into being. A MARC record is a bibliographic record transcribe in a form and medium which a computer can read and manipulate. The MARC records have a standardized form, independent of the various online shared cataloguing systems. The aims of MARC from the outset were that it should be usable for all kinds of library materials, not just books and it should be usable in automated library systems. By the 1990s there were nearly 50 different MARC formats in use in different countries and eventually it was realised that it would be highly desirable if these variations could be reconciled and eventually the British library in 2001 decided to discontinue use of its own format, UK MARC and adopt The Library of Congress version, which in 1998 had been renamed MARC 21. It is important to note that it is AACR2 that gives the rules to follow

367 when producing catalogue records. MARC simply gives a structure to the records produced as a result of following the rules. The basis of the MARC format is that the catalogue record is broken down into fields, which largely corresponds to the areas of description in AACR2 but also includes all the accesspoints, together with certain information codes that are not covered by AACR2 at all. A MARC record has three main parts : the record leader, the directory, the fields themselves. The leader appears at the beginning of the record and contains coded data about the status of the record itself. Data elements in the leader define parameters for processing the record. The leader is fixed in length (24 characters) and occurs at the beginning of each MARC record. The directory is a guide to the rest of the record, essentially a kind of index, which shows where each of the other field starts. The directory lists the numeric tags for all other fields and shows their length and the position in the record where each one starts. Each field is introduced by a three-digit number called a tag, e.g. 008, 245. The field is often broken down into subfields, using subfield codes. The subfield code consists of two characters—a delimiter, the character that introduces the subfield & a lower-case letter, or occasionally a number. \$ is used as the delimiter. In some systems one has to put some kind of symbol at the end of a field to ensure that what ever comes next is interpreted as being the tag for the next field. Some systems use #, but others do not require anything. The important feature of the MARC format is that the field can be of variable length. Author, titles and all the other parts of a catalogue record vary enormously in length, and it would be impossible to use a format which only allowed a certain number of characters in each field. Each field starts with a three-digit tag. Following this, before the subfield codes start, there is usually room for up to two further digits, which are called indicators. The indicators are always of a numeric value, and either or both of them may be blank. The principal fields seen in the MARC 21 records are : 100 Main entry heading : personal author 110 Main entry heading : corporate body 111 Main entry heading : conference 130 Main entry heading : Uniform title 368 240 Uniform title 243 Collective title 245 Title and statement of responsibility 250 Edition 260 Publication, etc 300 Physical description 440 Series in added entry form 490 Series not in added entry form 5_ Notes 700 Added entry : person 710 Added entry : corporate body 711 Added entry : conference 8- Added entry : series 2.3.1 USMARC The US MARC formats are American standards for the representation and communication of bibliographic and related information in machine - readable form.

Formats are defined for

five types of data : bibliographic, holdings, authority, classification, and community information.

It is an implementation of ISO 2709. USMARC records are written in the extended ASCII character set. USMARC formats are defined for three data type : bibliographic, holdings and authority records. 2.3.2 UKMARC The UKMARC format is the standard developed, managed and promoted by the British Library. In the UK the national standard appears as BS 4748 : 1982. The British Library National Bibliographic Service (NBS) is responsible for the UKMARC format. 2.3.3 UNIMARC The main purpose of UNIMARC is to facilitate the international exchange of bibliographic data in machine-readable form between national bibliographic agencies. UNIMARC conforms to the ISO 2709 standard and to ISBD standards. It was developed and published in 1977.

369 2.4 Information Interchange Format : ANSI Z 39.5 ANSI/NISO 739.50 - 1995 (ISO 23950) is one of a set of standards produced to facilitate the inter connection of computer systems. This governs the exchange of messages between a client and server so that the user can search remote databases, identify records which meet specified criteria, and to retrieve some or all of the identified records, and is concerned with the search and retrieval of information in databases. Z39.50 is a computer to computer communications protocol designed to support searching and retrieval of information full-text documents, bibliographic data, image, multimedia in a distributed network environment. 2.5 Exercises Q 1. What are the aims and objectives of ISBD ? Q 2. What are the important features of the MARC format ? Q 3. Distinguish between UK MARC, USMARC and UNIMARC. 2.6 Selected Readings 1.

Byrne,

Deborah J. - MARC manual : understanding and using MARC records. Libraries Unlimited, 1998. 2.

Hill, R. W. - setting the record straight : a guide to the MARC format. 3rd ed. British Library, 1999. 3. Saye, Jerry D. - Manheimers cataloging and classification. New York : Marcel Dckker, 2000.

370 Unit 3 □□□□□

General Rules For Description 3.1 Descriptive Elements 3.2 Main entry and added entry 3.3 Style of writing 3.4 Sources of information 3.5

Levels of description 3.5.1 First level of description 3.5.2 Second level of description 3.5.3 Third level of description 3.6 Skeleton card 3.7 Items in the catalogue entry 3.7.1 Heading 3.7.2 Descriptive elements 3.7.3 Call number 3.7.4 Accession number 3.7.5 Tracing 3.8

Exercise 3.9 Selected Readings 3.1 Descriptive Elements

Anglo-American Cataloguing Rules

consists of two parts. Part I covers rules for standard description of all kinds of material. Part II deals with determination and establishment of access points in the catalogue. The rules

for specific types of materials are given in Chapters : 2 - 12 and chapter 13 (Part I) deals with analytical entries.

The basic rules for the description of all library materials are included in chapter 1.

Chapter 2 deals with books, pamphlets and printed sheets ; chapter 3 with cartographic materials; chapter 4 with manuscripts; chapter 5 with music; chapter 6 deals with sound

371 recordings; chapter 7 with motion pictures and videorecordings; chapter 8 with graphic materials; chapter 9 with electronic resources; chapter 10 with three - dimensional artefacts and realia; chapter U with microforms; chapter 12 with continuing resources and chapter 13 with analysis. Part II consists of chapter 21 to chapter 26. These are following by Appendices Appendix A - Capitalization; App. B - Abbreviations; App. C - Numerals, Appendix D - glossary and Appendix E - Initial Articles. The description is organized into a series of "areas", which in MARC are known as "fields". These areas are : 1.

Title and statement of responsibility 2. Edition 3. Material (or type of publication) specific details 4. Publication, distribution, etc. 5. Physical description 6. Series 7. Notes 8. Standard number and terms of availability

The order in which these areas appear do not vary. Not all of them are compulsory; several only appear when they are needed. There is no need to show a blank space or anything like that; these can be just omitted. 3.2 Main entry and added entry Still fundamental to AACR 2 today is the concept of main entry and added entry. Though nowadays in online Public Access catalogues (OPAC), it does not matter what kind of entry point one searches under because they will all lead to the full catalogue record. AACR2 however maintains this distinction. An access point is any attribute of a book which a library patron is expected to use in locating it. The term "main entry heading" refers to the principle access point the cataloguer chooses for the basic catalog record. Other access points chosen for the same record are known as "added entries." In part II of AACR 2002 the rules are based on the proposition, that one main entry is made for each item described, and that this is supplemented by added entries.

AACR 2R defines main entry as "the complete catalogue record of an item, presented in the form by which the entity is to be uniformly identified and cited. The main entry may include the tracings of all other headings 372 under which the record is to be represented in the catalogue.

AACR 2R defines

an added entry as "An entry, additional to the main entry, by which an item is represented in a catalogue : a secondary entry". The

Unit card system is followed in this book. This system provides a very simple way of preparing added entries of various kinds. 3.3 Style of writing The card catalogue is the most popular form of catalogue used in libraries. The entry is made in standard size cards of 12.5 cm x 7.5 cm. (5" x 3"). Some vertical and horizontal lines are drawn on the card. The vertical lines are called indentions Fig. 1.1. shows a sample catalogue card. A sample catalogue card Fig. 1.1 Indention and spacing is designed to emphasize the different groups of information. The first indention is the place from where the main entry originates. Title, physical description area, notes and tracing start from the second indention. It is also used to record all added entries at the top of the card. The third indention is used when the author entry is too long to be continued on one line and then the information is carried to third indention. Often a particular indention, called hanging indention is in a catalogue card. When a work is entered under title, i.e. the main entry is under title, this is used. The title begins at first indention and is continued at second indention. All the information about collaborators, editions, imprint etc. continues from the second indention only in this case, we will see the example of hanging

373 indention in Module 2. Quite often the cataloguer has to use the second card to record more information in order to make a complete entry. In that case, a continuation card is used with the main card. 3.4 Sources of information The most important thing is that information is allowed to be taken from certain places in the item, and the places one is allowed to use vary depending on which area of the description one is dealing with. Each chapter of AACR 2 starts with a list of the areas and the prescribed sources of information, as they are called, for that specific physical form of publication. For e.g. for title and statement of responsibility area of a book, one may take information only from the title page. If for any reason one needs to include something that does not appear in the prescribed source of information, one must enclose it in square brackets [...]. 3.5 Levels of description AACR 2 recognizes that not all libraries want the same amount of detail in catalogue entries and therefore provides three levels of description. It has given flexibility to each library to decide upon the amount of detail it requires in its entries and also maintains standardization.

First

level provides minimum information, which is necessary to identify a given document. 3.5.1

First Level

of Description Title proper / first statement of responsibility if different from main entry heading in form, or number, or if there is no main entry heading. Edition statement.—Material (or type of publication) specific details.—First published e.g. date of publication etc.— Extend of item. - Notes. - Standard number.

The second level is called a standard description because it

provides all the data which may be considered necessary for description of documents. 3.5.2

Second level of description

Title proper [general material designation] = Parallel title ; utner title

374 information /

first statement of responsibility .-Edition statement / first statement of responsibility relating to the edition. -

Material (or type of publication) specific

details. - First place of publication, etc. : first publisher, etc., date

of publication, etc. -Extent of item : other physical details ; dimension. - (Title proper of series / statement of responsibility relating to series,

ISSN of series ; numbering

with in

series. Title of subseries ; ISSN of subseries, numbering within subseries).- Notes (s)—standard number. 3.5.3 Third level of description This includes

all the elements set out in the rules that are applicable to the item being described. 3.6

Skeleton Card The skeleton card given below (Fig. 1.2) shows in detail the sequence of description, punctuation marks, tracings etc. to help you in cataloguing the items. The details of the punctuation and descriptions are then discussed one by one. Call No. Main entry heading (Author's name) Title proper = paralld

title : other title /

statement of responsibility .-Edition / statement of responsibility relating to edition. - Place of publication : name of publisher, date of publication. Extent of item : Other physical details, dimensions +

accompanying materials. - (Series / editor of series; number) Accession Notes No. ISBN Tracing. Fig. 1.2

375 3.7 Items in the catalogue entry All these information taken together can be grouped under : • Heading • Descriptive Elements • Punctuation Marks • Call Number • Tracing 3.7.1 Heading It is the word or word groups under which the entry is made. It may be the name of a person, a corporate body, pseudonym, name of a conference or the title of the book.

Since the whole of AACR2R-chapter 21 is devoted to this problem of access point or heading, we will discuss this slowly as we progress from simple to complex problem. 3.7.2 Descriptive Elements As discused earlier, the descriptive element is divided into areas, and each area is connected with the next with some punctuation marks. (i) Title and statement of

Responsibility area (1st area) This is the most important area of the description, and is the one compulsory area, because without it one has nothing to identify the item. For books, the chief source of information is the title page.

The elements in this area are :

Title proper. General material desegnation, Parallel title, other title information and statement(s) of responsibility.

They may not appear in this order, but one is allowed to transpose them, provided that they are not grammatically linked together. Title proper is the main title. The title proper is to be copied exactly as to the

wording, order and spelling, but not necessarily as to punctuation and capitalisation. It is written

from the second indention and continued from the first indention.

Sometimes the typographic arrangement of the title page gives great prominence to a particular word in the title.

Provided that the whole title is connected together, one must ignore this and transcribe it as it stands. The MARC coding for title proper is 245 \$ a.

376 E.g. If the title of a book is THE MOUNTAINS OF INDIA, Pakistan & China, it will be transcribed in the catalogue card as The mountains of India, Pakistan & China. An alternative title is always introduced by 'or' or its equivalent, and you must provide a comma before and after it. This title is like a fresh title, and is the part of the title proper. e.g. How to avoid huge ships, or, I never met a ship I liked. A '...' in the title must be replaced by—, and [] in the title with (). The general material designation (GMD) is an optional addition. If used, it immediately follows the title proper and is put in square brackets []. It is something which cannot be copied from the chief source of information, but has to be selected from a list of authorized terms. For printed books it is normal to omit this element. e.g. Songs of Kaji Nazrul [sound recording]

The MARC code for GMD is 245 \$h Parallel title. When an item has its title in more than one language, the rule of parallel title comes. Both titles are to be copied and equals sign put, which is preceded and followed by a space (=) to separate the languages. The parallel title starts again with a capital letter just like the title proper. The MARC code for parallel title is 245 \$b if it has not already been used. e.g. Latin for all occasions = Lingua Latina occasionibus omnibus. Other title information : This includes subtitle or explanatory title. It is recorded after the title proper or parallel title and preceded by (:). If this information is lengthy, it has to be given in the note or be abridged. But the first five words of other title information must never be omitted and omission must be indicated by omission mark. e.g. Knowledge and communication : essays on the information chain. Statements of responsibility is a general way of describing words that usually appear in the chief source of information to show who has written, composed, edited, illustrated or in other ways contributed to the existence of the item. The first statement of responsibility is preceded by space slash space. (/) (Fig. 1.3). The word "by" is not to be added if it does not appear in the chief source of information, and vice versa (Fig. 1.4). If there are more than one statement of responsibility, each has to be preceded by a semicolon (;) other than the first (Fig. 1.4). Titles, degrees, initials, or statement of position following an author's name are usually omitted e.g. B. A. L. L. B., 377 Professor etc. Often a short phrase or word is added to the statement of responsibility to make the situation clear. e.g. [edited by J Sinha, K. C. A text book of algebra / by K. C. Sinha. Fig. 1.3 Andrea, A. The fox, hare and the rooster : a Russian folk tale / A. Andrea; translated by Tom Botting; illustration by James Wood. Fig. 1.4

3.7.2.2 Edition Area : The edition area contains three elements— edition statement, statement of responsibility relating to edition, and subsequent edition statement. In this area the numerals are changed to their numeric form (Fig. 1.5). Usually first edition is not mentioned in the catalogue card. A statement of responsibility relating to one or more editions but not to all editions is given after the edition statement. This statement is preceded by (/) (Fig. 1.6). If the item is a revision of a particular edition containing changes from that edition, the information is recorded in the subsequent edition statement and preceded by comma. The MARC code for edition area is 250 & responsibility relating to edition is 250 \$b. e.g. 3rd ed., 2nd impression. 3rd ed., 1874 revision.

378 Feather, John Preservation and the management of library collections. - 2nd ed. O Fig. 1.5 Shaw, Wilfred. Text book of operative gynecology / Wilfred Shaw - 3rd ed. / John Hawkins O Fig. 1.6

3.7.2.3 Material specific details area : This area is not used for printed monographs. It applies only to certain physical formats in case of non-book materials.

3.7.2.4 Publication, distribution area : This area formerly called "imprint", records information about place of publication, distribution etc, name of publisher, distributor etc. and date of publication, distribution etc. If a work is published in more than two places, always mention the first named place and add subsequently named place that is given prominence by the layout or typography of the source of information (Fig. 1.7). If the place of publication is not given, put [s. 1.] which stands for sine loco (Fig. 1.8). If the item does not have the place of publication and if the country or province is known or ascertained by the cataloguer, then the place is put in square brackets. e.g. [London]. If there is doubt about the place of publication put the place name and a question mark after it.

379 Mohanty, Jagannath. Wonders of the sea / Jagannath Mohanty. - London / New Delhi : Childrens Book Trust, 1985 O Fig. 1.7 Mohanty, Jagannath. Wonders of the sea / Jagannath Mohanty. — [s. l. : s. n.] 1985. Fig. 1.8

Name of publisher The second element of this area is the name of the publisher, distributor etc. This area is preceded by a colon (:). The publisher's name is recorded in the shortest possible form. Publisher is usually a corporate body and its name should be capitalised (Fig. 1.9). When an author is the publisher his name is abbreviated to initials and surnames. Names of corporate bodies are given in the form in which they appear, but using abbreviations where possible. If an item has no publisher, you can use [s. n.] there ; and if an item has no place of publication and publisher, the use of [s. n. : s. n.] is permitted, as in Fig. 1.8. Bibby, Collin Bird census technique / Collin Bibby - 2nd. ed. - London : Academic press. Fig. 1.9

380 Bibby, collin Bird census techniques / Collin Bibby, - 2nd.ed. — London : s. n., '1994. Fig. 1.10

Date of Publication The date of publication is given after the publisher and is preceded by a comma (,). The date given is always the date of the edition. Often the copyright date is given in a book, and no date of publication. Then it is customary to precede the date by c. (Fig. 1.10) Often there is no date given in an item. The rule varies in these cases and these rules are shown below: [1934 or 1935] — one year or the other [1950 ?] — probable date [ca. 1961] — approximate date [196 -] — decade certain [19 -] — century certain [19 -?] — probable century

3.7.2.5 Physical Description area :

This area consists of four elements : extent of item, other physical details, dimensions and accompanying material. For single volume works, the most commonly needed piece of information is the number of pages in the book. Roman numbered pages come first, followed by Arabic numbered pages. The illustrative matter comes next in the physical description area. The abbreviation "ill" is used to describe it and it is preceded by colon (:). Books containing maps and plates also follow this illustrations. Dimension is the third element in this area and for books it means the height of the book when standing on the shelf. Height is given in cms, rounded up to the next whole centimetre. If the width of the book is more than half of the height of it, then the height and width are both mentioned; otherwise only the height of a book is mentioned. This area is preceded by (;). Accompanying material means things which is accompanied 381 with the book but in a detachable or loose form. It is separated from the previous element by ('+') sign (Fig. 1.11). These materials may include answer books, atlases, sound recordings, and filmstrips. The MARC code for this area is 300. e.g. Joseph, M. K. Modern media and communication / M. K. Joseph. —Reprint ed.— New Delhi : Anmol, 1998 vii, 343p. : ill. ; 23 cm. + 1 sound disc. O Fig. 1.11

3.7.2.6 Series : This is the sixth area in describing an item. The series statement is always to be kept in parentheses. The series area may contain statement of responsibility, sub-series, ISSN, and numbering within series. If a work, belongs to more than one series, the second series statement follows the first in its own set of parentheses. If there is a number within a series, one must include it preceding it with space semicolon space (;). If the series has a statement of responsibility, the series information will be immediately followed by '/' and statement of responsibility, followed by comma, and ISSN. e.g. 200p; 23 cm. — (small business series, v. 47). (wiley self-teaching guides).

3.7.2.7 Note : Note area is the area where one is free to make up notes in any way one thinks fit and one can take information from any place he wants. No square brackets are used in this area. Notes are usually made on matters which are important, but which do not fit neatly into any other area of the description. Notes must be brief, clean and factual. The note area follows the series area and forms a new paragraph in catalogue card format. There are different 382 kinds of note which are : (a) Nature, scope or artistic form e.g. tragic play. (b) Language—If some parts of the work are in a different language, or if the work is a translation from another language, then this is required. e.g. in Spanish. (c) If a source other than the chief source of information is used, then this is recorded in note area. e.g. Title from back of title page. (d) Variations in title (e) Parallel title (f) Statement of responsibility— It is necessary to mention a person or body as being responsible for some aspect of the item, and one cannot include it in the appropriate statement because it does not appear in the correct source of information. (g) Edition and history. (h) Publication distribution. (i) Physical description (j) Accompanying material (k) Series (l) Dissertations (Thesis note) (m) Audience. (n) Summary (o) Contents - bibliographies and indexes are mentioned here. (Fig. 1.12) (p) Description of the copy and library's holdings. e.g. 338.4758 M671 Mr, G. M. Saffron agronomy in Kashmir / G. M. Mer.— Srinagar : Gulshan, 1992. 14602 xvi, 163p. : maps ; 23 cm. Bibliography : p. 143-163 O Fig. 1.12

383 3.7.2.8 Standard numbers : If an item has an International Standard Book Number (ISBN) or an International Standard Serial Number (ISSN), it is recorded after the note area. The price follows this part being preceded by a (:). e.g. ISBN 0-87287-486-9 : Rs. 350 ISSN 0024-2527 : Rs. 200

3.7.3 Call number It is the classification number, followed by a book number. It serves to locate the book on the shelves, and to place the bibliographic record in the catalog contiguous to others which describe works of the same type. It appears on the catalog cards in the upper left hand corner, one line above the first horizontal line after leaving one space from the left edge of the card. (Fig. 1.12)

3.7.4 Accession number The accession number is the serial number of the item acquired in the library and is transcribed in the catalogue entry. There is no rule as such transcription of accession number. (Fig. 1.12)

3.7.5 Tracing AACR2 defines tracing as under : 1. The record of the headings under which an item is represented in the catalogue. 2. The record of the references that has been made to a name or to the title of an item that is represented in the catalogue. The function of tracing is to provide the means to trace all other secondary catalogue cards for a publication for which the main entry card has been prepared. The tracing is recorded on the front side of the main entry card after the note in a single paragraph. The subject headings are listed first numbered consecutively with Arabic numerals. If there are several added entries for persons or corporate bodies, they are listed in the order in which they appear in the catalogue. We will discuss tracing later on with individual examples. The tracing starts below the main entry, leaving one line gap in between. Tracing starts from the second indentation, and continues from the 384 first. The order of tracing is subject, second author, third author, other collaborators like editor, compiler, translator etc., corporate bodies, title and series.

3.8 Exercises Q1. What are the various types of entries ? Q2. What are the different areas of second level of description ? Q3. What do you mean by call number and accession number ? Q4. What is tracing ?

3.9 Selected Readings 1. Anglo American Cataloguing Rules. 2nd. ed. 1988 Revision. 2. Maxwell, Margaret F. — Handbook for AACR 2 1988 Revision : explaining and illustrating the Anglo-American cataloging Rules. 1989. American Library Association Chicago. 3. Smith, David and others—Using the new AACR2, 1993. Library Association : London.

385 Unit 4 □□□□□

Subject Headings 4.1 Subject Headings—Introduction 4.2 Sears' List of Subject Headings 4.3 Worked out examples. 4.4

Exercises 4.5 Selected Readings 4.1 Subject Headings — Introduction Subject headings are an important part in cataloging. More than one subject heading can be assigned to a given item. When the work has been adequately described, the next point is to find out the subject of the item. Frequently the user wants not a particular work, but all works dealing with a particular subject. Determination of a work's subject content is one of the important task. There are certain pragmatic problems .to solve, or tasks to perform, in undertaking the analysis and description of the subject content of any work. The first is the actual determination of the subject - without actually reading the entire book. The second is the assignment of descriptive subject headings, so the work can be retrieved by a subject search through an alphabetical arrangement of subject terms. Specifically you should examine the following portions of a book for indication of subject content : (1) The dust jacket, if the work is new. Here the publisher, may give biographical information about the author, some history of the background of a works, development, a listing of other works in the same area or informative quotations from reviews. (2) Any page preceding the title page containing a series title and works subsumed there under. For e.g. a series emitted "Computer Applications in Library and Information Science" will contain works in an area of content of which the book being cataloged represents one particular facet. (3) From the title page the title itself will be descriptive; the author's name, which may be notable in his or her field, or the list of titles and honors which follow the name, indicate the author's profession or area of expertise; the publisher's name because certain publishers are identified with, for example, medicine, art, bibliography, etc.

386 (4) The table of contents — the list of issues named therein will suggest the subject content. (5) Preliminary portions such as preface, foreword etc. in which the author states the purpose and scope of the work. (6) The introductory chapter, in which the author may outline all of the materials to be covered in succeeding portions of the book. (7) The final chapter, or "Summary" in which some author present in condensed form all of the ideas developed in the text as a whole. (8) Appendices, indexes, and other supplementary material, the details of which may allow you to grasp the core area of the material covered. There are many works which deal with two, several, or many subjects. The procedure for making, the choice is really problematic, since it involves judgements about an item's content. Some guidelines for making this choice are : 1. If a work covers two or more interrelated subjects, the one receiving the maximum emphasis should be selected. 2. If a work deals with two or more unrelated subjects, you must choose one that predominates. 3. If in a work, no one subject predominates, the work must be classed with the subject which comes first in the schedule. 4. A book on three or more subjects, all of which are subdivisions of a broader subject, is classed with the broader subject. Subject heading lists are of great help to the libraries in building up subject part of the catalogue. In 1904, C. A. Cutter formulated rules fonsubject headings in a sound manner. Now the two most commonly used subject heading lists are Sears list of subject Headings (18th ed.) and Library of Congress Subject Headings. In this Cataloguing practice, we will follow the Sears list

of Subject Headings. 4.2 Sears' List of Subject Headings The general principle of the Sears' list of subject Headings is that here entries are arranged in an alphabetical manner. The abundance of subject headings ranging from traditional subjects to the most modern topics like Optical scanners, Digital libraries, MP3 players make this Subject Heading list an effective one. An example of subject in

387 Sears list of Subject Heading is Navies 359.3 UF Military power Navy Sea Life SA names of countries with the subhead Navy, e.g. United states. Navy [to be added as needed] BT Armed forces Military personnel NT Admirals Sailors RT Naval art and science Sea power warships. This means that the subject term assigned is Navies which has the DDC number 359.3. This term is the popular term and it is used for various terms like Navy, sea life and military power. Therefore if there are books on these subjects, these will be assigned the subject heading Navies. SA means the direction given to add the names of countries as appropriate with the subdivision Navies. Therefore navies of India will have the subject heading Navies-India. BT refers to the broad term which means that navies fall under the broad heading Armed forces or military personal. This is given to clear a peison's doubt about the particular term navies: The narrow term (NT) is given for sailors or admirals. Therefore if there is a book on sailors, thnn it will have the subject heading sailors and not Navies. RT means related term, and means that navies is related to sea power or warships. Sears List provides some basic concepts of subject headings. We shall discuss these and follow these one by one. (a) Specific and Direct Entry The principle of specific and direct entry is very important is modern subject cataloguing. A work is entered in the catalog directly under the most specific subject heading that accurately represents its content. This is the only way to ensure uniformity, which means that all materials on a single topic are assigned the same subject heading. This means that if the book has got the title "Atomic bomb", it should be assigned subject heading "Atomic bomb", and not "Bombs" (Broad) "Hydrogen bomb" (Related term) or "Neutron bomb" (Related term). So the principle of specific entry holds that

388 a work is always entered under a specific term rather than under a broader heading that includes the specific concept. Similarly, if there is a book on Apples, one has to make the subject heading "Apples" and not under the broad aspect "Fruits". The more specific the subject heading is, the more precise the searching under the subject tends to be.

(b) Common Usage The words or phrases used must be the one commonly used, and not scientific terms or obsolete words. It is obvious to use the terms which are familiar to the majority of the readers using the library, e.g. it is recommended to use the term "Birds" rather than the scientific term "Ornithology".

(c) Topical headings These are the words or phrases for common things or concepts that represent the content of various works. The language of the material being catalogued and word most commonly used in the literature should be chosen. Choosing a single word or phrase among its synonyms or near-synonyms is a very important criterion. The term once selected should be used consistently unless it becomes obsolete and replaced by new terms. Ambiguity is a very important factor too. The terms chosen must be clear and unambiguous, for. e.g. Lymphatic system must be selected for a book entitled "Lymph system" and not the subject headings Biology, or medicine or physiology. When a word has several meanings, it becomes a difficult situation. In that case, the word must be explained, even though the other meaning doesn't exist in the catalog, e.g. seals (Animals) and seals (Numismatics)

(d) Form Headings These describe not the subject content of the work, but its form. Form refers to the intellectual form of the materials rather than the physical form. The form headings are Almanacs, Directories, etc. or it may Fiction, Poetry, Drama etc.

(e) Geographic Headings These are about geographic areas—places, countries, cities etc. In the Sears list, only some examples like United states, Ohio are provided as examples. The geographic names chosen by the cataloguer could be followed using some standard reference sources.

(f) Names The three major type of name heading are personal names, corporate names and uniform titles. These are entered as necessary in the catalogue. For example the personal names are usually rendered in the inverted form 389 with dates if necessary, and with See references from alternate form. Corporate name headings are commonly established names of corporate bodies.

(g) Single nouns Complexity arises when a choice is made between the single or plural form of a noun. Though forms are most common yet both are often used. An action e.g. writing remains in the singular form, abstract ideas and names of discipline, e.g. Agnosticism or chemistry are also singular ; concrete thing which cannot be counted are singular, e.g. Milk, Water. Plural forms are seen in things which can be counted, e.g. Artists or Flowers. Sometimes both the singular and the plural form can be subject headings, e.g. Speech and 'Speeches'. The former is used for speaking and the latter for collection of speeches on general subjects.

(h) Compound headings Often subject heading may consist of two nouns being joined by and. These are used as such in the catalogue entries. These appear in such peculiar format because they are synonymous to each other and can't be separated, e.g. Enamel and enameling or Libraries and students. A book having the title students in the library should obviously have the title Libraries and students, and not only libraries or not only students.

(i) Adjectives with nouns 'Clinical Chemistry' is an example of this type of subject heading having a noun with an adjective. These type of headings are used to explain a specific term most precisely.

(j) Phrase headings Some peculiar concepts involve a long heading consisting of two or more words, e.g. Mystery radio program, or Federal aid to education are some common examples.

(k) Topical subdivisions These are the subdivisions that focus on the aspect of a subject presented in a work. This makes the direct focus on a subject in a much more presentable and acceptable manner. Various topical subdivisions are—study and teaching, tables, use, evaluation, religious aspects, research etc. A title with "Fruit- diseases and pests" will obviously reflect the inner meaning of the subject and will tell that the book deals with the diseases and pests infecting fruits. This direct approach adds to the specificity of the topic.

390 (1) Geographic Subdivisions A very important part of the subject heading is the division by geography. In that case, the words (May subdiv. geog) is written after the main heading. Thus civil defense (May subdiv. geog). or Hunger (May subdiv. geog) means these subjects will be treated area wise. It is usually found that the subjects in the field of art, history, geography, music follow this rule. Thus opera— Scotland or Opera-France deals with operas in these places. Another rule states that in some cases there are places which are subdivided by subjects. This is usually seen in case of science subjects, e.g. United states - Climate, or United states - Exploration. SA is a general term in sears list which explains the need of seeing also the names of countries, cities etc. with the subdivision of the subject to be added as needed.

(m) Biography When a subject deals with the biography of more than three persons, or lives of a particular class of person, or lives of particular occupation of person, then these are entered under the particular subject with the subdivision "biography", e.g. Basketball players—Biography would mean the collective biography of all the basketball players. If the work is an auto biography, the author's name is entered in the bibliographic record twice, once as the author, and

the other as the subject. (n) Literature The subject headings for works about the various literary forms are the headings for these forms, such as Drama, Poetry, Fiction. If there is a work about criticism of fiction, it is entered under Fiction—History and criticism. There are cases where the topic for discussing literature is nationality, such as Spanish literatures, or Indian literature. If an item consists of an individual literary work, or works by a single author, no subject heading is assigned to it, because literary works are usually accessed by the name of the author and title, and not by subject. But special type of literature, like stories or children's stories are assigned that specific subject headings. Therefore a collection of stories for children would be assigned the subject heading children's stories. (o) See References 'See' references direct the user from non used terms to the used terms. Used term means preferred or established terms which are used as subject headings. There are many cases of 'see' references to be used. In Sears List, UF [Used for] is the term that helps one to understand which is the used and

391 which is the named term. For e.g. the term Measurement is used for Metrology. In Sears list, this is represented thus : Measurement UF Metrology. It means that books on metrology will be assigned the subject heading measurement, though it may seem that metrology is the appropriate term. This is because "Measurement" is the popularly used term rather than 'Metrology'. Again if we turn on to the term metrology, we see that there a specific direction is provided in that, metrology USE measurement. So it becomes easy for the cataloguer to directly assign the term, 'measurement', and the see reference will stand thus shown in Fig. 1.13 Metrology See Measurement O Fig. 1.13 (p) See also references See also references direct the user from one established heading to another established heading. In Sears List, reference is always made from a broad term to a narrow term (NT), and not vice versa. For e.g. If there is a subject heading Optics (BT) a see also will be coined for the narrow term Vision (NT). Therefore in the catalog the entry will be arranged as in Fig. 1.14 OPTICS See also VISION O Fig. 1.14 See also terms are coined to help the users to enhance their search on related allied subjects. See also is also assigned in case of related terms (RT). Related terms are terms that are of equal order and related to each other. For e.g. optics has the related term photometry. Therefore catalogue entry can also be made as in Fig. 1.15.

392 OPTICS See also VISION O Fig. 1.15 In both cases it has to be remembered and made sure that there are entries under the heading Vision or Photometry in the catalogue. If it is not so, the references will lead to a blind end and these must be avoided. 4.3 Worked out examples Some worked out examples have been shown here using the Sears' List of Subject Headings. Where necessary, explanations are provided about the content of books. 1. Trigonometry at ordinary level. This book deals with a simple subject. Trigonometry and in the sears list, the subject is directly provided as Trigonometry. Therefore the subject of this book is Trigonometry. 2. A text book on Alcoholism and Temperance. This book deals with two subjects, Alcoholism and Temperance. Therefore this book will have two subject headings. Alcoholism and Temperance. 3. Khokho : an Indian game. Games is the subject heading in general, but in the list there is clear instruction to add the types of games and names of individual games to be added as needed. Again for games, it is clearly given that may subdiv geog. Therefore two types of subjects may occur here, (a) Khokho (b) Games- India. 4. How to breed roses If we turn to roses, we see that there is no items as breeding. But if we turn on to breeding, we find that there is instruction given to use it for materials—the controlled propagation of plants. Also in the common subdivision table, there is provision to add breeding. So we can coin the subject as Roses-breeding. 5. Status of rural women in India : a study of Karnataka. In this example, women has been instructed to be subdivided

393 geographically. Therefore directly we can add the subject as women— Karnataka. 4.4 Exercises 1. What parts of book should one examine in constructing the subject ? 2. What are the rules in case of geographic subdivision and topical subdivision in the sears list for construction of subject headings ? 3. Find out the subject headings for the following titles using sears list of Subject Headings 18th ed. (i) The Hutchinson dictionary of scientists, (ii) Studies in India's maritime trade. (iii) Myths, saints and legends in medieval India. (iv) Tribes of Andaman and Nicobar Islands : ethnography and bibliography. (v) Palynology in hydrocarbon exploration. 4.5 Selected Readings 1. Sears' List of Subject Headings 18th ed. —Joseph Miller & Joan Good sell edtd. New York : H. W. Wilson, 2004. 2. Wynar B.S.—Introduction to cataloging and classification. Littleton : Libraries Unlimited, 1985.

394 MODULE—2 Unit 1 □ □ □ □ □

Single Personal Author 1.1 Personal author 1.1.1 Western names 1.1.2 Indian names 1.2 Worked out examples 1.3 Exercise 1.1 Personal Author Books may be written by one author or more than one author. When a single author writes a book, the access point goes under the author's names. Users, search ends when he finds the cards filed under the authors' name. Personal author refers to the person chiefly responsible for the creation of the intellectual or artistic content of a work. The

name of the author is to be ascertained from the chief source of information, i.e. the title page Rule 21.4A of AACR states that enter a work, a collection of work or a selection from a work or works under the heading for that person whether named rule in AACR catalogued or not. General rule in AACR (21.1A2) state that enter a work by one or more persons under the heading for the personal author, the principal personal author, or the probable personal author." AACR directs us to

choose, as the basis of the heading for a person, the name by which he or she is commonly known. This may be the person's real name, pseudonym, title of nobility, nick name, initials,

or other appellation. The name by which a person is commonly known is to be determined from the chief source of information of works by that person, issued in his or her language. If the person is not known primarily as an author, the name by which he is commonly known is determined from reference sources ; the general rules is to write the surname first, followed by a comma, and then the name. 1.1.1 Western names Western names usually have two to three parts. The last part is called the family name of surname. AACR provides a large number of rules for rendering these names in the catalogue. We shall discuss these one by one.

395 (i) Accent (22.1D1)—Accents and other diacritical marks appearing in a name are to be rendered as such. (ii) Hyphens (22.1D2)—are to be retained between given names if they are used by the bearer of the name. e.g. Gian—Carlo Menotti will be shown in the catalogue card as Menotti Gian—Carlo ; where Menotti is the surname and Gian—carlo the name. (iii) Name consisting of several parts (22.4A)—If a person's name consists of several parts, AACR guides us to select as the entry element that part of the name under which the person would normally be listed in standard reference sources like "Whos, Who". If the entry element is the element of the name, it is to be entered directly. e.g. Ram Kripal to be given in the catalogue card as Ram Kripal. (iii) Simple surnames (22.5A)—A name is to be entered under a surname in normal cases unless any complication arise. e.g. Banerjee, A.K. Roy Choudhury, Sanjay (v) Compound surnames (22.5C)—If the person's language is English, and the person has a compound surname, the name is to be entered under the last part in the name. But if the person's language is Danish, Swedish or Norwegian, it is to be entered under the last part of the name. e.g. John Buxton Hilton will be shown as Hilton, John Buxton [English speaking person] and Alina Bonacio Burnato will be given as Bonacio Burnato, Alina [Italian speaking person] (vi) Surnames with prefixes like articles or prepositions (22.5.D1) —If a surname includes an article or preposition or a combination of the two, enter under the element most commonly used as entry element in alphabetically arranged directories. e.g. Walter de la Mare to be written as De la Mare, Walter. (vii) Entry under title of nobility (22.6A1)—AACR guides the users to enter under the proper name in a title of nobility if the person is commonly known by that title e.g. Tolstoy, Alexei Nikolaevich, Count

396 (viii) Entry under phrase (22.11)—If a name does not contain a forename, it is to be entered directly, e.g. Dr. Majumdar and not Majumder Dr. If a name does not convey the idea of a person, a suitable designation in English is to be added in parentheses. e.g. River (writer) (ix) Additions to names (22.12)—The word Saint is to be added after the name of a Christian saint. e.g. Francis, Saint Augustine, Saint (x) Terms of address of married women (22.15B)—The term of address of a married woman is to be added if she is identified only her husband's name e.g. Mrs. Utpal Das will be written as Das, Utpal, Mrs. (xi) Royalty (22.16A)—To the name of the person with the highest royal status, is to be added a phrase consisting of the person's title in English, e.g. Anne. Queen of Great Britain Robert III, Duke of Burgundy. (xii) Dates (22.17) —A person's dates (birth, death) is to be added as the last element of a heading, if the heading is otherwise identical to another. The optional addition states to add dates to any personal name, even if there is no need to distinguish between headings. e.g. Smith, John, 1920 Smith, John, 1900-1936 Apart from these, there are many more aspects about entry element and the students are advised to go through chapter 22 of AACR 2002. 1.1.2 Indian names The entry element for Indian authors is not uniform, it varies from region to region. Rule 22.25 in AACR gives the users guides as to the rendering of Indian names.

397 (i) Early names (22.25A 1)—AACR suggests to enter an indie name of a person who flourished before the middle of the nineteenth century under the first element of the personal name, ignoring the honorifics or religious terms which may precede it, like Acharya, Bikhu, Sami etc. e.g. Kalidasa But if a title usually appears with the name in reference sources, it is to be included as an integral part of the name (like Swami, Acharya, Muni) etc. e.g. Narain Swami Sankaracarya The name of a Buddhist author of a pali text is to be entered under the Pali form of the name. (ii) Modern names (22.25 B1)—If a person flourished after the middle of the nineteenth century, this name is to be entered under the surname of that person. If there is no surname, then it is to be entered under the last name e.g. Ganguly, Kalyan Kumar Mahapata, P. K. Narayan, R. K. (iii) South Indian name (22.25B2)—Names in these languages are usually preceded by a place name and by father's name or by caste name. These are rendered in this way e.g. Sankaran Nair, C. (Given name : Sankaran Caste name : Nair House name : C = Chetter) Radhakrishnan, Sarvepalli (Given name : Radhakrishnan Place name : Sarvepalli) (iv) Religious names (22.25B4)—A modern person of religious vocation must have his name rendered under the religious name. The religious title is to be added in that case. e.g. Chinmayananda, Swami Sangharakshita, Bhikshu

398 1.2 Worked out examples The following examples show how to catalogue an entry when the book is written by single personal author. (i) Information Theory J. F. Young London Butterworth (c) Butterworth & Co. (Publishers) Ltd. 1971 ISBN 0 408 22930 6 Other information : Call no. — 001 You Accession no. —1131 Pages — iii, 168 Size of the book — 24 cm. The above example gives a reproduction of the title page. It is a simple book written by a single personal author. The information in the small box provides the one which is given on the back of the title page. Other information provides data on the holding of the book in the library. The book will be rendered in the catalogue card as follows : Main Entry 011 YOU Young, J. F. Information theory/ J. F. Young.— London : Butterworth, 1971 iii, 168 p. ; 24 cm ISBN 0-408-22930-6 1131 1. Information science, i. Title

399 The main entry is shown. The book is written by a single author, therefore he comes in the access point. The surname of the author comes first, followed by name, and a comma (,) is interposed between these. As shown in module 1, the other areas come in the body one by one. Here 1st area, 4th area, 5th area and 8th area are present and these have been rendered. Other areas are absent in this particular example. Tracing is also shown. The exact subject "Information theory" is not found in Sears List of Subject Headings—18th edition. So the subject which closely resembles to the given title of the book is to be used as subject heading, and that is "Information science". The tracing for subject is numbered in arabic numerals (1) The other added entries are written in roman numbers. Here there is only one title added entry, as the book is a simple one. The users will search the book under author, subject and the title. The call number of the book has been written as per rule, in the left hand corner of the card, and the accession number on the left hand bottom of the card. There are two added entries for this card—the subject added entry and the title added entry. These are shown below. Added entry—Subject 001 Information Science YOU YOU, J. F. Information theory/J. F. Young —London : Butterworths, 1971 iii, 168 p. ; 24 cm ISBN 0-408-22930-6 1131 O

400 Title added entry— 001 Information theory YOU Young, J. F. Information theory /J. F. Young —London : Butterworths, 1971 iii, 168 p. ; 24 cm. ISBN 0-408-22930-6 1131 O The added entries will never contain tracings. Subject added entry is always written in capital letters, or in red coloured ink. Here we shall use capital letters. In following, the unit card system, it is obligatory to prepare as many cards as are required and only them add the added entry information on the top line. In the library it is necessary to follow the style of writing of the added entries as shown above. But in further examples we will write "rest as in the main entry" as shown below. 001 Information theory YOU Young, J. F. Information theory/J. F. Young (Rest as in the main entry) 1131 O

401 (ii) Museum series : 6 Fundamentals of museology ML. Nigam, M.A., Ph. D., A.M.A. (Lond.), F.R.A.S. (Director, Salar Jung Museum, Hyderabad) Foreward by 1st ed. 1966 Dr. Grace Merley 2nd. ed. 1985 Price : Rs. 175 Publisher : Deva Publications, Hyderabad. Deva Publication Charminar Hyderabad Other information : Call no : 069.53 NIG Accession no : 11059 Pages : XVI, 1-163 p. size : 28 cm. x 12 cm. Main entry 069-53 NIG Nigam, M. L. Fundamentals of Museology/M. L. Nigam ; foreward by Grace Morley—2nd. ed.— Hyderabad : Deva, 1985 xvi, 1-163p.; 28 x 12 cm.—(Museum series ; 6) Rs. 175 11059 1. Musums i. Morely, Grace (ii) Title (iii) (Series) O

402 In this example, all areas except 7th area are provided. The information has been put in the respective areas one by one. The person writing the foreward, in this case, is an eminent one in the field of museum studies. Therefore her name has been included in the statement of responsibility. If this person was not so famous, we would not have written the name in the this area. In case of pagination the arabic numbered pages starts from 1-163 ; therefore it is necessary to write it in this manner only. The series information is always included in parenthesis. Here no ISBN is there, but price is given. Therefore only price will be included in the prescribed place. An important feature is that though the qualifications, degrees and official position of the author are given, yet these are not included in the catalogue card. Here there are four added entries as shown, added entry —subject 069.53 MUSEUMS NIG Nigam M. L. Fundamentals of museology (Rest as in the main entry) 11059 O Added entry—compiler 069.53 Morley Grace NIG Nigam, M.L. Fundamentals of museology (Rest as in the main entry) 11059 O

403 Added entry—title 069.53 Fundamentals of museology NIG Nigam, M.L. Fundamentals of museology (Rest as in the main entry) 11059 O 069.53 Museum series, 6 NIG Migam, M.L. Fundamentals of museology (Rest as in the main entry) 11059 O iii) Coileccao de Tratadse concert des pages Julio furmino Judice Biker AES reprinted, 1995 New Delhi Asian Education Services 1st published : from Lishoa by Imprensa in 1982 ISBN 81-206-1119-5

404 Other Information : Call no. : 951 POR Accession no. : 57853-66 Physical description : 14 volume ; folded facsimilies ; folded map ; 23 cm. Other : with original title page Rs. 9600 Main Entry 915 POR Biker, Julio Firmino Judice Colleccao de Tratads e concertos des pages/Julio Ffirmino Judice Biker.— AES reprinted.—New Delhi : Asian Educational Services, 1995 14V ; folded facsims, folded map ; 23 cm. With original t.p. 57853-66 First published : Lishoa : Imprensa, 1982 ISBN : 81-206-1119-5 : Rs. 9600 This is a Portuguese entry and according to AACR 2R, if the person's language is Portuguese, the surname (if it is a compound one), is to be entered under the last element, (Rule 22.5). According to this, the main entry has been given under Biker. In case of 2nd area, it is a reprinted edition & it has been given thus. This book is a typical book in the sense that it consists of 14 volumes and some typical physical problems. Moreover it has some additional notes also. All these have been depicted in the main entry. (iv) Tribal Medicine D. C. Pal & S. K. Jain Calcutta (C) Noya Prakash. 1998 Noya Prakash ISBN 81-85421-30-7

405 Other Information : 317 pages ; plates (some coloured) Bibliography appears from pages 283-293 Rs. 495 ; the first author was born in 1940 Main Entry Call no. Pal D. C. (Dulal Chandra), 1940 Table medicine/D.C. Pal and S. K. Jain. — Calcutta : Noya Prakash, 1998. 317 ; plates (some col.) Bibliography : p. 283-293 ISBN : 8-85421-30-7 1. Tribal medicine i. Jain, S. K. Added entry—subject Pal DC. (Dulal Chandra), 1940 Tribble medicine..... (Rest as in the main entry) Added entry —End. author Jain, S.K Pal,D.C. (Dulal Chandra) Tribal medicine.— (Rest as in the main entry)

406 1.3 Exercise Q.I Work out the following examples with main entry and added entries according to AACR 2003 :— Title Page : Daughter of the east/by Benazir Bhutto / Hamilton / London / 1984. Other Information : ix, 200p. Hight is 25 cm. One set of user's notes. 3rd. edition book by M A. Khan (editor). Some rare handwriting of Zulfikar Ali Bhutto is there. (ii) Title Page : On world government/De monarchia/Dante Alighieri. Introduction by Dino Bigongiari 2nd. revised edition. New York / London / Canberra / Bobbs-Meriall / 1957 © 1959. Other Information : 80 pages ; 19 cm (iii) Title page : Butterworths new law guides / The Freedom of Information Act 2000 / a detailed analysis / Temothy Pitt—Payne / P.h.D., Lecturer in University of Glasgow /London/2001. Other information : xii, 1-176, xv pages and 24.2 cm. Includes the text of the Act. (iv) Title Page : Moti Lai Pandit/Buddhism in perspective/London / New Delhi/Karachi/Munshisam Manoharlal/ 2001. Other Information : xiv, 181 pages and 23 x 11 cm. Bibliography from pages 174-177. ISBN 81-215-1018-X Rs. 350 (v) Title Page : Swami Parmeshwaranand/Encyclopaedic dictionary of Puranas/1st edition/Sarup/New Delhi/2001. Other Information : There are 5 volumes and is 25 cm. Contents : Vol 1. A—C ; Vol. 2 D—H ; Vol. 3 I—L ; Vol. 4 M—R ; Vol. 5 S—Z ISBN 81-7625-226-3 Rs. 6,000 for the set of 5 vols.

407 Unit 2 □ □ □ □ □

Shared Responsibility, Mixed Responsibility and Editorial Works 2-1 Shared responsibility 2.1.1 Principal responsibility indicated 2.1.2 Principal responsibility not indicated 2.2 Worked out examples 2.3 Works of mixed responsibility 2.3.1 Adaptations 2.3.2 Illustrated texts 2.3.3 Revision of texts 2.3.4 Translations 2.4 Works under editorial direction 2.5 In analytics 2.6

Exercise 2.1 Shared Responsibility Shared responsibility occurs when a book is written by more than one person. Books may be written by two, three or more persons, and then complication arises. Often it may be that the main contributor, or the principal responsibility is indicated, so that it is easy to ascertain the access point of the book. But often it also happens that the principal responsibility is not indicated, and the title page shows the responsibility for intellectual content of the book being shared by more than one person. There are rules to ascertain the main entry of the book. But often it also happens that the principal responsibility in not indicated, and the title page shows the responsibility for intellectual content of the book being shared by more than one person. There are rules to ascertain the main entry of the book. One is not expected to examine the content of the item to establish whether one of the contributors

408 has principal responsibility, one should rely simply on the wording or the layout of the chief source of information.

This means that if the preface indicates that the second named author has in fact written almost all of the work, it is to be ignored unless it is also indicated in the chief source of information. According to AACR 2R shared responsibility means collaboration between two or more persons or bodies performing the same kind of activity in the creation of the content of an item."

Rule 21.6A defines the scope of the works of shared responsibility as : (a) works produced by the collaboration of two or more persons. (b) works for which different persons have prepared separate contributions. (c)

Works consisting of an exchange between two or more persons. (

d)

Works resulting from a collaboration or exchange between a person and a corporate body. 2.1.1

Principal Responsibility Indicated.

If in a work of shared responsibility, principal responsibility is clearly

indicated by the words or the layout of the chief source of information of the

item being catalogued, to one person or corporate body, that is to say, that the main contributor is understood in that way, then the access point would be under

the heading for that person or body. The name of the other person, or person or corporate body

will automatically come under added entries. 2.1.2

Principal Responsibility not Indicated.

If responsibility is shared between two or three persons or bodies and principal

responsibility is not attributed to

especially any of them by wording or layout, then the heading is to be rendered for the one named first. Added entries are to be prepared for the others. This type of problem is the most common one where it is not possible to understand who the main author is among a group of writers.

409 Another important case occurs when a work is written by more than three persons or corporate bodies. In that case the main responsibility does not go to any particular author, and the work is entered under the title. Added entries are prepared under the first person or corporate body. In these cases, in the body of the work, the first named author or corporate body is mentioned in the statement of responsibility, followed by three dots and then the words *et al*, written in square brackets, e.g. Smith.....[*et al*]. The word *et al* is a Latin word meaning and others. 2.2 Worked out examples. We shall discuss here three types of examples—(i) principal responsibility indicated, (ii) principal responsibility not indicated with two or three authors, (iii) and principal responsibility not indicated with more than three authors. (i) Principal responsibility indicated : MANHEIMER'S CATALOGING AND CLASSIFICATION Fourth Edition, Revised and expanded JERRY D. SAYE with April J. Bohannon Marcel Dekker, Inc. New York. Basel © 2000 by Marcel Dekker Inc. Other information : Call no. 025.3076 M314 Accession no. 391144 Pages xiv, 1-395 Books in library and Information Science ; vol. 59.

410 The above example shows clearly that the principal responsibility is bestowed on Jerry D. Saye, as his name is typographically prominent. Also it is given that with April J. Bohannon. If name that the second person has assisted the first person in his writing the book. Therefore the main entry will be under Jerry D. Saye. Main Entry 025-3076 M314 Saye, Jerry D. Manheimers cataloging and classification/ Jerry D. Saye and April J. Bohannon — 4th ed. rev. and expanded — New York : Marcel Dekker, 2000. xiv, 1-395p. —(Books in library and information science ; v.59) 1. Cataloging. 2. Classification i. Bohannon, April J. ii. Title iii. (Series) o Added Entry 025-3076 CATALOGING M314 Saye, Jerry D. Manheimer's cataloging and classification. (Rest as in the main entry)

411 Added Entry Added Entry CLASSIFICATION Bohannon, April J. Saye, Jerry D. Saye, Jerry D. Manheimers cataloging Manheimer's cataloging and classification. and classification. (Rest as in the main entry) (Rest as in the main entry) O O Added Entry Added Entry Manheimer's cataloging and Books in library and infor- classification. mation science ; v 59) Saye, Jerry D. Saye, Jerry D. Manheimers cataloging Manheimer's cataloging and classification. and classification. (Rest as in the main entry) (Rest as in the main entry) O O (b) Bird Censurs Techniques Second Edition Collin J. Bibby Neil D. Burgers DAVID A. HILL © 2000 by Academic Press Academic Press. London. Boston. New York

412 Main Entry Hill, David A Bird censur techniques/collin J. Bibby, Neil D. Burgess and David A. Hill —2nd. ed — London : Academic press, c 2000. 1. Birds i. Bibby, collin J. ii. Burges, Neil. iii. Title O This example again shows the case where principal responsibility is indicated through typographical prominence. Though Collin J. Bibby is the first author, but typographically prominent is David A; Hill, Therefore he is treated to be the main author and the main entry therefore goes under his name. The other two authors names are given under added entries. (ii) Principal responsibility not indicated in works by two or three authors (a) Preservation in Libraries : perspectives principles and practice Pijush Kanti Mahapatra Bhubaneswar Chakrabarti Ess Ess Publications First Published 2003 4837/24 Ansari Road ISBN : 81-7000-352-0 New Delhi Price : Rs. 525/- Other information : 261 Pages. Contains some specifications of BIS. 20 cm

413 Main Entry Mahapatra, Piyush Kanti Preservation in libraries : perspectives Principles and practice/Piyush Kanti Mahapatra and Bhaubaneswar Chakrabarti — New Delhi : Ess Ess, 2003 261P. ; 20 cm. Contains some specifications of BIS. 1. Library resources—conservation and restoration, i. Chakrabarty, Bhubaneswar. ii. Title O In this example, both the authors have equal responsibility and it is not sure who has the principal responsibility. Therefore when the principal responsibility is not indicated, the rule is to make the main entry in the name of the first author : The second author is given in the added entry. Another thing is to be noted in this example. There are many words in other title information, but there are no punctuation marks between them, like comma (,) or semicolon (;) as observed in the title page. The other title information has been rendered in the same manner in the main entry. The other added entries are given below. Added Entry Added Entry Chakrabarti, Bhubaneswar Mahapatra Piyush Kanti Mahapatra Piyush Kanti Preservation in libraries : Preservation in libraries : perspectives, principles and perspectives, principles and practice practice (Rest as in the main entry) (Rest as in the main entry) O O

414 Preservation in libraries Mahapatra, Piyush Kanti Preservation in libraries : perspectives principles and practice. O (b) Reforming Reference —Guidelines for Librarian Ratan Kumar Khan Bhubaneswar Chakrabarti AND SWAPNA BANERJEE MITTAL PUBLICATION First Edition 2004 NEW DELHI-110009 ISBN 81-7099-948-0 Other Information : X, 1-136 P. Rs. 350 Main Entry Khan, Ratan Kumar Reforming reference : gudelines for librarian/ Ratan Kumar Khan, Bhubaneswar Chakrabarti and Swapna Banerjee.—New Delhi : Mittal, 2004 X, 1-136 p. ISBN 81-7099-948-0 : Rs. 350 1. Reference services (Libraries) i. Chakra- barty, Bhubaneswar, ii. Banerjee, Swapna ii. Title. O

415 In this example it is clearly illustrated that there are three authors and principal responsibility is not attributed to one particular author. Therefore like the previous example, the first author is the one under whose name the main entry is to be made. The 2nd and 3rd authors are to be treated as added entries Added Entry Added Entry Chakrabarti, Bhubaneswar Khan, Ratan Kumar Khan, Ratan Kumar Reforming reference : Reforming reference : guidelines for librarian guidelines for librarian. (Rest as in the main entry) (Rest as in the main entry) O O Banerjee, Swapna Khan, Ratan Kumar Reforming reference : guidelines for librarian. (Rest as in the main entry) O (iii) Works by more than three authors : Often it happens that a work is the contribution of more than three authors or corporate bodies. Here principal responsibility is not attributed to any one, two, or three authors and the entry is made under title. An added entry is prepared under the heading for the first person or corporate body named.

In the description part, only the first named author is mentioned, followed by three dots which indicates the omission of the names of the other authors. After the dots the words et al (in Latin, which means and others) is added to show that other authors are also associated with this work. One must

416 never make entries for anything or anyone not mentioned in the description. In this situation, the contribution of one person is not thought significant enough to warrant main entry, which is therefore under title. (i) Wonders of the sea Jagannath Mohanty Chaitali Mukherjee Vicky Aya Geeta Menon CHILDREN'S BOOK TRUST © 1993 CBT NEW DELHI-5 Rs. 35 for paperback book ISBN 0-4512-0121-6 Other information : 5 unnumbered pages, 51 pages Illustrations (some coloured) Height 30.2 cm. Main Entry Wonders of the sea/Jagannath Mohanty...[etal] — New Delhi : Children's Book Trust, 1993 [5], 51p. ill (some col.) ; 31 cm. ISBN 0-4521-0321-6 : Rs. 35 (pbk) 1. Ocean 2. Mohanty, Jagannath O In the above example, since there are more than three authors responsible for writing the book, the main entry has been made under title. Since the first area is the title area, therefore in the body, there is no repetition of the title; and the title starts from the first indentation and continues throughout the second indentation. Since there no separate access point here to distinguish it from the title area, this method is followed. The added entries here are under the subject and the first author. No.

417 added entry has been made for the title because that is redundant in this case. The unnumbered pages are given in square brackets. Added Entry—Subject Added Entry—1st author Mohanty, Jagannath Wonders of the sea Jagannath Wonders of the sea / Jaganath Mohanty...[et al] Mohanty...[et al] (Rest as in the main entry) (Rest as in the main entry) o o 2.3 Works of mixed responsibility. Rules 21.8 to 21.28 in AACR 2R AACR 2R deals with 'works of mixed responsibility, i.e. it denotes the items where different persons or bodies have made different kinds of contribution. This major section is divided into two parts—works that are modification of other works and mixed responsibility in new works. There are a large number of rules in this case but the general rule is that works that are modifications of other works are entered under heading appropriate to the new work if the modification has substantially changed the nature and content of the original or if the medium of expression has been changed. 2.3.1 Adaptations Adaptations of texts are entered under the heading for the adapter; this includes dramatization, simplified versions for children or rewriting. If the name of the adapter is unknown, the entry must be made under title ; and a name-title added entry is made for the original. e.g. Great expectations/Charles/Dickens retold by Florence Bell/Oxford/ 1993. O.I. : 95 pages, illustration, 20 cm.

418 Main Entry Bell, Florence Great expectations/Charles Dickens; retold by Florence Bell — Oxford : [s.n.], - 1993. 95p. ill. 20 cm 1. English fiction i. Dickens, Charles. Great Expectations. ii. Title O Added Entry—name title Dickens, Charles. Great Expectations Bell, Florence Great expectations/Charles Dickens ; retold by Florence Bell. (Rest as in the m.e.) O In the main entry it is seen that though the original writer is Charles Dickens, yet it has been retold by Florence Bell. This means that Bell may have added her own version in telling this story. Therefore she is responsible for the intellectual content. So main entry has been prepared under her name. A name title added entry is prepared under the original author— Charles Dickens. 2.3.2. Illustrated texts Illustrated texts are entered under the heading for the text. Added entries under the heading for an illustrator are provided if (i) the illustrator's name is given equal or greater prominence in the work, (ii) if the illustration occupy half or more of the item, (iii) the illustrations are considered an important feature of the work.

419

If a work is a collaboration between an artist and writer, the main entry is prepared under the heading for the person named first in the chief source of information, unless the other's name is given greater prominence by the wording or layout. e.g. Dante : illustrations and notes/illustrations by P.A. Traquair and notes by John Black. In this example, the main entry is to be made under Traquair, P.A. and added entry under under Black John. e.g. Adventures with language/by Gladys M. Horn, illustrated by Roberta Paflin. Here main entry will be provided under Horn, Gladys M. and added entry under Paflin, Roberta. 2.3.3 Revision of Texts Often a work is revised by a different person, sometimes long after the original author is dead. But it may continue to bear the name of the original author. So problem arises in these cases. The original author is considered for cataloguing purposes still to be responsible if either the original author is named in a statement of responsibility, or the original author is named in the title proper and no other person is named in a statement of responsibility or other title information. The main entry in these cases goes under the name of the original author. An added entry is made under the reviser. Often the original author is considered no longer to be responsible for the work. This is prominent when the original author is named in the title proper only and some other person is primarily responsible as shown in the statement of responsibility. A name title added entry is made under the original author. e.g. T.P. : Chem's new handbook of Chemistry/10th Edition/by John A. Decca) Mc.Graw Hill/1997. O.I. © 1977. 1000 pages and size is 26 cm. Contains index

420 Main Entry Chem New handbook of chemistry — 10th ed./ John A. Decca — [S.I.] : Me. Grow Hill, 1979. 1000p. ; 26 cm. Contains index. 1. Chemistry—handbook. i. Decca, John A. ii. Title. O We see that here the original author is still considered responsible for the work* so main entry goes under his name. Added entry is provided under the reviser John A. Decca. ii. Shop theory/5th ed./James Anderson/London/Oxford University Press/1968. Main Entry Anderson, James Shop theory —5th ed./ James Anderson. In this case the author is responsible for edition, not for original work. The wording of chief source of information indicates that body responsible for original is no longer considered responsible for work, and so entry is under heading for appropriate reviser. 2.3.4 Translations Translations are regarded as being the original text in a different language. Usually the original author is given in the main entry. An added entry is given under the heading for the translator in the following cases : (

a) the translation is in verse

421 (b) the translation is very important (c) the work has been translated into the same language more than once (d) the wording of the chief source of information of the item shows that the translator is the author.

In all other cases the translator need not be named in the added entries. 2.4 Works under editorial direction Often a publication consists of contributions by several different people or bodies. The commonest occurrence of this type is an edited work, with chapters written by different people. Here again there are two types of cases : books with collective title and without collective title. (i) Books with collective title Collective title refers to an overall title for the whole volume, as opposed to the titles of the individual pieces within it. For books published under the editors and with a collective title, the main entry heading will be the title. Added entry is made under the principal editor or the first named editor in the title page, if there are more than three editors. Upto three editors, one is allowed to make added entries in all the three names. eg. An overview to perspectives on Library and Information Science Editors Prof. Bhubaneswar Chakrabarti Smt. Swapna Banerjee Second Edition : 20th Aug. 2003 West Bengal College Librarians Association Kolkata ISBN 81-87788-033 In this case the book has a collective title, and there are two editors. Therefore the main entry will be under the title and the two editors will be given added entries.

422 Main Entry An overview to perspectives on Library and Information Science.— 2nd. ed./ Bhubaneswar Chakrabarti and Swapana Banerjee —kolkata : West Bengal College Librarians Association, 2003. ISBN 81-87788-033 1. Library Science i. Chakrabarti, Bhubaneswar, ed. ii. Banerjee, Swapna, ed. O (ii) Books without collective title Sometimes there are works which lack a collective title. Rule 21.7C states that these type of works are to be entered under the first work named in the chief source of information. Added entries are to be provided as appropriate. e.g. T. P. History of the elementary school contest in England / Francis Adams. Together with the struggle for national education / John Morley; [both] edited by Asa Briggs. In this case, the main entry will be under Adams. An added entry will be under the editor Asa Briggs, and a name-title added entry under the heading for Morley.

423 2.5 In Analytics If in a book there are many contributions and each contribution has a separate title and author, then often more bibliographic description is needed for the part. Then comes the utility of In Analytical entries. The descriptive part of an In Analytical entry consists of a description of the part analyzed followed by a short Citation of the whole item in which the part occurs. The In analytics consists of (1) title and statement of responsibility (2) editions (3) numbering (for serials) (4) Publication details (for monographic items) e.g. T. P. Economics of digital information / edited by Sul H. Lee/ M. A. M. L. I. S. / Director / Aspen Institute / Howorth Press / London / C 1997. Other Information : Pages X, 315 p. Height : 22.9 x 13 cm. ISBN : 0-7890-0369-4 Contents ; Digital information and the library / Thomas W, Shaughnessy. Programmes / John Seattle. Main entry Economics of digital information / edited by Sul H. Lee.—London : Howorth Press C1977. x, 315 p. ; 23 cm. ISBN 0-7890-0369-4 Contents : Digital information and the library / Thomas W. Shaughnessy-programmes John Seattle 1. Information i. Lee, sul H.t science O ed.

424 Analytical entry—1st author Shaughnessy, Thomas W. Digital information and the library / Thomas W, Shanghnessy — P. 3—13 ; 23 cm. In Economics of digital information / edited by Sul H. Lee. —London : Howorth Press, 1997 Analytical entry—1st title Digital information and the library / Thomas W. Shanghnessy .—p. 3—13 ; 23 cm. In Economics of digital information/ edited by Sul H. lee.— London ; Howorth press, 1997 2.6 Exercise 1. Work out the following (prepare main entries and added entries) according to AACR 2004 and Sears list of Subject Headings. (i) T. P. : The seed-time of communist movement in India, 1919-26/edited by Ladli Mohan Ray Choudhery. National Book Agency / Calcutta / Dacca / Mumbai, 2000. O. I. It has got XV, 195 pages ; 22.5 cm. high, deals with a collection of official documents on the communist movement in India. Rs. 100/-

425 (ii) T. P. Satyajit Roy /The adventures of Feluda/ four novels featuring / the incomparable Bengali detective Feluda/Translated from Bengali/ by Chitrita Banerjee. O. I. The book is published by Penguin nn probably 1988. It has been reprinted again in 1999. The book belonging to Penguin world translation series bearing no. 13. Costs Rs. 175/- . It has 200 pages and 15 unnumbered pages. It is one of the several English translations. (iii) T. P. Reaching out in love / stories told by Mother Teresa / edited by E. Joly and J. Chaliha / Viking / 1974. O. I. New edition revised and enlarged. It was first published by Mc. Grawhill Book Co. in 1970. 256 pages are there. Price Rs. 195 but free for the members of Missionaries of chaity. Contans many facts taken from the Bible. (iv) T. P. Mathematica 188 / Contemporary mathematics / homotopy theory and its application / Alexander Adem / R. James Milgoram / Doudas C. Raven / R. A. Sheno / American Mathematical Society / Chicago / 1999 ? O.I. © by American Mathematical Society / 474 pages and many graphs, tables etc. £890/-. (v) T. P. The marketing of library and Information Services 2 / Edited by Blaise Cronin / Indiana University. O.I. First published in 1992 by Aslib, The Association or Information Management, London ISBN 0-85142-278-0. xii, 3-604 p 18 cm. One article in the book is by Philip Kotler entitled Megamarketing covering pages 17-30. Prepare In analytical title and author entries.

426 Unit 3 □□□□□ Corporate Bodies 3.1 Types of corporate Bodies 3.3.1 Government as Corporate Body 3.1.2 Government Officials 3.1.3 Government Agencies 3.2 Institutions, Associations and Societies 3.3 Conferences, Seminars, Symposia 3.4 Worked out examples 3.5 Exercise 3.1 Types of Corporate Bodies Corporate body refers to an organization or a

group of persons that is identified by a particular name and that acts as an entity.

Corporate bodies

include various government agencies, religious bodies, associations, institutions, conferences etc. 3.1.1 Government as Corporate Body A Government body is just a special kind of corporate body which means that to a great extent the rules are similar to these for ordinary corporate bodies. The heading for the government is the geographic name of the area (country, province, state, minicipality etc.) That is, if we are treating Government of India as an author the entry heading should be the geographical name, i.e. India. If there is any conflict in the name of a country, state, province, etc. it is to be distinguished by an individualising element. e.g. New York (N. Y.) New York (State) 24 Parganas (North) 24 Parganas (South) 3.1.2 Government Officials Rule 24. 20BI of AACR 2R states that enter a sovereign, president, other head of state, or governor acting in an official capacity under the heading for the jurisdiction, followed by the title of the official in English. Add the

427 inclusive years of the reign and the name of the person in a brief, form and in the language of the heading for that person. e.g. India. President (1962-67 : Radhakrishnan) India. Shah (1941-1979 : Mdl. Reza Pahlavi) India. Prime Minister Hong Kong. Governor If the title varies with the gender of the incumbent, a general term (like sovereign) is to be added rather than King or Queen. Again if there are two or more nonconsecutive periods of incumbency, two separate headings are to be used. e.g. United states. President (1885-1889 : Cleveland) United states. President (1893-1897 : Cleveland) Again

if the heading applies to more than one incumbent, dates and names

are not to be added. e.g. India. Prime Minister 3.1.3 Government Agencies There are many government bodies which fall under the executive, legislative or judicial jurisdiction. Rule 24. 21A states that a legislature be entered under the name of the jurisdiction for which it legislates. If a legislature has more than one chamber, it should be entered as a subheading of the heading for the legislature. A reference card is to be prepared. e.g. India. Parliament. Lok Sabha If successive legislatures are numbered consecutively, the ordinal number is to be added and the year or years to the heading for the particular legislature or one of its chambers. e.g. United States. Congress (87th : 1961-1962) United States. Congress (87th : 1961-1962) A subordinate body may be entered directly under its own name is the general rule. A subordinate or related body may be also entered

as a subheading of the name of the body to which it is subordinate or related if it belongs to these types ;

Type 1.

A name containing a term that by definition shows that the body is part of another (e.g. Department Division) e.g. Doordarshan Programme Division Type 2.

An agency with a name containing a word that usually implies 428 administrative subordination,

provided that the name of the government is necessary to identify the agency. e.g. University of Toronto. University Commission. Type 3. A name that does not convey the idea of a corporate body. e.g. British Library. Collection Development (The original name was collection Development)

Type 4. A name of a university faculty, school, college, institute, that simply indicates a particular field of study. e.g. University of

Calcutta. Centre for Women Studies.

Type 5. A name that includes the entire name of the higher or related body.

e.g. for a corporate body of the heading Mirinda House Alumni Association, the access point would be Mirinda House.

Alumni Association. 3.2 Institutions, Association and Societies Institutions, Association and societies are collectively termed as Organisations. These may be of national, local, or international nature. The publication of these bodies are usually directly entered under their notes. 3.3 Conferences, Seminars, Symposia Conferences are regular or irregular meeting for the discussion on a particular topic. The papers presented in the conference are compiled together, and either given a name or are treated as general proceedings. A conference, if it has a name, is a corporate body. It is mandatory to always use the most specific name for a conference, if it also has a name as part of a series of conferences. Often one has to make certain changes in the construction of the heading of a conference. The appropriate words are to be capitalized. The things that are to be removed from the name of the conference are (i) the number of the conference (e.g. second), (ii) any word indicating its frequency (e.g. Annual), (iii) the year of the conference. e.g. The third International Floral Symposium will be rendered as International Floral Symposium and third will be omitted.

429 But some things need to be added also at the end of the heading of a conference. These are number, date and location. All these three elements are to be put together in a single set of parentheses, separated by space colon space.

(i) Number—The ordinal form of the number is to be added and that must be in English. So after the name of the conference, it will be added in the parentheses. e.g. International Floral Symposium (3rd). (ii) Date—Date is an important factor in conference, and date must be added. The year only must be put, unless there is more than one conference in the same year, in which case it is necessary to add months and days. (iii)

Location—The name of the local place or other location (institution etc.) in which the conference was held is to be added. If the heading is for a series of conferences, the location is not to be added unless all were held in the same place.

If the location is part of the name of the conference,

it is not to be repeated. If the sessions of a conference were held in two locations, both names are to be added ; and if the sessions of a conference were held in three or more location, the first named place is to be added followed by etc.

3.4 Worked Out Examples The Constitution of Yugoslavia / a preliminary draft / Belgrade / Union of Jurists. Association of Yugoslavia / 1962. O. I. There are 86 pages and it is 21.1 cm. Main Entry Yugoslavia The Constitution of Yugoslavia : a preliminary draft.—Belgrade : Union of Jurists Association of Yugoslavia, 1962 86 p. ; 22 cm. 1. Constitutional, law-Yugoslavia i. Title O

430 This example is the simple case of Government as a corporate body. Here the access point has been taken from the title itself and written as Yugoslavia. Since the constitution is always a Government publication, so this form of access point has been selected. 2. T. P. : Philadelphia emergency services / a report / by F. H. La Guardia, Mayor. O. I. : New York / Mayor's Record Office, 1968. Main Entry Philadelphia. Mayor Philadelphia emergency Services : a report / by F. H. La Guardia, Major. —New York. Mayor's Record Office, 1968. Record Office, 1968. 1. Disasters i. La Guardia, F. H. ii. Title. O This example is that of entry under Government Official. Since the person has prepared the report in his official capacity as a Mayor, so the main entry has been prepared under his official designation. An added entry has been prepared under his personal name, since his personal name has been mentioned in the title page. 3. T. P. Reserve Bank of India / Trends and progress of banking in India, from 1949 to 1955 / Bombay / 1956. O. I. : It consists of 112p. and is of 13.2 cm. high. It deals with various aspects of banking.

431 Main Entry India. Reserve Bank Trend and progress of banking in India, from 1949 to 1955 / Reserve Bank of India.— Bombay : [S. M.] 1956. 1956 112 p. 1. Banks and banking, —India i. Title O This is an example of Government agency. Reserve Bank of India is the authority of the book. But we have to write the name of the country first as India, followed by the agency, e.g. Reserve Bank. Behaviour of saturated expansive soil and control methods © 1990 Central Board of Irrigation and Power New Delhi ISBN 90-5410-266-7 Rs. 95 Other Information : XIV, 1-185 p. Includes tables. 30. 2 x 12 cm. This is an example of Government agencies. Here the publisher is Central Board of Irrigation and Power. But this corporate body cannot stand alone,

432 as there will be a problem regarding which country's Board it is. Therefore in the main entry it has been placed under India. Main Entry India. Central Board of Irrigation and Power Behaviour of saturated expansive soil and control methods / Central Board of Irrigation and Power —New Delhi : The Board, 1990 xiv, 1-185p. ; 31 X 12 cm Includes tables ISBN 90-5410-266-7 : Rs. 95 1. Soils i. Title O In this case, one thing is to be noted. One is that, in the publisher's place, the Board has been written. This is so because the name of the Central Board... has already been once written in the s.o.r. So if the publisher is same, then instead of repeating the name, this method can be followed. 5. T. P. : Report on eighth refresher course in education / Department of Education of Calcutta University / Kolkata / Dept. of Education, University of Calcutta / 2001 O. I. : It is a book of 148 pages and bears an ISBN of 90-5412-230-5. This course was organised in association with Academic Staff College, Calcutta University.

433 This example is of

a subordinate body entered as a subheading of the name of the body to which it is subordinate or related.

The term Dept. by definition implies that the body is part of a larger body, i.e. University of Calcutta. 6. T. P. : Standards for accreditation of masters program in library and information studies / American library Association / Chicago / ALA / 1992. O.I. : It has 29p. and is developed by the ALA committee on Accreditation. Main Entry

434 This example is a simple one under as Association. The publications of these bodies are usually directly entered under their names. There is no difficulty to identify this access point. Other Information : 560 p. 22 cm. Bibliography on Auditing on Pages 53-56

435 In this case also, the book has got a definite author as an Institute. Therefore it has been directly entered under this Institute. 8. T. P. : Library and Information Networking / NACLIN 98 / Proceedings of the National Conventions on Library and Information Networking / held from November 16-18, 1998 at New Delhi / edited by H. K. Kaul / New Delhi / Delhi Library Network / 1999. O. I. : It has got 387 pages with 14 roman numbered pages, illustrations, maps, and in 23 cm. high. Appendix on page 320. Price Rs. 550. Main Entry National Convention on Library and Information Networking (1998 : New Delhi) Library and Information networking, NACLIN 98 : proceedings of the National Conventions on Library and Information Networking, held from November 16-18, 1998 at New Delhi / edited by H. K. Kaul.—New Delhi : Delhi Library Network, 1999 xiv, 387 p., ill., maps, 23 cm. Appendix : p. 320 Rs. 550 1. Library information networks i. kaul, H. K., ed. ii. Title O A case of conference which has got a name is shown above. The year and the place where it was held are taken up from the title and placed at the access point enclosed in the first bracket and underlined. Since the number of the convention is not given it is omitted. We will now show an example of unnamed conference.

436 9. T. P. : Proceedings of second conference on Information Technology / held at Churchill / from 15-18 July, 1991 / Bowker-Saur / 1991. O. I. : There are 236 pages. ISBN 1-857-39090-3 In this example there is no name of the book which contains the published papers of the conferences. Instead only the general term Proceedings have been kept. Main Entry Conference on Information Technology (2nd : 1991 : Churchill) Proceedings of the second conference on Information Technology, held at Churchill, from 15-18 July, 1991.—[S.l.] : Bowker-Saur, 1991 236 p ISBN 1-857-39090-3 1- Information technology O 10. T. P.: Proceedings of the fourth seminar on the teaching of natural sciences/held at Chandigarh/1965 / edited by A. B. Shah / Bombay / 1966. O. I. : ii. 112 p. ; 22 cm. Main Entry Seminar on the teaching of natural sciences (4th : 1965: Chandigarh) Proceedings of the fourth seminar on the teaching of natural sciences of held at Chandigarh, 1965 / edited by A. B. Shah.—Bombay : [s.n.] 1966 ii, 112p. ; 22 cm 1. Natural ii Shah, A. B. ed. Sciences. O

437 3.5 Exercise Prepare main entries, with tracings for the following documents. 1. T. P. : The chartered Institute of Library and Information professionals / yearbook 2002-2003 / compiled by Kathryn Beecroft / Facet publishing / 2003. O. I. : This year book is in 2 volumes of total number of 2000 pages. It is priced £700 for a set of 2 volumes, but free for the members of the Institute. 2. T. P.: Law com No. 267 / The Law Commission / U. K. / Double jeopardy and prosecution appeals / report on two references under section 3 (i) (e) of the Law commissions Act 1965. O. I. : Presented to the Parliament of the United kingdom by the Lord High Chancellor in March 2001. £14.44 / crown / 2001 / xii, 147 pages / 22.4 x 10.5 cm. 3. T, P.: Proceedings of the ninth International conference on Low Temperature Physics / held at Ohio, U. S. A. / from August 31-Sep. 4, 1964 / edited by J. C. Daunt / New York / Plenum Press / 1965. O. I. : There are twenty three unnumbered pages in the beginning and fourteen unnumbered pages at the end, and in between are 265 pages. ISBN 1-857-39090-3. 4. T.P.: Subornalekha / Golden Jubilee Commemoration Volume / Department of Modern Indian Languages / University of Calcutta / edited by Asutosh Bhattacharyya / Asit K. Banerjee / Calcutta / 1974. O. I. : Contains numerous essays by different authors ; has 8 preliminary pages and 995 pages. 25 x 20 cm. Bibliography from p. 973-984. 5. T. P. : Man's health and environment / some research needs / Ministry of Health / Bangladesh / Dacca. O. I. : Published in 1970 or 1971 / 175 x 76 cm. high / Taka 100 / 500 pages / published by the Ministry of Health of Bangladesh. 6. T. P. : Digital information exchange / pathways to build global information society / papers presented at the 22nd conference of SIS at I. I. T. Madras, Chennai, 22-23 January 2004 / jointly organized by 438 Central Library / Indian / Institute of Technology / Madras / and Society for Information Science, New Delhi / Editor Harish Chandra, P. Pichappan & Ramesh Kundra / Jan. 2004. O. I. : Price Rs. 600 / published by I. I. T. Madras / Chennai / 2004 / xx, 626 pages. 7. T. P.: Emergency aid in Kampuchean crisis / president Jimmy carter / USA / Washington D. C. O. I. : Published by Dept. of State, Bureau of Public Affairs in 1979. It has got 7 pages and is 28 cm. high. Current policy of Dept. of State no. 100. Carter was the president from 1977-1981. It deals with his announcement of assistance for Kampuchea and a press briefing.

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Unit 4 □□□□□

Choice Among Different Names and References 4.1 Change of names 4.1.1 Predominant name 4.1.2 Change of name 4.1.3 Entry under title of nobility 4.1.4 Distinguishing identical names 4.2 Pseudonymous author 4.3 Worked out examples 4.4 References 4.4.1

See References 4.4.2 See also References 4.5

Exercise 4.1 Change of names Sometimes it so happens that some authors have more than one name. They then write under their different names. We have to choose the version of the name that is to be used as the basis for the heading. In looking at a person's name, we have to use the name by which he or she is commonly known.

Often a complicated question arises, as to decide, which is the correct name to use, if the person is known by more than one ? For most author, it is recommended to use "

the chief sources of information of works by that person issued in his or her language." 4.1.1

Predominant name Rule 22.2A1 states if a person (other than one using a pseudonym) is known by more than one name, choose the name by which the person is clearly most commonly known. Otherwise choose one name or form of name according to the order of priorities : (a) the name that appears most frequently in the person's works. (b) the name that appears most frequently in reference source. (c) the latest name.

440 4.1.2 Change of name Authors often use more than one name at different times. A problem arises and that is to establish one form of name and use it. This, will be the latest form "unless there is reason to believe that an earlier name will persist as the name by which the person is better known., "For e.g. if Morris West writes one book, the heading will be based on Morris West. If he then writes under Morris L. West, we have to change the heading under the latest name, and we have to render it under Morris L. West. 4.1.3 Entry under title of nobility A title of nobility is to be used as the basis for a heading if the person concerned actually uses it in his or her works. If a person does not use it in his/her works, one can easily ignore it. Sometimes the title of nobility includes the name of a place. In these cases the "territorial designation*" is added directly to the title of nobility, e.g. Riches of the wild Land Mammals of south-east Asia Earl or Cranbrook Singapore O.U.P. 1987 Oxford University Press 1987 Main Entry Cranbrook, Earl of Riches of the wild : land mammals of south east Asia/Cranbrook, Ear of —Singapore : Oxford University Press, 1987. 1. Mammals, i. Title O In this example, the person had used his title of nobility, therefore the entry has been rendered under his title of nobility. e.g. P.D. James/The work of the priests [She is the Baroness James of Halland Park ; but she does not use this title of nobility] In this example, though she is Baroness, but she does not use this title of nobility in her literary works. So the access point here will be under James, P.D. and no title of Baroness will be attached.

441 4.1.4 Distinguishing identical names This is a very important aspect of cataloguing, and relates especially to authority control. Many names are unique, but probably most are not. For more normal names, there are two principal methods to identify them, namely adding dates to the heading and adding a fuller form of name to the heading. If dates are added, a date of birth and/or death is usually supplemented to the heading. There are various possibilities : Year of birth followed by dash (if the person is still alive); years of birth and death, separated by a dash ; year of birth only, preceded by 'b' (if the person is clearly dead but the date of death is unknown) ; year, month and day (if there is more than one person with the same year). A fuller form of name is normally used only when one or more of the person's given names are represented by initials, e.g. D.H. Lawrence or T.S. Eliot. In such cases one may add the full names (in parentheses) after the rest of the heading e.g. Eliot, T.S. (Thomas Stearns). One should not simply convert the initials into the fuller forms ; one has to give the initials first because they are the form of name which the person has chosen to use. 4.2

Pseudonymous author Sometimes authors do not want to write under their real name and take on an assumed name to write. This is 'pseudonym'. There are complications in this also. If all the works by one person appear under one pseudonym, that pseudonym is to be chosen. If the real name is known, a reference is to be made from the real name to the pseudonym. If a person using more than one pseudonym or his/her real name and one or more pseudonyms, and either has established separate bibliographic identities, nor is a contemporary author, the name by which that person has come to be identified in later editions of his or her works in critical works, or in other reference source, has to be chosen as the basis for the heading. If two or more persons collaborate and use a single pseudonym, that pseudonym is to be used as the heading for the works produced by their collaboration. 4.3 Worked out examples 1. T. P. : S. Sarkar / Bengal Renaissance and other essays / New Delhi / Peoples Publishing House / 1970. O. l. : ix, 28 pages, Rs. 400/-

442 Full name of the author is Susobhan Sarkar. This is known from external sources. Main Entry Sarkar. S. (Susobhan) Bengal renaissance and other essay / S. Sarkar —New Delhi : People's Publishing House, 1970 ix, 285p. I. Renaissance—Bengal i. Title O The main entry is under S. Sarkar, but since we know from external sources, that the full form of S is Susobhan, so we put it in the first bracket in the access point, 2. T. P. : The Penguin Complete Saki no. 6 / H. H. Munro / The complete works of Saki / with an introduction by N. Coward / Harmondsworth / Penguin / 1982. O. l. : 450 pages. Saki is the pseudonym of H. H. Munro. He has written most of his books under his pseudonym. ISBN for paperback book 0-4351-9167-2 Main Entry Saki The Complete Works of Saki/H.H. Munro : with an introduction by N. Coward.—Harmondsworth : Penguin, 1982 450 p. (The Penguin Complete Saki ; no. 6) ISBN 0-4351-916-2 (pbk). 1. Fiction (i) Munro. H.H. u Title iii. (Series) - O Munro H.H. See Saki

443 In this example of pseudonym, we see that Saki is the popular name of H. H. Munro. Therefore we have made the access point under Saki, though in the body, in the first area, the author's name H. H. Munro has been kept, as he has written in this name. A reference card has been prepared, which will be discussed in the next section. 4.4 References Reference entries direct a person in the catalogue from one heading or from one entry to another heading or entry in the catalogue. Reference entries have many functions : (1) to direct the user of the catalogue to refer to a particular name (2) to tell the user that there are no entries under which he is looking for, but directs him to refer to another entry and the necessary information can be found under those entries. (3) make the user aware that there are several more entries written by the author, or on the subject he is looking for. 4.4.1 'See' References These are used to direct a user of the catalogue from a form of name or title of a work to the form that has been chosen by the cataloguer to make the entries. The above example of pseudonym best illustrates this. The used name is Saki, and from the unused name of H.H. Munro, the user is directed to the used name of Saki. Often geographical names are changed, and see references are used there. e.g. Burma See Myanmar or Bombay See Mumbai. In case of names of persons, 'see' reference is used if the person has changed his name. e.g. Sumon Chattopadhyay See Kabir Suman

444 Often reference is given for a full form of name used by a body, if the initials and acronyms are used elsewhere. The initials or acronyms may be with or without full stops in between. e.g. O.N.G.C. See Oil and Natural Gas Corporation or, USA See United States 4.4.2 See also References 'See also' references direct the readers from a name or uniform title to a selected name of title. *See also' references are used to give the users of the catalogue an idea of related information in that area. When a person is entered under two headings (e.g. two pseudonyms), 'see also' references are made at each heading to direct the user to search under the other heading also e.g. Nillohit See also Gangopadhyay, Sunil Samresh Basu See also Kalkut See also references are used in case of subject, or organisations too. e.g. Equality See also Freedom e.g. India. Ministry of Human Resource Development See also India. Ministry of Education and Youth Welfare

445 4.5 Exercise 1. T.P. : Nazrul Islam / Nazrul pratibha Parichaya / Compiled and edited by / Sufi Zulfiqar Haidar / Dhaka / Sufi Zulfiqar Haidar Foundation / 1984. O.l.: The book has 607 pages. There is another author named Nazrul Islam whose book is present in the library. The former author was born in 1899 and died in 1976. 2. T.P. Literature classics series / Complete works of O. Henry / Doubleday / New York / 1960. O. l. : ISBN 0-38-00961-5. Price \$ 15.95 O. Henry is the pseudonym of William Sydney Porter (1862-1910) He is mostly known by his pseudonym. Size 24 x 12.3 cm.

446 MODULE—3 Unit 1 □□□□□

Serial Publications 1.1 Definition of Serial Publication 1.2 Cataloguing of serials—Problems 1.3 Worked out examples 1.4

Exercise 1.1 Definition of serial publications In the Anglo American Cataloguing Rules (2004 Revision) the terminology of serials have been changed to continuing resources. Chapter 12 covers the details of this continuing resources—their description whether successively issued (i.e. serials) or integrating (e.g. updating loose-leaves, updating web sites). This also includes the description of the various categories of finite resources (i.e. those with a predetermined conclusion); resources that exhibit characteristics of serials, such as successive issues, numbering and frequency, but whose duration is limited (e.g. newsletters of ' events); reprints of serials, and finite integrating resources. Serials in AACR is " a publication in any medium issued in successive parts bearing numeral or chronological designations, and intended to be continued indefinitely." 1.2

Cataloguing of serials—problems There are many problems in the cataloguing of serials. The physical characteristics associated with its bibliographic description such as, title, frequency, sponsors etc. change very often. Sometimes a periodical may split into two or more with different titles or two or more distinct periodicals may merge to form a single periodical with a different name. Bibliographic description for a main entry of a serial publication includes the following information : (i) Title and statement of responsibility (ii) Edition area (iii) Numeric and alphabetic, or chronological or other designation area.

447 (iv) Publication area. (v) Physical description area. (vi) Scrics area, (vii) Note area, (viii) Terms of availability area. The description of a serial is to be based on the first issue or part or, lacking this, on the earliest available issue or part. A very important rule in case of periodicals is that the statements of responsibility statements relating to persons who are editors are not to be recorded. This is so because editors may change frequently from one issue to the next. If at all the statement of responsibility relating to an editor is considered necessary, it must be given in a note. If the editor statement is such that it is of local edition statements, or special interest edition .statement, or special format or physical presentation statement, or language edition statements, or reprint or reissue statements indicating a reissue or revision of the serial as a whole, then only the edition statement is to be recorded. The numeric or alphabetic designation of the first and/or last issue in part of a serial in the same terms is to be recorded. If the designation consists of a year and a number that is a division of the year, the year is to be given before the number. If there is a change in the numbering system of the serials i.e. if the numbering starts a new sequence with a different system, then the designation of the first/or last issues or parts under the old system is to be given, followed by the designation of the first issue or part under the new system.

Regarding the date of publication, there is some complicity. The beginning date of publication is to be given. In case of a serial that has ceased publication, the last year of its publication is to be given.

For a serial that is still in progress, the specific material designation—(

v) for volumes is 'to be given. But for a ceased or completed resources, the appropriate term, i.e. v is to be preceded by the number of parts in arabic numerals, e.g. 4V.

If there are other physical details, these will be rendered as usual like the text books. In case of scrics, each series statement is to be recorded. But the series numbering is not to be given if each issue or part is separately numbered within the series.

448 In case of serials, the note section is of utmost importance. Notes are to be made on the following matters : (i) frequency—the frequency of the serial is to be noted, and also changes in frequency to be noted, e.g. Annual, Updated quarterly, frequency varies, etc. (ii) language—the language of the serial is important, e.g. In English and French. (iii) source of title proper (iv) changes in title proper (v) changes in statement of responsibility. (v) bibliographic history and relationship with other serials—like continuation, merger, split, absorption, translation, simultaneous edition, supplement etc. (vi) numbering and issuing peculiarities. (vi) changes in publication, distribution etc. (vii) change in series, (viii) summary (ix) contents (x) copy being described as library's holdings, and instructions on use. (xi) "Issued with notes". Apart from these, there are some other items which, though not very significant, yet often occur in case of serials and have to be rendered properly in the cataloging process. 1.3 Worked out examples. E.g. I T.P.: Journal of Mycological Research/vol. 1, No. 10, October 1995/ Mycological Institute and Research Centre/Pune.

449 O. 1. : ISSN 0838—5035. It appears every month. Library is still subscribing. Size—29.5 cm. It continues "Indian Journal of Mycological Research". Library does not have volume 3, no. 2. Main Entry Main Entry Journal of mycological research Fungi-Periodicals . — Vol. 1, No. 1 (1995)— Journal of mycological .—Pune: Mycological Institute and research Research Centre, 1995— . .V ; 30 cm Continues : Indian Journal of Mycological Research. (Rest as in the main Library lacks : Vol. 3, no. 2 entry) I. Fungi—periodicals. (i) Mycological Institute and Research centre. O O In this problem it is found that this journal was first published in 1995 and is still being published ; since it is the successor of a previous journal, so in the note section, it is written as "continues". As there is no subject heading as Mycology in the Sears hist, and instead it has been directed to use Fungi, so that has been done. One added entry has been shown here. E.g.2. T.P. : December 2002 / volume 14 / Number 12 / Physics of Fluids / American Institute of Physics / New York. O.I. : Frequency-monthly. Size 29.1 x 18 cm. Library does not have vol. 13 no. 6. This journal continues as 'Journal of the American Institute of Physics', which started in Jan. 1989 and continued upto 1995. Library subscribes both the journals. Both the journals have same size, frequency & publisher.

450 Main Entry (2nd Journal) Physics of Fluids. —Vol. 8, no. 1 (1996)- —New York : American Institute of Physics, 1996— V ; 30 cm. Monthlypara Continues:Journal of the American Institute of Physics 1. Physics-periodicals, i. American Institute of Physics. O Main Entry (1st Journal) Journal of the Americans Institute of Physics. .—Vol. 1, no. 1 (1989).—V. 7, no. 12 (1995). .—NewYork : American Institute of Physics, 1989—1995. 7v. ; 30 cm. Monthly O Continued by : Physics of Fluids 1. Physics—Periodicals. In this example, there are two types of entries, apart from the added entries. The first one is that of open journal, which is still being published; therefore the publication date area or the 3rd area have been kept open. The second entry is that of the closed journal, which has ceased publication. So here 7V has been written in the 5th area. 1.4 Exercise 1. T.P.: Economic Botany / Vol. 1, no. 1, Jan. 1971 / Pergamon Press / New York.

451 O.I. : ISSN 00982-8472. It is quarterly publication. Has coloured illustrations. Library is subscribing but lacks vol. 4, no. 4. Size is 28.6 cm. It is accompanied by booklets. In continues Agriculture Botany which started in Jan. 1961 and ceased to be published in 1970. Both the journals have same size, published and frequency. 2. T.P. : Origins of life and / evolution of the biosphere / Editor James P. Ferris / Brussels. O.I. : Publication started in 1984, vol. 17 no. 1 and appears every month. It was first published in 1968, vol. 1. no. 1 under the title 'Space Life Sciences' and this title continued upto 1983. The frequency of this journal was also montly. Both the journals are published by the International Society for the Study of the Origin of Life. Library lacks vo. 25, no. 2 and No. 3 of the current journal.

452 Unit 2 Multipart Works and Multivolumes 2.1 Descriptive element 2.2 Worked out examples 2.3 Exercise 2.1 Descriptive Element 'Multipart title means the title that applies to all the parts of a book. General books are published in the single volume, but when the thought content cannot be accomodated in one volume of part, it is published in more than one volumes. AACR 2R defines multi volumes as multipart and defines it as " a monograph complete, or intended to be completed in a finite number of separate parts."

Multi volume works are published in various ways, such as : (i) the title page common to all publication, ; (ii) each volume has its own title besides the common title to all volumes, (iii) all volumes may have continuous pagination or separate pagination for each volume, (iv) all volumes may or may not have same publication date, (v) The parts may clearly form a unit which has been divided physically just for convenience, e.g. a Report with an Appendix volume. There are several other peculiarities in the publication of mutivolume sets. The authors or editors of each volume need not be same and also the sequence of publication need not be in serial order, for example, volume two can be published before volume one. Often there arises confusion as to whether a title is a series or a multipart work. There are several rules to decide this factor : (i) If there is any significance to the order of reading the various parts, e.g. if they tell a chronological story, if they form a progressive sequence in terms of content, then it is multipart work. If there is no significance, it is series. (ii) The typography of the chief source of information reveals a lot. A multipart title is much more likely to be given emphasis than a series title. (iii) If it appears that the number of volumes or units is finite, it will be considered to be a multipart work. Series tend to be more indefinite. (iv) If all the parts are by the same author, then there is a tendency for the work to be considered as a multipart work rather than series.

453 (v) If all the volumes deal with the same subject, i.e. if there is a tendency for all the volumes to be shelved together, it may indicate that they form a multipart work rather than a series. (vi) If the apparent series title contain number, it is likely to be treated as multivolume work. If it has not, it will be treated as series. (vii) If the name of the publisher appears in the series title, it is an indicator of a series. (viii) If the word series appears in the series title, it will be treated as a series. These above mentioned point are some suggestive factors in distinguishing iretween multivolume works and series. There are two possible models to illustate multivolume works : 1. Part number and /or part title included in title and staement of responsibility area—i.e. Multipart title. Part number [GMDJ / statement of responsibility [etc.] This could be extended to include the part title also. 2. Part number and / or part title moved to separeate. i.e. Multipart title [GMD] / statement of responsibility fete, followed by the rest of the description] Part number : Part title. i.e., the description of the individual part is relagated to a separate area of the Jescription which is not otherwise used. The whole description of the multipart title ;omes first. The rules regarding choice of heading in case of multi-volumes is the same as applicable to all other publications. But variation occurs in three areas : Title, Pagination, Date of publication. Title—In multivolume publications, usually there are two types of title— (i) common title or common title pages to all the volumes, (ii) Separate title for 2ach volume in addition to a common title. When or set of volumes has different titles, the information about each title is to be given in the note area as content of the volumes. Common Title : e.g. Encyclopaedic dictionary of Puranas / Parameshwaranand. New Delhi / Sarup/2001. 5 volumes VI. A—C. V.2. D—H. V.3. 1—L. V.4. M—R V.5. S—Z. 454 In this example, the set of five volumes has got the common title “Ency clopaedic dictionary of puranas” ; only the content of each volume is different. Different title in addition to a common title e.g. Encyclopaedic history of the sikhs and sikhism edited by V. Vemea/ 2 volumes. V.1—The sikh gurus and sikhism. V.2—The sikh gurus and their hymns. Here we see that this book has a single title, but there are two volumes, which consist of two different titles. Pagination In the physical description area, when a printed monograph is in more than one volume, the number of volumes has to be recorded as shown below : 3v. or 6v in 4. In the multiple set of volumes there are several vaiation in pagination. Some volumes have coninuous numbering of pages, and in many cases individual volumes get their own pagination. If a set of volumes is continuously paged, the pagination i has to be given in parentheses after the number of volumes, e.g. 2v. (xvii, 800 p.) Often there is separate pagination for each volume. It is given in this way, e.g. 2v (xi, 401 : x, 300p.) Date of publication When several volumes of a set of monographs are released, they may not be published in a year. In such cases, we have to take the first publication of the volume that is published first and the last date, if the publication is complete. If the publication is not complete, the date is to be kept open, like 1975-, just as in the case of periodicals. Size of volumes

If the volumes in a multivolume set differ in height and the difference is 2 cms. or less, the largest size is to be given.

If the difference is more than 2 cms. the smallest and the largest size, both are to be given, separated by a hyphen.

455 2.2 Worked out examples Eg. 1. T. P. : Encyclopedia of Indian Government / programmes and / edited by Satish Tiwari / New Delhi / Anmol / 2000. O.- I. : 2 volumes & is 23 cm. high v. 1 —Women and child development. v.2.—Urban development, volume 1 has pages numbered iii, 412 and volume 2 has pages numbered iv, 310. ISBN 81-261-0515-1/ Rs. 3000 Main Entry Encyclopedia of Indian Govenment : programmes and policies / edited by Satish Tawani.—New Delhi : Anmol, 2000 2v. (iii, 412 ; iv, 310 p.) ; 23 cm. Contents : v.l. women and child development —v.2. urban development ISBN 81-261-0515-1 : Rs. 3000/- l. India—politics and Government— Encyclopedias i. Tiwari, Satish, ed- O This example shows 2 volumed work with a common title. The 2 volumes are variously titled but both have a general title. E.g. 2. T.P.: The problem of universals in Indian philosophy / Raja Ram Dravid / 2nd. revised edition / Delhi / Motilal Banarasidass / 2001.

456 O. I. : 2 volumes and is 23 cm. high, volume 1 has pages xiv, 900 and volume 2 has pages 901-1350. Main Entry Dravid Raja Ram The problem of universals in Indian philosophy / Raja Ram Dravid.-2nd. rev. ed.- Delhi-: Motilal Banarasidass, 2001 2v. (xix, 1-1350 p.) 1. Indian philosophy i.Dravid, Raja Ram O This example shows that though the book is in 2 volumes, it has a common title, and the 2 volumes are also not differently titled. The 2 volumes are in continuation ; therefore in the physical description area, it is rendered as 2v. (xiv. 1-1350 p.) E.g. 3. T.P. : Mac Millan Anthologies of English Literature / The Renaissance / Edited by Gorden Campbell / Mac Millan Education Ltd. / London. O.I. : Mac Millan Anthologies of English Literature, vol. 1. The Middle Ages vol. 2—The Renaissance. The Renaissance / edited by Gordon Campnell.—London : Mac Millan Education. 800 p. —(Mac Millan anthologies of English literature ; V.2) 1. English fiction O

457 This example is a unique one, which shows that sometimes the series is also numbered, which should not be mistaken for a multivolume work. 2.3 Exercise 1. T.P. : Rajkumar Purti / History, society and culture in ancient India / Pointer Publishers / Jaipur / 1999. O.I. : There are 2 volumes consisting of pages vi, 332 and vi, 265 pages. It is 23 cm high. Volume 1 has the title-History of Indian culture and volume 2 has the title-Vedic traditions and rituals. ISBN 81-7132-197-6 / Rs. 1500. T.P. : A Dalby / A guide to world language dictionaries / London / 1998 / 3 volumes. O.I. : The book has iii, and 1,000 pages in 3 volumes ; it is 20 x 9 cm. high, and belongs to World Languages series no. 5. ISBN 1-85-604-251- 0/£ 59-95.

458 Unit 3 □ □ □ □ □

Uniform Titles 3.1 Definition and rules governing uniform titles 3.2 Collective Titles 3.3 Sacred scriptures 3.4

Exercise 3.1 Definition and Rules governing Uniform Titles "Uniform title" according to AACR 2R is "

The particular title by which a work is to be identified for cataloguing

purpose ; the particular title used to distinguish the heading for a work from the heading of a different work ;

a conventional collective title used to collocate publications of an author, composer, or corporate body containing several works or extracts, etc. from several works, e.g. complete works, several works in a particular literary or musical form."

Uniform title, in AACR 2R is used in two different senses—(1) uniform title (2) collective title. Uniform titles are used for different purposes. They

provide the means for bringing together all catalogue entries for a work when various manifestations (e.g. editions, translation) of it have appeared under various titles ;

for identifying a work when the title

by which it is known differs from the title proper of the item being catalogued, &

for differentiating between two or more works published under identical titles proper & for organizing the file. Uniform

titles for individual works—uniform title is a standardized title for an item which may have appeared under a variety of different titles. Unlike the title proper, it is not copied from the chief source of information, it is something inserted by the cataloguer when necessary. Therefore the main function of the uniform title is to collocate i.e. to bring together

individual works regardless of the actual title on the title page. Uniform titles have" their commonest occurrence in two groups— (i) works that have been known by more than one title. (ii) certain special kinds of work, such as laws and sacred scriptures. When manifestations of a work (other than revised editions) appear under various titles, one title would be selected as the uniform title if (i) The work has appeared under different titles proper and the item being catalogued bears a title proper that differs from the uniform title.

459 (ii) The

title proper needs the addition of other elements to organise the file (iii) The title used as the main or added entry heading for a work needs to be distinguished from the title used as the main or added entry heading for a different work.

(iv) The title of the work is obscured by the wording of the title proper. The uniform title is to be enclosed in square brackets and put before the title proper. If the work is entered under title, the uniform title is given as the heading with square brackets. An initial article is to be omitted unless the uniform title is to file under that article. If a work is entered under uniform title, an added entry is to be made under the title proper of the item being catalogued. If a work is entered under the personal or corporate heading and a uniform title is used, name title references from the heading and the variants of the title are to be made. An added entry is essential under the title proper of the item being catalogued. In case of works created after 1500, the title is to be used in the original language by which the work has come to be known. But if no title in the original language is established, then the language in which the work is best known is to be written. But if the work is published simultaneously in the same language under different titles, that title is to be used which is published in the home country of the cataloging agency. If an item is in two languages, both have to be named. If it is in three or more languages, the term Polyglot is to be used. Often an item consists of two works which are entered under a personal or corporate heading. In that case, the uniform title is to be used for the work that occurs first in the item, and a name title added entry is used for the uniform title of the second work. The uniform title for a translated work will consist of the title in the original language, followed by a full stop, space and then the language of the translation. If an individual part of a multipart work has a distinctive title of its own, that distinctive title can be used as the uniform title, rather than the multipart title. Conversely, if the individual part is identified only by a general term (like volume, part, book, etc. and a number), the multipart title is used as the uniform title.

460 In case of laws, treaties etc. libraries often use a uniform title because it is supposed to help the arrangement of collection of laws and individual laws in a catalogue. For a collection of laws, unless they are all on a particular subject, the uniform title is used in this way—, [Laws, etc.] We will examine all these one by one. 1. T. P. : The story of David copperfield / Charles Dickens / adridged by W. Jewesbury / London / Pan 1970. O. I. : It has 128 pages, illustrated, some of which are coloured and is 20 cm. high. Includes photographs from the 20th Century Fox film. ISBN 0-330- 02502-3. Main Entry Dickens, Charles [Daivd Copperfield] The story of David Copperfield/Charles Dickens ; abridged by W. Jewesbury — London : Pan, 1970. 128 p. : ill (some col.) ; 20 cm. Includes photographs from the 20th century— Fox film. ISBN 0-330-02520-3 1. English-Fiction i. Title, ii. Title : The story of David copperfield. iii. Jewesbury, W. O It is to be noted that though the title of the book is ‘The story of David Copperfield’, yet this book is better known by David Copperfield. So the cataloguer has inserted this title in square brackets before the original title to bring uniformity in the library’s collection. In the tracing part, it is seen that there are two title added entries. The first one is written in the” tracing

461 part as title and it refers to the uniform title used. The second one is the original title, and to distinguish it from the uniform title, it is written as title : The story of David copperfield. The added entry for this is shown below. The story of David copperfield Dickens, Charles [David Copperfield] Rest as in the main entry. E.g. 2. T.P. The coming of the Book/the impact of printing /1450-1800/ Lucien Febvre. O.I.: First published as L’Apparition du Livre/ by Editions Albin Michel, 1958/ 1976 London/Verso/3. It has got 378 pages and is 21 cm. high Main Entry Febvre, Lucien [Apparition du Livre. English] The coming of the book : the impact of Printing. 1450-1800/ Lucien Febvre —London : Verso, 1984. 378p ; 21 cm. 1. Book industries i. Title iii. Title : The coming of the book. O In the example it is found that this book has got an uniform title under the original Latin name and here the initial article L. has been omitted 3.2 Collective Titles The purpose of a collective title is to assist filing, by causing certain kinds of collections of works to file at the beginning of the alphabet (under the author’s name) before individual titles starting with A. It means that someone

462 looking for any edition of the complete works of the author can find it easily without knowing whether it is called ‘The works of, “The collected...” etc. any of which would appear in a different place in an ordinary alphabetical sequence. The collective title Works is used for an item consisting of the complete works of a person, e.g. Shakespeare, William [Works] The collective title selections is used for items consisting of three or more works in various forms, or items consisting of extracts, of which it is not necessary for any to be complete. e.g. Tagore, Rabindranath. [selections] If the author wrote works in more than one literary form, one should specify which form is contained in the item. e.g. [plays] If the collection contains only some of the author’s works in that literary form, the term Selections should be added, resulting in [Plays. Selections] Likewise there are various forms in which the uniform title is to be constructed— Correspondence, Essays, Novels, Poems, Short Stories, Speches, Prose Works etc. If there is a translation of a selection of works involving a collective title, then the language is added in the same way, e.g. [Short stories. French. Selections] E.g. 1. T.P. Bishnu Dey’s collected poems/compiled with an introduction by Joy Goswami/Kolkata/Ananda/1999/4th edition. O.I. The book has xxiii. and 256 pages and in 19 cm. high. The previous edition was in 1994.

463 Main Entry Dey, Bishnu [Poems] Bishnu Deys’ Collected poems/compiled with as introduction by Joy Goswami — 4th ed. —Kolkata : Ananda, 1999. xxiii, 256 p. ; 19 cm. Previous ed. : 1970. 1. Bengali poetry i. Goswami, Joy ii. Title ii. Title : Bishnu Deys collected poems O E.g. 2. T.P. : Shakespearian quotations in everyday use/by L.L.M. Marsden/ London Witherby /1927/1964 printing. O.I. : It has 156 pages and is of 18 cm. high. Main Entry Shakespeare, William [Plays. Selections] Shakespearian quotations in everyday use/by L.L.M. Marsden — London : Witherby, 1927 (1964 printing) 156p. ; 18 cm. 1. Drama-collection i. Title ii. Title : Shakespearian quataions in every day use. iii Marsden, L.L.M. O In this example also plays. Selections have been taken as uniform title.

464 3.3 Sacred Scriptures Another category of work where uniform titles can be useful is sacred scriptures. Because they lack an author and may have a variety of different titles on the title page, it is more convenient to enter them under a uniform title. In case of sacred scriptures, the main name of the sacred book is entered under the access point, and the parts written thereafter. e.g. Bible. N.T. Here NT stands for New Testament. Similarly O.T. will stand for old Testament. If there is a book which has selections, the specific version, and a particular language, then these are added in the following order : e.g. Bible. N.T. Language. Version. Selections. Year e.g. Bible. N.T. English New International. Selections. 1942 E.g. T.P. A little treasury of christmas/selected from the New Testament by V. Philips/London/Collins/1982. O.I. : This authorized version of the New Testment has 40 pages and is illustrated. It belongs to Dolphin Booklets series. Main Entry Bible N.T. English. Authorized Selection 1986 A little treasury of christmas/selected from the New Testament by V. Philips — London : Collins, 1982 40p. : ill—(Dolphin Booklets Series) i. Phillips, V. ii. Title iii. (Series) O

465 The same is true for the sacred books of all the religions, e.g. Koran. Juz Amma Tripitaka. Vinayapitaka Upanishad. Chhandogyaupanished. Veda. Atharvaveda. e.g. O. T.P. Uparipannasa—Atthakatha/Nalanda/Vipassana Research Institute/ 1998. O.I.: It is written in Pali, and it belongs to Suttappitaka. Has 301 pages, includes index & it is for free distribution. It 27 high. Tipitaka. Suttappitaka. Pali, 1998 Uparipannasa—Atthakatha.—Nalanda : Vipassanan Research Institute, 1998. 301 p. ; 27 cm. Includes index For free distribution. i. Title O In case of sacred scriptures* subject entries are rarely needed, since the access point is done with the whole original sacred scripture which is itself the subject. But a cross reference entry is often made, as shown below. Suttappitaka See Tripitaka. Suttappitaka. 3.4 Exercise 1. T.P. :

Vinayasangha/Sariputta/Bodhgaya/Oriental Research Institute/ 1998.

466 O.I. : This Vinayapitaka book has been written in Pali and has 481 pages. Dhammagiri Pali Granthamala no. 100 is the series. ISBN 81- 7414-153-7/For free distribution. 2. T.P. : The New Testament in simplified form/ designed by Morton Bradley/ illustrated by Lis Linge/ Carbonadale/Illinois/American Bible Society/1970. O.L : This authorized version has 600 pages and 65 illustrations, all of which are coloured. Price 400. 3. T.P. : Literature classics series / Complete works of O. Henry/ Doubleday New York/1960. O.I. : ISBN 0-383-00961-5. There are 2 volumes containing 1100 pages. Size 24 x 12-3 cm. 4. T.P. The adventures of Robinson Crusoe of York/witten by Daniel - Defoe introduction by J.M.

Coetzee/Oxford/1999. O.I. : It has xi, 306 pages and belongs to Oxford World's Classics no. 9.

467 MODULE— 4 Unit 1 □□□□□

Introduction to Classified Catalogue 1.1 Classified Catalogue Code (CCC) 1.2 Main entry and tracing 1.3 Added entries 1.4 Exercise 1.5 Selected readings 1.1 Classified Catalogue Code (CCC) Clasified catalogue code was compiled by Dr. S. R.

Ranganathan in 1934. The main feature of this code is that it is based on normative principles and canons, and so it has a scientific background. The main aim of this code was to develop cataloging rules for preparing classified catalogue for satisfying subject approach of the users of the libraries. Rules for preparing main entries as well as all other added entries have been put by Ranganathan in this code. Classified catalogue has two parts : (a) classified part—in which the main entries of the books are arranged according to their class number, and cross reference entries are also arranged in this part with main entries. (b) alphabetical part here all word entries, e.g. Book Index Entry, Cross Reference Index entries are arranged in alphabetical order. To satisfy the different approaches of the users coming to the library, many entries are prepared for the books. In CCC there are many types of entries unlike AACR, where there are only main and added entries. Here the main entry is present and four types of added entries are prepared. These added entries are (i) class index entries (CIE), (ii) book index entries (BIE), (iii) cross reference index entries (CRIE) and cross reference entries (CRE)

468 Classification of Entries by CCC Main entry Added entries Class Book Cross Reference Cross Reference index entry index entry Index entry Entries 6Author index entry 6Alternative name entry 6Joint author index entry 6Variant form of word entry 6Collaborator index entry 6Pseudo-real name entry 6Title index entry 6Editor of Series entry 6Series index entry 1.2 Main Entry and Tracings The main entry of a book is the basic entry. In CCC the main entry is made up of the class number and book number and hence it is also called Number entry. In CCC, the main entries are arranged according to the call number or class number.

Therefore it is possible to know at a glance, what books the library has on a particular subject. The main entry here has six sections- 1. Leading Section 2. Heading Section 3. Title Section 4. Note Section 5. Accession number section, and 6. Tracing section.

469 Location of various sections of Main Entry Leading Section (Call number) Heading Section (Author's name) Title Section Note Section Accession Number Section Leading Section This is the first section of the main entry and is made up of the call number of the document. The call number consists of class number and book number and these are separated by two spaces. Due to possibility of change in call number, it is usually written in pencil. It is entered on the first horizontal line starting from the first indentation. E.g. V 44 : 91 N97 Heading Section This starts from the second vertical on the line which is under leading line and the succeeding line starts from the first vertical. The name of the author (i.e. single personal author, joint author, collaborator, corporate author, etc.) is written here. The heading is divided into entry element (surname), secondary element (personal name), individualising element (year of birth/death), and descriptive element (descriptive role, like Tr, Ed, etc.). The words in the entry element are written in block letters, except descriptive element. e.g. BASU (Gopinath) (1984), Ed. Title Section This comes next, and starts right from the second indentation on the next line and continues from the first indentation. Title section gives the title of the

470 document. The title may consist of the following : (i) Title—the name of any book is called the title of the book, e.g. Concepts of Physics. (ii) Subtitle—the subordinate title of a book is the subtitle, e.g. Concepts of Physics : a textbook for ISC students. (iii) Alternative title—Subtitle of a book, introduced by or, and is a part of the main title. The order of writing in the title section is : Title : subtitle. Edition. Collaborator. e.g. Concepts of Physics ; A text Book for ISC students, Ed4. Ed, by O. P. Verma. Note Section This starts from the second indentation on the next line. The note provides extra understanding of a book. Various types

of notes are : (i) Single series note (ii) Multiple Series note (iii) Independent Series note (iv) Extract note (v) Extraction note (

vi) Change of title note (vii) Pseudo series note (viii) Thesis series note
 Accession Number Section This starts from the first indention on the bottom most line of the catalogue card of main entry. Tracing Section Tracing shows the additional entries for a given document. Tracing, in CCC, is entered on the reverse of the catalogue card. For writing headings 471 in the tracing section, the space on the reverse of the card is imagined to be divided vertically into two halves—left and right halves. In the left-half, all possible Cross Reference Entries are written with their page numbers. The right half is divided into three parts in a horizontal manner. At the top of right part, the headings of Class Index Entries are written ; in the middle part headings of Book Index Entries and in the bottom, headings of cross References Index Entries are written. The style of writing the tracing is shown below : Class Number of O Class Index Entries Cross Reference Entries Book Index Entries Cross Reference Index Entries In case, one is not able to accomodate all the entries on the back of the Main Entry Card, one may use an additional card, and then the information will be given on the front side of the card. Continued 1 Call Number Class Index Entries Book Index Entries Cross Reference Index Entries Continued in the back 1.3 Added Entries As seen above, there are various types of added entries in CCC. To satisfy the different approaches of the users, the added entries are the most helpful one. We shall discuss these one by one.

472 (a) Class Index Entries All the entries in CCC are arranged by class number. To help the users in knowing the subject approach, subject entries are essential. This entry is called Class Index Entry and it is derived from the class number of the document by Chain Procedure, devised by Dr. Ranganalhan. Chain Procedure Chain procedure, devised by Ranganathan, is a basic process of obtaining subject headings for classified catalogue. It can be better understood if we use the class numbers carried through colon classification. In this method, each step is obtained by analysing the class number of the document from main class to specific subject, and the terms*obtained, according to the order obtained in analysing of each step, are used as subject headings. The help of links in the analysis of subjects and class numbers are taken : E.g. Text Book of Coordinate Geometry and three dimensions. The chain procedure of finding the subject (class number) of this book through colon classification is B = Mathematics (Sought Link) B6 = Geometry, Mathematics („) B63 = Three dimension geometry. Mathematics (Sought link) B63 : = Three dimension geometry, Mathematics (False link) B63 : 2 = Alegbra, three dimension geometry, Mathematics (Unsought Link) B63 : 23 = Elementary Coordinate. Three dimension geometry, Methematics (Sought Link) Therefore the class number of the book is B63 : 23 Let us now see what these links are : (i) False link—These are mainly connecting symbols or compound class number which do not have a name in the verbal plane. They do not represent a subject. Time isolate representing time itself is also a false link.

473 (ii) Sought Link—This is the link on which the digit of class number represents a subject, which the reader will look up in the catalogue. Class Index Entries are prepared from the subject headings obtained from each sought link. (iii) Unsought Link—It represents a subject which is not likely to be looked up by the reader. It is usually part of a class number. But sometimes this link may become specific subject of a dcoument demanding a class Index entry. (iv) Pseudo link—A link in a pseudo chain made up of a digit or digit group forming part of a book number. (v) Missing Link—It is the link which is missing in the chain, i.e., which corresponds to the missing isolate. (b) Book Index Entry—These are specific added word entries provided for a document. The book index entries are prepared for author, co-anthor, collaborator translator, title series etc. The title BIE are not compulsory as in AACR. CCC recommends title entries only in three cases : when the title is fanciful., i.e. which does not clear the subject of the book ; when the title contains a proper noun ; and when it is treated in usage as a proper noun. (c) Cross Reference Index Entry—In CCC this entry is called general help entries, which direct the users from the terms in the catalogue to other terms which are the same with others, and the information can be searched under these terms. These are of the following types : • Alternative name entry • Variant form of word entry • Pseudonym—Real name entry • Editor of Series entry • Generic Name entry. (d) Cross Reference Entry—

This entry is concernd with the specific subject of a part of the book. These type of entries ae prepared to satisfy the specific subject approaches of the users. Important subects from overlapped books are projected through this entry. These entries are filed in the classified part of the classified catalogue.

474 1.4 Exercise Answer the following in your own words. 1. What are the characteristics of the classified catalogue ? 2. What is the difference between cross reference index entry and cross reference entry ? 3. What are the various types of book index entries ? 4. Decribe the pans of the main entry. 5. What is chain procedure ? Find out the class number of the following .documents through chain procedure : (i) Glimpses of ethnobotany (ii) Book mending for libraries. (iii) Technology during the thirteenth century in India. (iv) Biographies of 19th century women writers in India, (v) Selected documents on India's Economic Policy, 1947-1992. 1.5 Selected Readings 1. Lal, C & Kumar, K—Practical Cataloging : CCC. New Delhi : Ess Ess, 2003. 2. Muhammad Riāj—A manual of Practical Cataloguing. Lahore : Qadiriyya Books, 1989. 3. Ranganathan, S.R.—Cataloguing Practice. 2nd.ed. Bangalore : SRELS, 1989. 4. Ranganathan, S.R.—Classified Catalogue Code. 5th ed. Bangalore : SRELS, 1989.

475 Unit 2 □ □ □ □ □

Types of Authorship 2.1 Single personal author 2.1.1 Exercise 2.2 Joint author 2.3 More than two authors 2.3.1 Exercise 2.4 Collaborator 2.4.1 Exercise 2.5 Corporate authorship 2.5.1 Corporate authorship — Government 2.5.2 Corporate authorship — Institutional 2.5.3 Corporate authorship — Conference 2.5.4

Exercise 2.1 Single Personal Author According to Dr. Ranganathan, "The author of a book is the person who creates the book, i.e. whose thoughts and expressions provide a structure of a book." He also mentions two types of author—personal author and corporate author. Personal author is the person, as author, responsible

for the thought and expressions constituting the work resting solely on his private capacity and not on the capacity of an office being held by him. If the book is written by a single person, it is the single personal author of the book. When only one single name of the author is written on the title page of the book, then the name is rendered in the following manner. First, the entry element, i.e. surname of author in capitals is given, then the secondary "element (i.e. the name) in usual way in the circular brackets, and then individualising element (i.e. dates of birth and death) in circular brackets too. e.g. NEHRU (Jawahar Lal) 1889-1964 RAJENDRA PRASAD (1884-1963) When rendering personal names for cataloguing, the honoured words adjoined with them (such as Rai Sahab. Sir. etc.). various degrees (such as M.L.I.Sc, M.D.) and brief description about the persons (such as famous writer, gold medalist etc.) are removed out from the name. In the choice and rendering of personal names, the cataloguer has to face many difficulties and problems due to variety of names. Dr. Ranganathan knew this and gave solutions about these problems in this way :

476 (a) One-worded personal names—For rendering of one-worded personal names, Dr. Ranganathan stated that the name should be rendered in the same manner in which it is printed on the title page of the book. E.g. KALIDASA VALMIKI etc. (b) Multi-worded personal names—There are variety of these personal names and these are— (i) One worded entry element MUKHERJEE (Joy) (1960-) Joy Mukherjee (1960-) (ii) Hyphenated words COPPER-SMITH (John) John Cooper-Smith (iii) Two worded entry element P.K. De Sarkar DE SARKAR (PK) (iv) Three worded entry element P.K. Basu Roy Choudhury BASU ROY CHOUDHURY (PK) (v) Other names Sarvapalli Radhakrishnan RADHAKRISHNAN (Sarvapalli) Worked out examples : 1. T.P.: Astronomy by Marc L. Kunter | Harper and Row | New York | 1987. O.I. : Call no. B9 M7 ACC. no. 15205 Main Entry B9 M7 KUNTER (Marc L.) Astronomy 15205 O Tracing Astronomy, Mathematics Mathematics Kunter (Marcl)

477 Class Index Entry Class Index Entry ASTRONOMY. MATHEMATICS Mathematics For documents

For.....B9B Book Index entry KUNTER (Marc L.) Astronomy B9 M7 The call number of the book is clear. It is written in the leading section of the main entry. In tracing, only author's name is given in Book Index Entry. The author is one person and surname is put in capitals and first name in circular brackets. Example 2 T.P. : India : a historical perspective/Dr. Ram Nath/Ph.D. D. Litt/Rajasthan University/Second edition/Agra/1967. O.I. : Call number : V44 K7 No. of pages : 560. Size : 42 cms. Accn. no. : 64309 The author was born on 2nd. April 1936 and is a well known author of History.

478 Main Entry Tracing V44 K7 India, History RAMNATH (1936-) Asia, History India : Historical perspective. History. Ed. 2 Ram Nath (1936-) 64309 In this example we see that Dr. has been deleted. The name of the author is of two-worded RAMNATH, that cannot be separated, hence both words are the entry element. The date of birth is also given, so it is attached with the name. Subtitle is also there along with the title and preceded by a colon. The first letter of the title is in capital and it ends in a full stop. Edition statement is must. 2.1.1 Exercises 1. T.P. : A general course of pure mathematics from indices to solid geometry/ by A. L. Bowley/Prof. of Mathematics/University of London. O.I. The book is published from London in 1913 and it is 30 cm. high. Accn. no. 303. 2. T.P. : Philosophy in theory and practice/by Dr. Ram Gopal Sharma/ M.A. Ph.D./Associate Professor of Philosophy/Agra college/Agra. O.I. : 1st edition/Students Friends and Co./Agra/1985 Call no. — B25 M5 Accn. no. 4659 2.2. Joint author Many books are written by more than one author, may be two or more. In such ' a situation it cannot be determined that how much contribution is given by each author in writing the book. Out of these two authors, the second author is called joint personal author.

479 According to CCC, if two names of the authors are indicated on the title page of the book, then in the main entry, the name of both the authors should be written in heading section of the main entry in the same order in which they are indicated on the title page. The word 'and', is added in between the names of both the authors. e.g. KAR (SP) and VERMA (OP) RAY (Samrat) and BOSE (Ajit) When there are two authors of a book, then there are two author Book Index Entries. In the first entry, the name of the first author, the word! and the name of the second author are written. In the second entry, the name of the second author, and, and the name of the first author are rendered. So, any reader who knows the name of any one of them, may get the book by that author's name. So in CCC, equal importance is given for both the author.

Worked out examples 1. T.P.: Statistics/fresh approach by Donald H. Sanders/and C. C Truesdell/ 4th edition/Mc. Grow Hill Publishing Company/New York. O.I : Call no.B28 M28 Acc. no. 40459 Main Entry Tracing B28 M28 Statistics, Mathematics SANDERS (Donald H) Mathematics and TRUESDELL (CC) Sanders (Donald H) Statistics : Fresh approach and Truesdell (CC) Ed. 4 Truesdell (CC) and 40459 Sanders (Donald H) Class Index Entry Class Index Entry STATISTICS, MATHEMATICS MATHEMATICS For documents in this For documents in classB28B O O

480 Book Index Entry Book Index Entry SANDERS (Donald H) and TRUESDELL (C) AND TRUESDELL (c) SANDERS (Donald H) Statistics : Fresh approach. Statistics:Fresh approach. Ed. 4 Ed. 4 B28M8 B28M8 2. T.P. : Magnetic properties of metals/1st. edition/by R.K. Verma and S. Gupta/Ess Ess Publications/New Delhi/1999. O.I. : Call no. : C7 : (E 191) N91 Acc. no. : 452 Main Entry Tracing C7 : (E 191) N91 Metal. Chemistry VERMA (RK) AND Magnetism, Physics GUPTA Chemistry, Magnetism, Magnetic properties of Physics. metals. Magnetism, Physics, Physics 452 Verma (RK) and Gupta (S) Gupta (S) and Verma (RK) Class Index Entry Class Index Intry METAL, CHEMISTRY, CHEMISTRY, MANAGNETISM, PHYSICS MAGNETISM PHYSICS For deocuments in..... . For documents.....CI : (E191)CI : (E).

481 C. I. E. C. I. E. MAGNETISM, PHYSICS PHYSICS For docouments..... For documentsC7C B. I. E. B. I. E. VERMA (RK) and GUPTA (S) GUPTA (S) VERMA (RK) Magnetic properties of Magnetic properties of metals C7 : (E 191) N91 metals C(7) : (E 191) N91 O O Here the book is a first edition book. Therefore there is no need of writing it in the body. The two authors have been rendered alternately in two book index entries. 2.3. More than two authors CCC differs from AACR in that, here if three or more than three authors are present, then the name of the first author is written, and for all other authors, the words and others are used. But in AACR, the name of three authors in the access point is permissible. Only one author BIE is prepared for the book of three or more than three authors and in leading section of which, the name of the first author will be rendered, and for other authors, the word and others will be added. In this case, there is no provision of interchanging the names of the authors as done in the case of two authors. It means that if a book has three or more than three author, then only one BIE for the first author is prepared. Examples : 1. T.P. : Differential equations/by Mary Adams/A Verma/Percy Smith/ 1st-edition/Mc. Graw Hill & Co./1994.

482 O.I. : Call no. — B33L8 ACC. no. —4045 Size — 23.5 x 16 cm. Main Entry Teaching B33 L8 O ADAMS (Mary) and Differential equatons others. Analysis, Mathematics Differential equations, Analysis, Mathematics Mathematics 4045 Adams (Mary) and others. O Class Index Entry Class Index Entry DIFFERENTIALE QUATIONS ANALYSIS, ANALYSIS, MATHEMATICS MATHEMATICS For documents in this For decouments..... classB33B3 B28M8 Class Index Entry B.I.E. MATHEMATICS B33 L8 For documents..... ADAMS (Mary) andB others. Differential Equations 4045 2.3.1 Exercises 1. T.P. Linear topolgical spaces/J.L. Kelley and Issac Namioka/Princeton/ Copyright 1963. O.I. : 256 pages. Accession no. 38902. Height 23.2 cm.

483 2. T.P. Essentials of management / Harold Koontz/Cyril O'Donnell/Heinz Weihrich/Mc. Graw Hill Book Company/ 1986/New York. O.I. Page—xxiii, 546 Height—23 cm. Accession no. 3974 2.4 Collaborators Often it happens that apart from the intellectual contribution of the subject matter of the book, there are persons who collaborate in making the book a successful one. They may be editor, compilers, translator, reviser, or commentator. They help the author in a number of ways in the publication of the document. A collaborator is a person associated with a work/and or its author in a secondary capacity not amounting to authorship. The collaborators help the author, by following two ways—(1) collaborating with the authors (2) collaborating without the authors Collaborator with the author. If the name of personal author along with any type of collaborator's names are given on the title page of the book, then in the main entry, only the names of the authors are rendered in the heading section. The names of various collaborators are written in the title section after the title of the book, and after it, the name of the collaborator is written in simple form. If different type of collaborators along with the author of the book are given on the title page, then their rendering is done in the title section in the same sequence as they are written in the title page. In the book index entry, by the names of the various collatorators, the entries are prepared. E.g. 1. T.P. ; Man, cuture and society/by Prashant Purohit and S. Srinivasan/ Edited by H.P. Vidyalkar./1991/2nd.edition/Springer— Verlag/Berlin. O.I. : Call no.—Y16 : 1 N45 Acc. no.—6789 Pages—403 Date of birth of Vidyalkar is 1952.

484 Main Entry Tracing Y16 : 1 N45 O Culture, Man, Sociology PUROHIT (Prashant) and Man, Sociology SRINIVASAN (S) Purohit (Prashant) and Man, culture and society. Srinivasan (s) Ed.2 by H P Vidyalkar Srinivasan (s) and (1952—) Purohit (Prashant) Vidyalkar (HP) 6789 (1952-), ed. O B.I.E. for collaborator VIDYALANKAR (HP) (1952-), Ed. Purohit (Prasant) and Srinivasan (s) ; Man culture and society Y16 : I N45 In this example only the collaborator (Book Index centry) has been shown.The year of birth of the editor (collaborator) has been given in the title page. So this is also included in the main entry. Collaborator without the author : When on the title page of the book the names of personal authors (S) are not given and the name of one type of collaborator is given, then for the main entry, the name of the collaborator is rendered for heading section in place of the author as there is no author. The descriptive element of the collaborator is also written in italic with the collaborator's name preceeding with comma (,). At the end of the section, full stop (.) is put. In the BIE, in place of author, the collaborator heading is prepared :

485 e.g. 2. T.P. : Grih Vigyan/2nd revised edition/translated by A.K. Sharma/ Sahitya Bhawan/Agra/UP. O.I. : Accession number—900 Call no. — M3 N101 Size — 23 cms. Main Entry Tracing M3 NIOI Domestic Science, Useful SHARMA (AK), Tr. arts. Griha Vigyan. Ed2 rev. Useful Arts Sharma (AK), Tr. 900 B.I.E. SHARMA (AK), Tr. Grihavigyan. Ed. 2 rev. 2. Here also in place of author, the name of the coMatorator (i.e. translator) is given. Smiliarly various types of collaborators are represented by their respective abbreviations. Editor—Ed. Compiler—Comp. Translator—Tr. Commentator—Comm 2.4.1 Exercises : 1. T.P. : Community and caste in tradition/edited by V.P. Singh/New Delhi/ Commonwealth Publishers/1992. 486 O.I. : Ace. no. 15204/Page—1000/25.4 cm wide. 2. T.P. : The collected stories of Premchand Dhanpat Rai/Translated from Hindi/by Meenanshi Mukherjee/Oxford University Press/1988. O.I.: Accession no.—412/464 pages. The pseudonym of the author is Premchand. 3. T.P. : Introduction to political science/by John Gamble/Charles Irwin/ James Weber/Z.Nicholly/Compiled by Michael Buch/Prentice Hall/New Jersey/1978. O.I. : Ace. no. 16390. Book is 19 cm. high and has 235 pages. 2.5 Corporate Authorship Classified catalogue Code defines corporate auhtorship as “a number of persons taken collectively—usually as united or organised or coming together informally in a common cause or for common action such as governmental business, or commercial or industrial or service or political or any other business, or for deliberation or for collective expansion of opinion or statement. This means that it is the number of bodies working together for a common cause or it is a union of, or a federation of corporate bodies who combine and work for a common cause. A work is of corporate authorship (i) if it indicates somewhere in itself the name of a corporate body, (n) if there is internal evidence of corporate authorship, (iii) the title page mentions the name of a corporate body, and (iv) the content is of deliberative, leigslative, judicial, administrative or routine character. 2.5.1. Corporate authorship—Government. Government is a Corporate body with full or limited power over a territory. The author of the Government publications are the Government itself or its organ only. In the main entry, the geographical name of the territory is the entry element for the government. Heads of states can also become corporate authors by representing the body which they hold. Government can be at a lower level of a part of the country too. E.g. T.P. Burma/the statements of policy/Government of United Kingdom/ London/1982. 487 O.I. : Cali no. V438 : 1 N82 Acc. no. 747 Size : 25 cm. Pages : 1043 Main Entry Tracing V438 : 1 N82 Head, Burma, History UNITED KINGDOM Burma, History Burma : Statements of History policy United Kigdom 747. B.I.E. (Atuhor) UNITED KINGDOM Burma : Statements of Policy. V438 : 1N82 Here only the book index entry entry of Government as author have been shown. CCC has categorised the permanent organs of the Government as author into three types. These are (i) Head of Government (ii) Constitutional organs & (iii) Administrative organs. These are differentiated into organ of the first remove, second remove and so on. (i) Head of Government—If the author of a book is the Head of any Govt. then CCC prescribes that the geographical area of that Govt. is used as a first heading and the post on which the head is posted is used as second heading and for individualizing element, the name of the person on that post is given in circular brackets. e.g. Rajendra Prasad. President of India will be INDIA, PRESIDENT (Rajendra Prasad) District Court of Coimbatore, Madras will be MADRAS, DISTRICT COURT (Coimbatore) 488 (ii) Constitutional Organs: If the author of the book is a constitutional organ of the government, then for that, multiple corporate headings are used and for reandering, the whole government is given the first heading and constitutional organ is the subheading. The legislative. Executive and Judiciary are the three constitutional organs of the government for cataloguing purposes. e.g. Indian Cabinet—INDIA, CABINET Senadte of U.S.A.—U.S.A. SENATE Delhi High Court—DELHI, HIGH COURT (iii) Administrative Organs : If the author of a book is an administraive organ of the government, then the word or group of words representing the working field is rendered after the geographical area, and the remaining terms of admministrative organ is written in circular brackets : e.g. Ministry of Education, India—INDIA. EDUCATION (Ministry of—) Bureau of General affairs, Department of Industry, Uganda 9 UGANDA, INDUSTRY (Ministry of —). GENERAL AFFAIRS (Bureau of—) E.g. T.P. : Survey of child and infant mortality 1979/office of the Registrar General of India/Ministry of Home Affairs/New Delhi/1981. O.I. Call no.— Y : 5 (L : 51), 441 N79 MI Acc. no. 696 Size — 23 cm Pages — 850 Main Entry Y : 5(L : 51), 44N79 MI INDIA. HOME AFFAIRS (Ministry of —). Survcry of child and infant mortality 1979. 696 489 Often Government appoints various committees and commissios for enquiry or for other purposes. In these cases, the year of establishment or constitution is indicated in circular brackets with these temporary organs. e.g. Advisory Committee for libraries, Govt. of India, Chairman K. P. Sinha. 9 INDIA, LIBRARIES (Advisory Committee for —) (Chairman : K. P. Sinha) Again if the author of a book is a temporary Organ which is constituted by two governments, then the names of both the government are written by putting the word and in between both the names before the name of the organ. e.g. Irrigation Commission (1981), Govt. of Maharashtra and Orissa. will be rendered as MAHARASHTRA and ORISSA, IRRIGATION (Commission) (1981) 2.5.2 Corporate Authorship—Institutional. Institutions are usually independent or autonomons corporate bodies and they are other than a Government. CCC puts societies, academic and religious bodies under the generic term institutions. In rendering the name of an institution, the rule is to enter them directly. In entering the name

beginning with the name of a person carrying a special term of honour or profession or a title, that term is to be omitted. e.g. Bishop Heber College 9 HEBER COLLEGE When it is not possible to identify a specific institution due to its very general name, the location is to be added. These locations may be of four types— (a) the place, if the institution is local (b) the nation, if the institution is of national level (c) the state/district/region, if the institution is of that particular level (d) Head office, if the Institution cannot be individualized from above these. E.g. (a) XAVIER'S COLLEGE (MUMBAI) XAVIER'S COLLEGE (KOLKATA)

490 (b) NATIONAL SAMPLE SURVEY (INDIA) NATIONAL SAMPLE SURVEY (CANADA) (c) GENERAL POST OFFICE (BOMBAY) GENERAL POST OFFICE (DELHI) (d) STATE BANK OF INDIA (CHENNAI) (CITY) STATE BANK OF INDIA (TANJAVUR (TOWN) E.G. T.P. : Administration in Universities/N.C.E.R.T./Govt of India/ Ministry of Education/New Delhi. O.I. : Published by Manager of Publication/1982/Call no. T4 : 8N70/Acc. no. 3942/405 pgs./ National Council of Educational Research and Training: NCERT. Main Entry Tracing C7 : (E 191) N91 Management, NATIONAL COUNCIL University Education OF EDUCATIONAL Education RESEARCH AND National Council OF TRAINING (New Delhi) educational Research and Administration in Training (New Delhi) Universities. 3942 O Since the author of the book is an institution (NCERT), the same is rendered. And for individualizing its name, the secondary element. New Delhi is added in circular brackets. 2.5.3 Corporate authorship—Conference. The corporate bodies often publish their agenda in the form of a publication called Proceedings or Transactions. These publications are usually the result of discussions in the conferences, meetings, workshops, congresses etc. CCC defines conference as an ad hoc assembly convened to deliberate or formulate an expression of opinion. Conferences are of two types—(a) Those that are held at regular intervals—the proceedings of these are treated like periodical

491 publications, (b) those that do not have fixed periodicity, seminar or symposia—these are individualized by adding the place name where the conference is held and the year of the conference in circular brackets, e.g. 1. T.P.: International Conference on Agriculture/The future of Agriculture/ held at New York/in 1968/Edited by; Gold Stevenson/New York State University Press/New York (USA)/1971. O.I. : Call no. — Jp 1, N68 LI Acc. no. — 10185 Main Entry Tracing JPI. N68 LI Proceedings. Agriculture AGRICULTURE (Inter- (International Conference national conference on —) on—) (New York) (1968) (New York) (1968) Conference Proceedings, Future of agriculture. Ed. Agriculture by Gold Stevenson. Agriculture Stevenson, (Gold), Ed. 2.5.4 Exercises : 1. T.P. : New Economic Order/Proceedings of the International Economic Conference/held at Paris/April 3-12/1952/Edited by Homer Tope Rosenburgli/London/ 1952. O.I. 3000 pages/ 12-3 cms./Academic press/Ace, no. 1245. 2. T.P. Department of Agriculture/Madras/A popular account/of the work of the/ Madras Agricultural Department/Madras/Printed by the Superintendent/Government press/1922. O.I. : It has 464 pages. Accn. no. 1092. Height is 17.5 cms. 3. T.P.: Report of College Education Development in the Centres of Philosophy/ University Grants commission /New Delhi/1989/3rd. edition/Editor S. S. Trehan. O.I. Accession number — 2020 Pages — 450 Size — 23 cms.

492 Unit 3 □□□□ Pseudonymous and Anonymous Works 3.1 Pseudonymous 3.2 Exercise 3.3 Anonymous works 3.4 Exercise 3.1 Pseudonyms Pseudonym is a name assumed by an author to conceal his identity. Pseudonyms may also occur in cases where two or more authors may jointly use a pseudonym, or one person using more than one pseudonyms. A person may also use his real name and pseudonym alternatively. Dr. Ranganathan has defined pseudonym as the one who assumes a false or fictitious name or any other appellation different from the real name. There are many rules in CCC regarding the choice and form of pseudonyms. They are : (i) When the title page of a book bears only a pseudonym, the item should be entered under the pseudonym in the heading section of the main entry. The descriptive term pseud to be added in italics after putting the comma (,), in between both the terms, e.g. TWAIN (Mark), Pseud. (ii) If the real name of an author also appears on the title page along with his pseudonym, it is to be added in direct order. Then the real name is written in circular brackets preceding with the term i.e. TWAIN (Mark), Pseud. (i.e. Samuel Langhorne Clemens) (iii) If a pseudonym appears subordinately after the real name, then it becomes the sub-heading of the heading. Then after rendering, the real name will be entered at heading, and after putting comma (,), the pseudonym will be written in circular brackets preceding with the term i.e. e.g. CLEMENS (SL), (i.e. Mark Twain, Pseud.)

493 (iv) If the real name is known from any other sources, then on rendering, the real name is written in square brackets, and other things will be usual. e.g. TWAINE (Mark), Pseud, [i.e. Samuel Langhorne Clemens] (v) if there are two or more pseudonyms of an author occurring in a work, they are treated as a joint pseudonym and the book is entered under the joint pseudonym. e.g. JKFRS and SASc, Pseud (i.e. James Keir) (vi) If a pseudonym represents two joint authors, the names of both the authors, if known, are to be added to the pseudonym in direct order, e.g. TWO BROTHERS, Pseud, (i.e. Alfred Tennyson and C. Tennyson) (vii) If a pseudonym represents three or more than three joint authors, the name of the first author alongwith the words and others are to be added to the pseudonym in circular brackets. e.g. THREE SISTERS, Pseud, (i.e. Sita Devi and others) (viii) If a pseudonym is the entry element in a heading, it must be referred from the real name and vice versa. Some examples will make it clear. Examples 1. T.P. : The marriages in Christianity/By Henry Seol/Translated from German by Andrew John/Addison Wesley/London/1982. O.I. : Call no. — Q6 : 427 N82 Accn. no. — 4567 The author has also written books under his real name Worden Wellington. This name is taken from outside the book and the book is published under Christian Religion Series.

494 Main Entry Tracing Q 6 : 427 N82 Marriages, Sacrament, SEOL (Henry), Pseud, [i.e. Religious Practice, Christainu Religion Worden Wellington] Religious Practice, Marriages in Christianity. Christain religion Tr. from German by Andrew Christain religion John (Christain Religion Religion. Series) Seol (Henry), Pseud, [i.e. 4567 Worden Wellington] John (Andrew), Tr. Christain Religion series O Wellington (Worden) Class Index Entry (I) MARAIAGES, SACRAMENT, RELIGIOUS PRACTICE, CHRISTIAN RELIGION

For documents in this class and its subdivisions see the classified part of the catalogue under the class number.

Q6 : 427 Other headings of the class Index Entry are : (2) Religious Practice. Christian religion Q6 : 4 (3) Christain Religion Q6 (4) Religion Q

495 Book Index Entry (Author) SEOL (Henry), Pseud, [i.e. Worden Wellington] Marriages in Christianity Q.6 : 427 N82 BIE (Translator) BIE (Series) JOHN (Andrew) Tr. CHRISTIAN RELIGION Seol, Pseud, : Marriages SERIES in Christianity. Seol, Pseud, : Marriages Q6 : 427 N82 in Christianity. Q6 : 427 N82 CRIE (Pseudonym) WELL1NGT1ON (Worden) See SEOL (Henry), Pseud. Example 2. T.P.: The Rajah's second wife/a story/by Frank E. Grainger/ 1900/ London. O.I. : Call no. 0111, 3M63R DO Acc. no. — 412 The author's pseudonym is Headon Hill. Main Entry 0111, 3M63R DO GRAINOER (Flunk E.) (i.e. Headun Hill Pseud.) Rajahs second wife : a story. 412 O

496 Tracing Rajah's second wife Grainger (Frank E.) Grainger (Frank E.) Fiction Fiction, English English Literature Literature Grainger (Frank E.) i.e. (Hedon Hill, Pseud.) Hill (Headon) Pseud. Title 2 Animal Farm By George Orwell Penguin Books 1949 Other Information : Call No. : 0111, 3N03, A19 Acc. No. : 15189 Note : George Orwell is the Pseudonym of Eric Arthur Blair (b. 1903). This information is given on the back of the title page. Main Entry 0111, 3NO3A 19 ORWELL (George), Pseud. (i.e., Eric Arthur Blair) Animal Farm 15189 O

497 O Animal Farm (Orwell George Pseud.) Orwell (George) Pseud Fiction English Fiction English Literature Literature Orwell (George). Pseud (i.e. Eric Arthur Blair) CHAIN INDEX ENTRY 0 = Literature (S.L.) 01 = Indo European Literature (U.L.) 011 = Teutonic Literature (S.L.) 0111 = English Literature (S.L.) 0111, 3 = English Fiction (S.L.) 0111, 3N03 = George Orwell (S.L.) 0111, 3NO3, A = Animal Farm (S.L.) CLASS INDEX ENTRY ANIMAL FARM, ORWELL (George), Pseud

For documents in this class and its subdivision, see the classified part of the catalogue under the class number 0111,3 N03, A O CLASS INDEX ENTRY ORWELL (George),Pseud, Fiction

For documents in this class and its Subdivision, see the classified part of the catalogue Under the class number 0111, 3 N03 O Tracing

498 CLASS INDEX ENTRY FICIT1ON, ENGLISH

For documents in this class and its sudivision, see the classified part of the catalogue under the class number 0111, 3 O CLASS INDEX ENTRY ENGLISH, LITERATURE

For documents in this class and its subdivision, see the classified part of the catalogue under the class numbr 0111 O CLASS INDEX ENTRY LITERATURE

For documents in this class and its subdivisions, see the classified part of the catalogue under the class number 0 O The

BIE has to be prepared as instructed before. 3.2 Exercise 1. T.P. The regional political parties in India/8th ed./by Three Brothers/ Univ. of Delhi/Translated from Hindi/by R.K. Sharma. O.I. Call no. — V 44, 4 M4 Ace. no. — 6935 Three brothers is the pseudonym of three authors whose names are Ram Lal, Shyam Lal & Sohan Lal.

499 2. T.P. : The leaves of race/by Michael Field//1901/Publisher not known. O.I : Call no. 0111, 2M6, L D01 Acc. no. 28892 Michael Field is the pseudonym of Emma Coppe. Information gathered from outside source. 3. T.P. : Wuthering heights/by Emily Bronte/Penguin Books/1969. O.I. Call no. 011, 3M18, WK9 Acc. no. 39431 Note — Ellis Bell is the pseudonym of the author 3.3 Anonymous Works There are cases when a book does not have any authorship pattern. These books are called anonymous books. Anonymous books become popular with their titles. An anonymous work is of uncertain, unknown authorship or by an unnamed group. When anonymous books (i.e. which does not have any name of the author on the title page) are catalogued, the title of the book is rendered in the heading section of the main entry. Anonymous books may be the religious books, encyclopaedias and dictionaries or general type books. Ex. 1. T.P. : Designing of shoes/published by American Leather Industry Association/New York/1963/2nd. edition. O.I.Call no. — M97 N63 Acc. no. — 60705 Pages — 265 Size — 23 x 16 cms.

500 Main Entry Tracing M97 N63 Leather Industry useful arts Designing of shoes Ed 2 Useful arts 60705 Designing of shoes O O There is no author or callaborator here ; therefore the title of the book has been rendered. Class Index Entries Class Index Entries LEATHER INDUSTRY, USEFUL ARTS USEFUL ARTS For documents..... For documents.....
.....MM97 DESIGNING OF shoes M97 Similarly Book Index entry will be prepared. In this entry we can notice that the first two words have been capitalised ; this is in accordance with heading rule JF4 (entry element of title), stating that when the title occurs in the heading, the first two words in it are to be written in capital letters. Example 2. T.P. : International Encyclopaedia of Natural Science/Compiler and Editor— John T. Marshall/1978/Oxford. O.I. : Call no. — Ak N 78 Acc no. — 9655 Pages — xxvii, 8706

501 Main Entry Tracing AK N78 Encyclopaedia INTERNATIONAL Natural Science ENCYCLOPEDIA of natural Natural Science science. Comp and Ed by John T Marshall Marshall (John T) comp. and Ed. 9695 O 3.4 Exercises 1. T.P. : Anglo Assamese Dictionary/Published from Gauhati by Dutta Barua./ 10th ed. O.I. : 400 pages ; 1965 ; 22-9 cms. 2. T.P.: Sri Sarada Devi/The Holy Mother/being the life and teachings of Her/ Sri Ramkrishna Math/Mylapore/Madras/1949. O.I. : It has 300 pages and is 9th edition book. Belongs to Ramkrishna Series no. 14. 3. T.P. : The Columbia Viking Desk Encyclopaedia/compiled and edited at Columbia University/by William Bridge Walter and others. O.I. : Published in 1964 by Dell Book Corporation. It is a 2nd edition book.

502 Unit 4 □□□□□ Miscellaneous Works 4.1 Composite Book 4.1.1 Exercise 4.2 Mutlivolume Book 4.2.1 Exercise 4.3 Series 4.3.1 Exercise 4.4 Periodical Publications 4.4.1 Exercise 4.1 Composite Book Dr. Ranganathan has defined composite book as “it is a book with two or more contributors, each with its own title, not forming a continuous exposition and often, though not necessarily, by different authors”. The microthoughts, which are the expressions of various authors are collectively published in the form of a book, and that is known as Composite Book. There are various types of composite books— (i) ordinary composite book, and (ii) artificial composite book. Ordinary Composite Book CCC defines an ordinary composite book as the one “provided with a single, generic title to denote all the contributions collectively.” Anthologies, prayer-book, symposium, festschrifts, prayer book fall under this category. The new elements in cataloguing of these type of books are cross Reference Entry and Contribution Entry. Cross Reference Entries helps the library staff to know about hidden subjects in the books. This corresponds to the In- Analytical entries of AACR. In CCC, as in AACR, there are subject and Author analytical. Cross Reference Entries are prepared by following two ways : 1. Special Cross Reference Entries—The entries prepared from the class numbers of the second or other contributions are called special Cross Reference Entries. 2. Chain Cross Reference Entries—These entries are prepared to represent the part of the book. E.g. T.P. : Rural Development : Theories of economy and changes/by John Harris/Hutchinson University Library/London/1982. O.I. : Call no. : Y31 : 7 : 7M2. Ace. No. — 2894 There are 3 contributions in the book. 503 1 contribution is Production conditions in Indian agriculture/by Krishan Bharadwaj/pgs. 269-288 [X8 (J) : 2.44]. Book is published under “Hutchinson University Library for Africans” series : Michael Growder is the editor of the series: Main Entry Tracing Y31:7:7 M2 Imporovement, Personality HARRIS (John) Rural Socidogy Rural development : Rural Sociology Theories of economy and changes. Sociology. (Hutchinson, University Indian production, library for Africans. Ed by Michael Agricultural economics Growder) Economics 2894 Poverty, social pathology Social pathology O Harris (John) Continued in the next card Contained 1 Bharadwaj (Krishna) Crowder (Michael) Ed. Cross Reference Entry (1st Contribution) B.I.E. (Author) X8(J) : 2.44 HARRIS (John) Bharadwaj Rural development : Production conditions in Theories of economy and Indlian agriculture. changes. Y31 : 7 : 7 M2 See Y31 : 7 : 7 M2 Harris Rural development P269-288 O

504 BIE (Series) BIE (1st Contribution HUTCHINSON UNIVER- BHARADWAJ (Krishna) SITY LIBRARY Production conditions in Harris : Rural develop- Indian agriculture. ment Forming P. 269-288 of Y31 : 7 : 7 : M2 Harris. Rural development Y31 : 7 : 7M2 Cross Reference Index Entry (Editor of Series) CROWDER (Michael) Ed. See HUTCHINSON UNIVERSITY LIBRARY FOR AFRICANS Headings for class Index Entries (a) From class no. of main book (1) Improvement, rural sociology Y31 : 7 : 7 (2) Rural sociology Y31 (3) Sociology Y (b) From Class no. of I contribution (4) India, Production, Agriculture X8(J) : 2.44 (5) Production, Agricultural Economics X8(J) : 2 (6) Agricultural Economics X8(J) (7) Economics X Festschrift Books Festschrift books are those which are published to present honour to some one. They are also known as Memorial volumes. Festschrift means a festival publication, commonly a collection of learned papers presented by the authors and published in honour of some persons. In case of Festschrift books, there are two types of entries— Festschrift Index Entry and Dedicatee Index Entry.

505 Festschrift Index Entry—For these type of entries, in the leading section, the word FESTSCHRIFT is mentioned in capital letters. Then the name of the person is given, in whose name the publication is brought out, or to whom the book is dedicated. Dedicatee Index Entry This entry is prepared to whom the book is dedicated. The name of the person is written in leading section to whom the book is dedicated and then (,), and the descriptive term Ded is written. In the second section, the term FESTSCHRIFT is written. e.g. T.P.: Contributions to Chemistry/Memorial volume to Robert Smith/ Edited by F.W. Jordan/A.K. Stuart/Interlink Publications/New York/1970. O.I. : Call no. — EN70 Acc. no. — 1543 Pgs. — 425 Main Entry BIE (Festschrift) E N70 FESTSCHRIFT JORDAN (FW) and SMITH (Robert) E N70 STUART (AK), Ed. Contributions to Chemistry: Memorial volume to Robert smith. 1543 BIE (Dedicatee) Tracing SMITH (Robert, Ded. Chemistry FESTSCHRIFT E N70 Physical Chemistry Jordan (FW) and Stuart (AK), Ed. Stuart (AK) and Jordan (FW) CRIE Ed. MEMORIAL VOLUME Festschrift, Smith See Smith (Robert) Ded. FESTSCHRIFT Memorial Volume

506 Apart from these, there are B1E (editor) and B1E (Joint Editors) too. Artificial Composite Books When two or more than two books are bound together in a cover by a publisher, or by the library, then the book is called Artificial Composite Book. The main entry of an artificial composite book is made for the first book which is also bound in the artificial book. e.g. I.P. : The problems of philosophy / by Harold Lobro / Mc Millan / New York / 1936. O. I. : Call no R N 36 Acc. no. 759 Size : 35 cm T. P. : The outlines of psychology / 3rd ed. / by Charles Gide / George Harper & Co. / London / 1946. O. I. : S N46 Acc. no. 4600 Size : 25 cm These two books have been bound together in the library. Main Entry Tracing R N 36 S N46 Part 2 Philosophy LOBRO (Harold) Psychology Problems of philosophy Lobro(Harol 2. Gide (Charles) : Outlines Gide (Charles) of psychology Ed. 3. 459,4600 S N 46 So we see that there are 2 class Index entries and 2 book Index entries in a composite book. The book index entries are discussed below.

507 B. L. E. (Author-Part 1) B. I. E. (Author Part 2) LOBRO GIDE (Charles) Problems of philosophy RN 36 Outlines of psychology, Bound as part 2 with Gide. ed. 3. Outlines of psychology, ed. 3. Bound as part 1 with Lobro problems of philosophy RN36 4.1.1 Exercise 1. T. P. : Readings on French Government / Edited by William Watson / A. Talker / P. Musing / J. Niche . Translated from French by Dennis Gargon / Mcmillan / 1949. O. I. : Acc. no. 7911 Size : 14 cm The book is published under Gargon critical study series no. 9. Book has one contribution by Jim Alsepy on Constitution of French Government from pages 41-50. 2. T. P. : Napoleon to Nasser / The story of modern Egypt / By Raymond Flower / 2nd edition / Doubleday Inc./ New York / 1972. O. I. : Acc. no. - 1355 Pages - 100 This is a book which is bound in the library with another book, which is given below. T. P. : Cairo Document / by M. H. Heikel / Stenes & Sons Ltd.. London / 1973. O. I. : Acc. no. 4920 Pages 300 3. T. P. : Information Management / Trends and Issues / Festschrift Babu / Dr. A. A. Vaishnav / Dr. S. Gopalkrishnan. Researchco Book centre / New Delhi / 2003. O. I. : Acc. no. 4911 Pages : 501

508 4.2 Multivolume Book Multivolume book, according to CCC, is a "Book in two or more volumes giving a continuous exposition, and, for this or any other reason in the distribution of thought among the volumes, compelling the treatment of all the volumes as an inseparable set, i.e., as if they together formed a single volume." A multi-volume set of books have the following characteristics— (i) the set possesses a common index, (ii) the sequence of pagination is continued throughout all the volumes of the set ; (iii) the subject matter is so distributed among the set, that it is not helpful to treat each volume as a separate book. There are two types of multivolume books—(a) simple multivolumed books and (b) complex multivolumed books. A) Simple multivolumed book— In this type of multivolume book, the constituent volumes do not have a special title, but the whole set has a common title. Since all the titles of all the volumes are same, they do not titles of all the volumes are same, they do not create any problem in the title portion of the main entry. The cataloguing of simple multivolumed books, is done like a simple book. The only extra element is the number of volumes that are to be recorded after the title statement. (i) Incomplete set—If in the library, some volumes out of all published volumes are not available, then an extra element is added in square brackets in the title section. The sentence in brackets is to consist of (1) the term V; (2) the number of volume not in the library ; and (3) the term not in library. e.g. TAGORE (Rabindranath) Collected short stories, 5v. [v 3 not in library]

509 (ii) Complete set—If all the sets of the multi-volume book have been published, and all the sets are present in the library, then in the title section of the main entry, after the title, a full stop (.) has to be put, and then the number of volumes present is to be written, followed by V, and a full stop. e.g. ISLAM, (Kazi Nazrul) Poetical works, 3 v. (iii) Uncomplete set—Often it happens that all the volumes of a set are not yet published, and they are received at different intervals as and when published. Such sets in the library are called uncomplete sets. Here an additional sentence is to be added which contains the term V, and the number of volumes published so far and a dash. In these cases, the book number and the volume number are to be kept open. e.g. JOSEPH (MK) Modern media and Communication V.3— In the title section, v 3 is an open number, indicating the volumes are not complete, and some more volumes are likely to be received in the library. V 3 is to be written in pencil and when the set is complete, it should be erased and the new number of the complete set is to be written. When a set of volumes have different accession numbers, the information is to be recorded accordingly. (B) Complex Multivolume Books These are multivolumed books, where each volume has its own title along with a common title. These type of books may have their separate collaborator series etc. of each volume separately. The information should

510 be recorded in the additional paragraphs that are to be added in the title section of the main entry—one paragraph to correspond with each volume that has extra specific information with title page. The contents of this additional paragraph are : (i) the term 'V, (ii) the specific number of the volume, (iii) a full stop, (iv) the specific title of the volume, (v) if the specific volume has distinct author, the term "by", followed by the names of the distinct author of that particular volume, (vi) a full stop, (vii) the term indicating any kind of collaboration, like ed. tr.. followed by the names of the distinctive collaborators, (viii) a full stop, (ix) a note in circular brackets if any of the information is given about that volume. Call number of the different volumes of a multi-volume publication consists of the common class number, followed by their successive Book Numbers. Fig. 1. T. P. : History of the great civil war (1642-1649) / 3rd. revised edition in 4 volumes / by H. W. Longman / James Ling / Howard Reid / Longman & Company / New York / 1944. O. I. Call no V 56 : 5 K49 k42 D4.1, D4.3 Acc. no. : 3679, 3681 Size : 22 x 18 cms. Volume 4 is still unpublished, volume 2 not in the library. Main Entry Tracing V56 : 5 K49 k42 D4.1, 4.3 Civil war Great Britain LONGMAN (HW) and others History History of the great civil Great Britain, History, war, 1642-1649. Rev ed. 3, History. 4 V. V3—. [V2 not in library] Longman (HW) and 3679 3681 others.

511 This book is an example of simple multivolume book. The book has been published in 3 volumes, which have the same title. So it is a simple multivolumed book. Since volume 1 and 3 are available in the library, hence by the same sequence their book numbers (D 4.1, D 4.3) and accession numbers 3679, 3681 are given. Volume 2 is not in the library hence this is noted, and also written in pencil, since there is possibility of it to be received in the library any time. The book is in 4 volumes, and upto volume 3 is there in the library. So the volume number has been kept open as V3. The tracing shows that there will be class index entries as usual, and book index entry for this document. The accession numbers are written in proper sequence. E.g. 2 T. P.: Dewey Decimal classification and Relative Index / Edition 18/3 volumes / Devised by Melvil Dewey. O. I. : Volume 1 : Introduction. Tables Volume 2 : Schedules Volume 3 : Relative Index Forest press / Lake placid club Educational Foundation / Lake Placid club / New York/ 1971. Call no. : 2 : 51M7 N 71.1—N71.3 Acc. no. : 30413 Page : viii, 1—460 (volume 1) viii, 461-1628 (volume 2) viii, 1629-2692 (volume 3) Size : 26 x 17 cm. Note : It was first published anonymously in 1876 entitled A classification and subject index. It was published from 2nd to 14th editions titled as Decimal classification and Relative Index. This book is a multivolumed book, published in 3 volumes, which all are available in the library. There are two times changes in the title of the book.

512 The book has a common title and has been published in 3 volumes which all have their own titles also. The title of the book was changed two times. As the book has 3 volumes, so three book numbers and three accession numbers have been provided. This book is an example of complex multivolume book. Main Entry Tracing 2 : 51M7 N71.1-N71.3 Dewey decimal classification DEWEY (Melvil) and relative index Dewey Decimal classification Classification, Library science. and relative index. Ed. 18. 3v. Library Science. VI. Introduction. Tables. V2. Schedules. Dewey (Melvil) V3. Relative index. Introduction Tables. VI. Published previously as Schedules. V 2. Decimal classification and Relative Index. V. 3 relative index Ed. 2 to Ed. 14. Dewey (Melvil) classification Published previously as Dewey (Melvil) Decimal classification and subject index. Ed./ 3041-43 Book Index Entry (Author) Book Index Entry (special title vol. 1) DEWEY (Melvil) INTRODUCTION. TABLES, v. 1. Dewey decimal By Dewey 2 : 51M7 N71.1 classification and relative index. Ed 18. 3V. 2:51M7 N71.1 to 71.3

513 Book Index Entry (Special Title v.2) Book Index Entry (special title v. 3) SCHEDULES. v.2 RELATIVE INDEX. V. 3. By Dewey, 2:51M7N71.2 By Dewey, 2:51M7 N71.3 Book Index Entry (Change of Title Note) DEWEY (Melvil) DEWEY (Melvil) Classification and subject Delimal classification and subject index. Ed. 2 to index. 'Ed. 1. ED 14 "Published later as "Published later as Dewey decimal classification Dewey decimal and relative index. Ed. 18. 3V." classification and relative index. Ed. 18. 3v." 2:51M7 N71.1 to N71.3 2:51M7 N71.7 to N71.3 4.2.1 Exercises : 1. T. P. : Rajkumar Prethi / History, society and culture in ancient India/ Jaipur / pointer publishers / 1999. O. I. : There are 2 volumes containing pages numbered in this way—viii, 332 ; viii, 268. It is 23 cm. high. Accession number 59370-71. / Rs. 1500 (set of 2 vols.) The library set is published in 1999. All the volumes are available in the library. 2. T. P. : Cassells German and English dictionary / by Karl Breul / 5th edition / revised and enlarged by J. Heron Lepper / London / Cassell, 1945. O. I. : There are 2 volumes. Accession number 4002^003. volume 1/ German-English ; Volume 2- English German. Volume 2 is not in the library. 3. T. P. : Man and society / important social and political theories from Marx to Engels / volume 1/ John Planmenatz / Longman.

514 O. I. : Accession no. 13563 - 13564 It is in two volumes. Volume 2 is not in the library. 4.3 Series Classified catalogue code has defined series as a "set of books, not constituting a multi-volumed book." Series has many characteristic features which are summarised as below : (i) The books are issued, normally, by one publisher or by one sponsoring body a person, usually in a uniform style, and having some similarity of subject or standard or purpose ; (ii) Each book has normally a distinct and independent title and / or other features of its own ; (iii) Each book has normally a different author ; (iv) There is a collective name to denote the set, called name of the series and given in all or at least in one of the books of the set. The names of the series is written in circular brackets in the note section of the main entry. Full stop is put after each subsection within the brackets. Besides the main entry the name of the series is also written in the tracing section of the main entry in the form of heading for Book Index Entry by which the series BIE is prepared later the following entry elements are given in the series note. (a) In the Main Entry, the name of the series is rendered in circular brackets in the note section in a separate paragraph. In rendering the name of the series either in the note section of the main entry or in the heading of the BIE, the initial articles and honorific word (if any), are to be removed from the series. (b) If the series has its own serial numbers, then it is written in the same way after the name of the series as given on title page. E. g. (English translation series. 1)

515 If the series has an editor, then after the full stop (.), the name of the editor is written by preceding the word Ed. by. e.g. (English Translation series. Ed. by J. Asthur). If the series has two editor, then after the full stop (.), the names of both the editors will be written, and the word and will be put in between both the names. e.g. (English Translation series. Ed. by J. Asthur and S. K. Jain) If the series is published with a serial number and has editor also, then the name of the editor will be rendered First, after that the serial number of the series will be written. e.g. (Business guide series. Ed. by R K Menon. 14) Often a book has two or more series which can be independent, interdependent and alternatively named.

Independent Series—When one series is independent to the other series, then this provision arises, e.g. (English Fiction series 4) (Penguin world classic series, ed. by A. Goon. 2) Interdependent Series—When one series is dependent on the other series, i.e. when the second series is the sub-series of the first, this situation occurs. e.g. (Oxford Educational Series. 300 ; Studies in Library Science 4). Alternatively name Series—If the same series has two or more names, and the same serial number is mentioned in each for a particular book included in it. e.g. (Kashi Sanskrit Series or Haridas Sanskrit Granthmala, 14) Pseudo-Series Many books have a common title and still do not form a multi-volumed set. These titles also have their own title in addition to a common title. Pseudo series are of various kinds : A set of books not constituting a multivolume book and with these characteristics may have pseudo series. (a) all the books are of common authorship; 516 (b) all the books belong to the same edition; (c) the title of each book has a distinctive part in addition to the name of the edition; (d) each book can be assigned a serial number belonging to a system or complex ordinal number; (e) the name of the author, taken along with the name of the edition, is suitable to be used as if it were the name of a series.

Extracts note If a book has any extract, then it is rendered with their descriptive terms in the note section of the main entry, such as Extract from or supplement to. It tells the specificity of that book from which The Extract is taken. These type of notes are written in double inverted commas. Extraction note The book is indicated with the descriptive words for extracts see in the note section of the main entry, from which the new book is extracted. Change of Title Note If there is a change in the former or later title of the book, then it is rendered with directive words, such as Published previously as or Published later on as the case is, in the note section of the main entry in double inverted commas. Associated Book Note In this type of note, some special types of notes are rendered-like "For a merger book" "For an abridgement" etc. Example 1 T. P. : Information Retrieval systems in University Libraries / by R. N. Oddy / S. E. Robertson / P. A. Williams / Translated by C. G. Vishwanaihan / Butterworth / London / 1983. O. I. : Call no. 234 : 97 N 91 Ace. no. 668 Pgs. 380 Size 23 cm.

517 6th edition was published in 1991. Book is published under two series— (a) Ranganathan series in Library Science as serial number 2 / edtd. by P. N. Kaula. (b) Library Science publication series as serial no. 6. Main Entry Tracing 234 : 97 N91 Documentation University ODDY (RN) and others libraries, Library Science Information retrieval University libraries, Library science system in university libraries. Academic libraires, Library Science Ed. 6. Trans by C. G. Vishwanathan Library Science (Ranganathan series in library Oddy (RN) and others. science Ed. by PN Kaula. 2) Vishwanathan (CG), Tr. (Library science publication Ranganathan series in library science series. 6) Library science publication series 668 Kaula (PN) ed. O The book index Entry for series is shown here Book Index Entry (Series 1) BIE (Series 2) RANGANATHAN SERIES IN LIBRARY SCIENCE PUBLICATION LIBRARY SCIENCE SERIES 2 Oddy and others : 6 Oddy and others : Informatibn retrival Information retrieral systems in university Systems in university libraries. Ed. 6. libraries, Ed. 6. 234 : 97 N91 234 : 97 N91

518 Cross Reference Index Entry (Editor of Series) KAULA (PN), ed. See RANGANATHAN SERIES IN LIBRARY SCIENCE 2 234 : 97 N91 Example 2 T. P. : Cataloguing practie / 2nd ed./ S. R. Ranganathan / Assisted by G. Bhattacharya / Asia Publishing House / London / 1974. O. I. : Call no. : 2 : 55 N 74 Ace. no. : 402 Pages : 430 Size : 18 cm. The book is published under Ranganathan Series in Library Science, 20. The first edition was published in 1950 under the title Library Catalogue: Fundamental and procedure.

519 The other entries are to be prepared as usual. Only the CRIE (change of Title) is shown. CRIE is prepared when the title of the book changes to other title. The entry is prepared by the changed name. 4.3.1 Exercises 1. T. P. : Donald S. Lopeg / Religions of Tibet in practice / Reprint edition / New Dehli / Munsirum Manoharlal / 1998. O. I. : There are 560 pages and it is 25 cm. high. It belongs to Princeton readings in Relgions series no. 9. 2. T. P. : Shohei Ichimura / Buddhist critical spirituality / Prajna and Sunyata / 1st edition / Delhi / Motilal Banarasidass/ 2001. O. I. : It has 435 pages and is 23 cm. high. If falls under North American Institute of Zen and Buddhist series no. 4. Series editor is Gautam patel. The original anthor was born in 1936. 4.4 Periodicals In CCC, periodicals has been defined as "A volume, or a small group of volumes of it, is intended to be published or completed normally once a year (or at other regular intervals), though irregularity in interval is not ruled out. Each successive volume, or periodical group of volumes is usually distinguished by the year of publication and by a number belonging to a system of simple or complex ordinal number. This number is called the Volume Number." Serials have been defined as a periodical publication of which each volume embodies more or less the same kind of information usually in the same pattern, mainly relating to its year of coverage.

520 The rules for rendering the main entry of a periodical are : 1. Leading Section—It has the class number only. No provision of book number is here. 2. Heading Section—Here the title proper is to be written. First two words in the title are to be written in capitals. If the periodical is an organ of an institution or sponsored by an organization and if the name of the sponsoring body is not included in the title of the periodical, then (i) Title of the periodical is to be written first ; (ii) Then a comma ; (iii) Name of the institution / sponsoring body to be written in circulai brackets ; (iv) Full stop is to be written after circular bracket. If the name of the sponsoring body is included in the title, then ; (i) the title of the periodical is to be written, (ii) followed by a comma, (iii) name of the sponsoring body. Periodicity section—The periodicity is given in square brackets. If has twc parts-one part corresponds to the manner in which one volume is completed in how much time, such as lper year ; the second part gives the number of volumes anc the year of starting and the year of cloasing. Both the parts are recorded in square brackets as shown below— [lv per year, vl- ; 1965—] The above example is a case of open publication. 4. Series Note Section—If the periodical has any series, it is enclosed in circular brackets. At the end of the series note, the serial, numbers of all the volume; are given in succession. 5. Holding Section— In this section, all volumes of periodical publication which are available in the library are shown. The holding is shown as : (i) the term this library has ; (ii) the term v ; (iii) the number of volumes available in the library (the number of earliest volume, a dash, the number of latest volume) ; (iv) a semicolon ; (v) the years of volumes ; (vi) in cases

521 where the periodical is currently subscribed by the library, the numbers of the latest volume and its years are to be written in pencil (open entry) ; (vii) if the periodical is discontinued, the number of the last volume and its year are linked to show the periodical is no more subscribed by the library (closed entry). Specific Class Index Entries This is the entry which is obtained by the heading of the last link of the class number. Generic CIEs These arc prepared for the title of the periodical with an without alternate title. This entry is prepared under the heading PERIODICAL or SERIAL. Optional CIEs These type of entries are prepared for a perodical publication corresponding to the links of its class number ending with the Common Isolate Digit and Geographical Isolate Number. Example 1. T. P.: Journal of the Australin Chemical Society / vol. 12 / 1979/ van Nostrand & Co./ Sydney. O. I. : Class no. : Em8, N68 Size : 25 x 15 cm Ace. no. : vol. 1 233 Publication of the journal started in 1968 and it is yearly. Library lacks vol. 9 & vol. 10. Publication closed after 1979.

522 Example 2 T.P. : The Indian Economic Review / vol. xxiv/ Jan-June 1988 Number 1. O. I. : Class no. Xm 44, N65 Ass. no. 4856-4561 ; 5865-5878 Periodicity : One volume per year. Year of Pubem : 1965 Lib. holdings : vol. 8-13 & 16-34
4.4.1 Exercises : 1. T. P. : Journal of Agricultural Research of China / vol. II January 2002/ Taiwan Agricultural Research Institute/ Taiwan. O. I. : Frequency—annual. Library lacks vol.7 2. T. P. : Enviornmental nutrition / The journal of diet, nutrition and health / vol. 6, no. 1, Jan 1979 / New York/Environmental Nutrition Inc. O. I. : Two issues annually. Library lacks vo. 10 Size 29 cm.

523 PAPER - VIII Computer Basics & Application Modules : 1 - 4

524

525 Unit 1 □□□□ DEFINITION, TYPES AND GENERATIONS OF COMPUTER Structure 1.0 Objectives 1.1

Introduction 1.2 Definition 1.3 Computer dynasty 1.4 Characteristics of a computer 1.5 Types of computers 1.6

Generations of Computers 1.7

Exercises 1.0 OBJECTIVES The objectives of the Unit are to: • Familiarize with the concept of computer • Discuss the characteristics of a computer • Know the basic components of a computer • List the types of computers based on the capabilities • Understand the salient features of the different generations of computers 1.1 INTRODUCTION Rarely a new invention comes to touch every aspect of our lives. Such a device that changes the way we work, live, and play is a special one, indeed. A machine that has done all this and more is the computer. The electronic computer has been around for over a half-century, but its ancestors have been around for 2000 years. From the first wooden abacus to the latest high-speed microprocessor, the computer has changed nearly every aspect of people's lives for the better. Machines for calculating fixed numerical tasks, such as the abacus, have existed since antiquity. Wilhelm Schickard built the first mechanical calculator in 1623. Charles Babbage designed a difference engine in Victorian times, and around 1900 the IBM corporation sold punch-card machines. However all of these machines were constrained to perform a single task, or at best, some subset of all possible tasks. During the 1940s, as newer and more powerful computing machines were developed, the term computer came to refer to the machines rather than their human predecessors.

Module : 1

526 1.2 DEFINITION The computer that everyone thinks of first is typically the personal computer (PC). A PC is a general-purpose tool built around a microprocessor. It has lots of different parts. "General purpose" means that you can do many different things with a PC. You can use it to type documents, send e-mail, browse the Internet and play games. It is programmable machine. The two principal characteristics of a computer are: • It responds to a specific set of instructions in a well-defined manner. • It can execute a prerecorded list of instructions (a program). All general-purpose computers require the following hardware components: • Memory: Enables a computer to store, at least temporarily, data and programs. • Mass storage device: Allows a computer to permanently retain large amounts of data. Common mass storage devices include disk drives and tape drives. • Input device: Usually a keyboard and mouse, the input device is the conduit through which data and instructions enter a computer. • Output device: A display screen, printer, or other device that lets you see what the computer has accomplished. • Central processing unit (CPU): The heart of the computer, this is the component that actually executes instructions. In addition to these components, many others make it possible for the basic components to work together efficiently. For example, every computer requires a bus that transmits data from one part of the computer to another. What a Computer Does The instructions in the program direct the computer to input, process and output as follows: • Input/Output: The computer can selectively retrieve data into its main memory (RAM) from any peripheral device (terminal, disk, tape, etc.) connected to it. After processing the data internally, the computer can send a copy of the results from its memory out to any peripheral device. The more memory it has, the more programs and data it can work with at the same time. • Storage: By outputting data onto a magnetic disk or tape, the computer is able to store data permanently and retrieve it when required. A system's size is based on how much disk storage it has. The more disk, the more data are immediately available. • Processing (The 3 C's): The computer performs all processing by "calculating," "comparing" and "copying" the data stored in its memory (RAM).

527 o Calculate: The computer can perform any mathematical operation on data by adding, subtracting, multiplying and dividing one set with another. o Compare: The computer can analyze and evaluate data by matching it with sets of known data that are included in the program or called in from storage. o Copy: The computer can move data around to create any kind of report or listing in any order. o Calculate, Compare and Copy: By calculating, comparing and copying, the computer accomplishes all forms of data processing. For example, records are sorted into a new order by comparing two records at a time and copying the record with the lower value in front of the one with the higher value. The computer finds one customer out of thousands by comparing the requested account number to each record in the file. The query statement: SUM SALARY FOR TITLE = "NURSE" causes the computer to compare the title field in each record for NURSE and then add (calculate) the salary field for each match. In word processing, inserting and deleting text is accomplished by copying characters from one place to another.

1.3 COMPUTER DYNASTY

Computers, in general, are of three types:

- Analog Computer: Computer in which continuously variable physical quantities, such as electrical potential, fluid pressure, or mechanical motion, are used to represent (analogously) the quantities in the problem to be solved. The analog system is set up according to initial conditions and then allowed to change freely. Answers to the problem are obtained by measuring the variables in the analog model. Analog computers are especially well suited to simulating dynamic systems; such simulations may be conducted in real time or at greatly accelerated rates, allowing experimentation by performing many runs with different variables. They have been widely used in simulating the operation of aircraft, nuclear power plants, and industrial chemical processes. Example: Speedometer. The basic solution speed is very rapid on the analog computer because of its parallel nature, but increasing problem complexity demands larger computer size. Thus, for the analog computer the time remains the same regardless of the complexity of the problem, but the size of the computer required grows with the problem.

528 • Digital Computer: A digital computer is an electronic computing machine that uses the binary digits (bits) 0 and 1 to represent all forms of information internally in digital form. Every computer has a set of instructions that define the basic functions it can perform. Sequences of these instructions constitute machine-language programs that can be stored in the computer and used to tailor it to an essentially unlimited number of specialized applications. General-purpose computers range from pocket-sized personal digital assistants (notepad computers), to medium-sized desktop computers (personal computers and workstations), to large, powerful computers that are shared by many users via a computer network. The main data-processing elements of a computer reside in a small number of electronic integrated circuits (ICs) that form a microprocessor or central processing unit (CPU). The accuracy of the calculations on a digital computer can often be increased through double precision techniques and more precise algorithms, but at the expense of extended solution time, due to the computer's serial nature of operation. Also, the more computational steps there are to be done, the longer the digital computer will take to do them.

- Hybrid Computer: In a modern analog-hybrid console, the mode switches in the integrators are interfaced with the digital computer to permit fast iterations of dynamic runs under digital computer control. Data flow in many ways and formats between the analog computer with its fast, parallel circuits and the digital computer with its sequential, logic-controlled programs. Special highspeed analog-to-digital and digital-to-analog converters translate between the continuous signal representations of variables in the analog domain and the numerical representations of the digital computer. Control and logic signals are more directly compatible and require only level and timing compatibility. The programming of hybrid models is a more complex challenge than described above, requiring the user to consider the parallel action of the analog computer interlaced with the step-by-step computations progression in the digital computer. For example, in simulating the mission of a space vehicle, the capsule control dynamics will typically be handled on the analog computer in continuous form, but interfaced with the digital computer, where the navigational trajectory is calculated.

1.3.1 Difference between analog and digital computers

Analog computers (there are still some out there) use linear combinations of voltage amplitude (or currents or frequencies or phases) from the inputs to determine the required output sequence; digital computers use two-state variables that are either "on" or "off" (true or false, 1 or 0, yes or no) as logical building

529 blocks to derive a digital output sequence from the digitized input. Digital signals may also be converted to analog, and vice versa, so you could have a series of a/d converters, a digital computer, and digital/analog converters to simulate an analog computer, or a communication channel, as in digital telephones. The two big advantages of digital technology are:

- The recording does not degrade over time. As long as the numbers can be read, you will always get exactly the same wave.
- Groups of numbers can often be compressed by finding patterns in them. It is also easy to use special computers called digital signal processors (DSPs) to process and modify streams of numbers.

1.4 CHARACTERISTICS OF A COMPUTER

Computers are not merely calculators but are programmable devices, which help to reduce the burden on human memory and mechanical processing. Computers have assumed importance due to the following qualities:

- **Speed:** It offers unmatched speed in performing computations faster than humans.
- **Accuracy and Reliability:** It can undertake repetitive tasks and can perform with great degree of reliability without any error, avoiding any fatigue that affects humans. It can safely perform critical tasks that may be hazardous to humans.
- **Storage capacity:** It has superb in-built and auxiliary memory. It can store a great deal of information/data in it and can retrieve the information at an incredible speed.
- **Integrity:** It is impartial. They offer a means of data processing unaffected by racial, religious, or cultural bias. They can handle large amount of data uniformly and randomly without any prejudice.
- **Versatility:** It is capable to communicate with other systems and adopt several modes like audio-visual and graphic etc.
- **Power of making logic:** The ability to follow simple logic rules to make internal control, or for the control of some external activities.

1.5 TYPES OF COMPUTER

Computers can be generally classified by size and power as follows, though there is considerable overlap:

- **Personal computer:** A small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, a mouse, and a storage device for saving data.
- **Workstation:** A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.
- **Minicomputer:** A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
- **Mainframe:** A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- **Supercomputer:** An extremely fast computer that can perform hundreds of millions of instructions per second.

1.6 GENERATIONS OF COMPUTERS

A generation refers to the state of improvement in the development of a product. This term is also used in the different advancements of computer technology. A major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, and more powerful and more efficient and reliable devices characterize each generation of computer. In terms of technological developments over time, computers have been broadly classed into five generations. The lines of distinction between each generation are not exact, and some overlap in technologies exists. Although these designations are open to some controversy, as a general description of types of technology in use, the terms first, second, third, fourth and fifth generation are sometimes useful in providing a general perspective of some of the advancements in computing technology.

Computer Generations Parallel showing overlap

Microprocessor	Integrated Circuit	Transistor	Vacuum tube	Electro-mechanical
1920	1930	1940	1950	1960
1970	1980	1990	2000	

1.6.1 First Generation -1940-1956 [Vacuum Tubes]

The first computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.

First generation

531 computers relied on machine language to perform operations, and they could only solve one problem at a time. Input was based on punched cards and paper tape, and output was displayed on printouts. The vacuum tube was an extremely important step in the advancement of computers. Its purpose was to act like an amplifier and a switch. Without any moving parts, vacuum tubes could take very weak signals and make the signal stronger (amplify it). Vacuum tubes could also stop and start the flow of electricity instantly (switch). These two properties made the ENIAC computer possible. The UNIVAC and ENIAC computers are examples of first-generation computing devices. The UNIVAC was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951.

1.6.2 Second Generation -1956-1963 [Transistors]

The transistor was invented in 1947 but did not see widespread use in computers until the late 50s. The transistor still generated a great deal of heat that subjected the computer to damage; however it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output. The transistor was faster, more reliable, smaller, and much cheaper to build than a vacuum tube. One transistor replaced the equivalent of 40 vacuum tubes. These transistors were made of solid material, some of which is silicon, an abundant element (second only to oxygen) found in beach sand and glass. Therefore they were very cheap to produce. Transistors were found to conduct electricity faster and better than vacuum tubes. They were also much smaller and gave off virtually no heat compared to vacuum tubes. Their use marked a new beginning for the computer. Without this invention, space travel in the 1960's would not have been possible. However, a new invention would even further advance our ability to use computers. Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, languages, which allowed programmers to specify instructions in words. High-level programming languages were also being developed at this time, such as early versions of COBOL and FORTRAN. These were also the first computers that stored their instructions in their memory, which moved from a magnetic drum to magnetic core technology. The first computers of this generation were developed for the atomic energy industry.

1.6.3 Third Generation -1964-1971 [Integrated Circuits]

The development of the integrated circuit was the hallmark of the third generation of computers, which drastically increased the speed and efficiency of computers.

532 Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors. These third generation computers could carry out instructions in billionths of a second. The size of these machines dropped to the size of small file cabinets. Yet, the single biggest advancement in the computer era was yet to be discovered.

1.6.4 Fourth Generation - 1971-Present [Microprocessors]

The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The Intel 4004 chip, developed in 1971, located all the components of the computer - from the central processing unit and memory to input/output controls - on a single chip. In 1981 IBM introduced its first computer for the home user, and in 1984 Apple introduced the Macintosh. Microprocessors also moved out of the realm of desktop computers and into many areas of life as more and more everyday products began to use microprocessors. This generation can be characterized by both the jump to monolithic integrated circuits (millions of transistors put onto one integrated circuit chip) and the invention of the microprocessor (a single chip that could do all the processing of a full-scale computer). By putting millions of transistors onto one single chip more calculation and faster speeds could be reached by computers. Because electricity travels about a foot in a billionth of a second, the smaller the distance the greater will be the speed of computers. However what really triggered the tremendous growth of computers and its significant impact on our lives is the invention of the microprocessor. As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet. Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

1.6.5 Fifth Generation - Present and Beyond [Artificial Intelligence]

Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices that

533 respond to natural language input and are capable of learning and self- organization. A comparative study of computers in different generations is given below: Parameters 1 st Generation 2 nd Generation 3 rd Generation 4 th Generation 5 th Generation Year 1940 1956 1964 1971 2015 Electronic Vacuum Tubes Transistors Small scale Medium scale large scale Components and Medium and large scale microprocessor scale IC, IC circuits in microprocessor parallel architectures Programming No OS No OS OS included Improved OS Highly systems sophisticated OS Programming Machine Assembly Language Language Language Compiler languages were developed Input/Output Punch Card, Punch Card, Keyboards, Keyboards, Voice Paper tape, Paper tape, Monitors Monitors, GUI, recognition printouts printouts Mouse and handheld devices Speed (time for 1000 ns 30 ns 5 ns 1 ns 0.3 ns one shift operation Note: ns= nano second= one thousandth million part 1.7 EXERCISES 1. What is meant by the different generations of computers and how do they differ? 2. What is the difference between analog and digital computers 3. Classify the computers based on their size and power. 4. Discuss history of modern computing.

534 UNIT 2 □□□□□ COMPUTER HARDWARE Structure 2.0 Objectives 2.1

Introduction 2.2 Input devices 2.3 Central Processing Unit 2.4 Motherboard 2.5 Output devices 2.6 Hard Disk 2.7 MODEM 2.8 Ports 2.9

Exercises 2.0 OBJECTIVES The objectives of the Unit are to know the: • Major components of the computer and their functions • Basic Input devices and their functions • Basic Output devices and their functions • Functions of MODEM 2.1 INTRODUCTION The term hardware describes the physical parts of the computer, which you can physically touch or see such as your monitor, case, disk drives, microprocessor and other physical parts. The main computer box is the main component of the computer. It has computer hardware parts inside that perform the following functions: 1. Temporary storage of data - This function is done by memory. 2. Permanent storage of information - This function is done by a hard disk, floppy disk, or CD ROM. 3. Processing of data - Used to determine where data is stored and perform calculations, which support operations that the user is doing. 4. Interfacing to the outside components or to the outside world - This supports the ability for the user to communicate with the computer and know how the computer is responding to commands which are done primarily through the monitor, keyboard, and mouse along with their interface components in the main computer box. 5. A power supply, which provides the electrical power to the components in the computer box.

535 The computer is concerned with accepting data as input, storing all information which is relevant for processing, processing the data in a predetermined way that conforms to a program of instructions and then communicating the results as output. General purpose computer has four main sections: the arithmetic and logic unit (ALU), the control unit, the memory, and the input and output devices (collectively termed I/O). These parts are interconnected by busses, often made of groups of wires. Thus, a computer essentially consists of: • Input devices • Central Processing Unit • Memory • Motherboard • Output devices Input and output devices provide man-machine and machine-man communication interface. Since, they surround CPU; they are also called peripheral devices. 2.2 INPUT DEVICES Input devices make it possible to entering information into a computer. The input into an electronic system is usually take place through switches or sensors. Input devices include keyboards, joysticks, mice, light pens, touch-sensitive screens, scanners, graphics tablets, speech-recognition devices, and vision systems. • Keyboards, the most frequently used input devices, are used to enter . instructions and data via keys. There are many variations on the layout and labelling of keys. Extra numeric keys may be added, as may special- purpose function keys, whose effects can be defined by programs in the computer. • The graphics tablet is an input device in which a stylus or cursor is moved, by hand, over a flat surface. The computer can keep track of the position of the stylus, enabling the operator to input drawings or diagrams into the computer. The joystick signals to a computer the direction and extent of displacement of a hand-held lever. • Light pens resemble ordinary pens and are used to indicate locations on a computer screen. With certain computer-aided design (CAD) programs, the light pen can be used to instruct the computer to change the shape, size, position, and colours of sections of a screen image. • Scanners produce a digital image of a document for input and storage in a computer, using technology similar to that of a photocopier. Small scanners can be passed over the document surface by hand; larger versions have a flat bed, like that of a photocopier, on which the input document is placed and scanned.

536 • Pointing devices is any computer hardware human interface device that allows a user to input data to a computer. CAD systems and graphical user interfaces (GUI) allow the user to control and provide data to the computer using physical gestures - point, click, and drag - typically by moving a hand-held mouse across the surface of the physical desktop and activating switches on the mouse. Movements of the pointing device are echoed on the screen by movements of the mouse pointer (or cursor) and other visual changes. While the most common pointing device by far is the mouse, many more devices have been developed. However, mouse is commonly used as a metaphor for devices that move the cursor. Examples of common pointing devices include: ? mouse ? trackball ? touchpad ? touchscreen ? graphics tablets (or digitizing tablet) that use a stylus ? light pen ? light gun Input devices that are used commercially - for example, by banks, postal services, and supermarkets - must be able to read and capture large volumes of data very rapidly. Such devices include document readers for magnetic-ink character recognition (MICR), optical character recognition (OCR), and optical mark recognition (OMR); mark-sense readers; bar-code scanners; magnetic-strip readers; and point-of-sale (POS) terminals. Punched-card and paper-tape readers were used in earlier commercial applications but are now obsolete.

2.3 CENTRAL PROCESSING UNIT A central processing unit (CPU) is the component in computer that interprets computer program instructions and processes data. It contains the electronic circuits that cause the computer to follow instructions from ROM (read only memory) or from a program in RAM (random access memory). By following these instructions information is processed. CPUs provide the fundamental digital computer trait of programmability, and are one of the necessary components found in computers of any era, along with primary storage and input/output facilities. That is, it is a programmable logic device that performs all the instruction, logic, and mathematical

537 processing in a computer. A CPU that is manufactured as a single integrated circuit is usually known as a microprocessor. On large machines, CPUs require one or more printed circuit boards. On personal computers and small workstations, the CPU is housed in a single chip called a microprocessor. The CPU, or the Central Processing Unit, is the brain of the computer and the single most important chip in the computer. Modern processors contain millions of transistors which are etched onto tiny square silicon called a die, which is about the width of a standard thumb. The fundamental operation of most CPUs is to execute a sequence of stored instructions called a program. The program is represented by a series of numbers that are kept in some kind of computer memory. There are four steps that nearly all von Neumann CPUs use in their operation: fetch, decode, execute, and writeback. The functions of CPU are to:

- Store data and instructions
- Control the sequence of operations as per the stored instructions
- Issue commands to all parts of the computer system.
- Carry out data processing and to send results to output

The CPU contains three parts.

- Arithmetic Logic Unit (ALU): It is where the "intelligence" of the computer is located. It can add and compare numbers. It performs logical actions based on AND and OR functions. It comprises a number of accumulators and registers. It derives all data from the main memory as directed by the Control Unit (CU), based on the program given to it. To multiply 2×4 the computer would add $2 + 2 + 2 + 2$. The ALU makes decisions by determining if a number is greater, less, or equal to the other number. Processing is completed in nanoseconds, which is a billionth of a second.
- Memory: Two types of memory contained on a chip are RAM (Random Access Memory) or ROM (Read Only Memory). ROM memory has been installed on your computer by the manufacturer and cannot be altered. ROM is the memory that determines all the basic functions of the operation of the machine, such as startup, shut down, and placing a character on the screen. RAM is temporary memory, which displays the information you are working on. RAM remembers what you see on your screen while you are working. Today's applications required large amounts of temporary memory, which may require you to upgrade and add more RAM memory.

538 • Control Unit (CU): This is the part of the unit, which directs information to the proper places in your computer, such as calculation of information by the ALU unit or to store and print material. The basic functions of CU is given below:

- o It gives commands to transfer data from the input device to the memory (IAS) to ALU
- o It transfer results from ALU to the memory and on to the output device for printing.
- o It stores program in the memory, takes instruction one-by-one, understand them and issues appropriate commands to the other Units.
- o It fetches the required instructions from the main storage via memory data register (MDR) and places in the control instruction register (CIR).
- o It interprets the instructions in CIR and gets executed by sending a command signal to the particular hardware device.

Summary functions of basic components of a computer is given below:

Unit Description	Input Devices	Reads information from input media and feeds to the computer in coded form.
Storage Device	Stores program instructions and data	ALU
Performs arithmetic and logic operations	Control Unit	Interprets program instructions and initiates and control operations.
Output Device	Decodes information and presents it to the user.	

The CPU's speed is a measure of MHz (megahertz) or more recently GHz (gigahertz). A chip with a rating of 900Mhz would be able to complete 900Million cycles every second. This figure only shows how many clock cycles the CPU can do in a second. How much being done in each cycle is another matter. Intel and AMD are two main desktop CPU manufacturers. Both of these companies have a power CPU and a Budget CPU. The Power CPU's are the Pentium 4 and Pentium D from Intel and the Athlon 64 and X2 from AMD. The budget CPU's are the Celeron from Intel and the Sempron from AMD. Price is a big factor between these CPU's. The Cache on the CPU is a small amount of very fast memory, which is situated, on the CPU. The cache memory is very expensive which is why it's available in very limited amounts.

539 2.4 MOTHERBOARD A motherboard is the physical arrangement in a computer that contains the computer's basic circuitry and components. On the typical motherboard, the circuitry is imprinted or affixed to the surface of a firm planar surface and usually manufactured in a single step. The computer components included in the motherboard are:

- The microprocessor
- (Optionally) coprocessors
- Memory
- Basic input/output system (BIOS)
- Expansion slot

Interconnecting circuitry Additional components can be added to a motherboard through its expansion slot. The electronic interface between the motherboard and the smaller boards or cards in the expansion slots is called the bus. The following schematic figure represents the various components of a motherboard of a modern computer:

540 2.5 OUTPUT DEVICES Output devices are things we use to get information out of a computer. Here are some examples of output devices.

- Monitor: A monitor is the screen on which words, numbers, and graphics can be seen. The monitor is the most common output device
- Compact Disk: Some compact disks can be used to put information on. This is called burning information to a CD. A CD can also be an input device.
- Printer - A printer prints whatever is on the monitor onto paper. Printers can print words, numbers, or pictures
- Speaker - A speaker gives you sound output from your computer. Some speakers are built into the computer and some are separate.
- Disk Drives - A disk drive is used to record information from the computer onto a floppy disk or CD.
- Floppy Disk - A floppy disk is used to record information on. The information is stored on the floppy disk and can be used later or used on another computer.
- Headphones - Headphones give sound output from the computer. They are similar to speakers, except they are worn on the ears so only one person can hear the output at a time.

2.5.1 Printer A computer printer produces a printed copy (hard copy) of documents stored in electronic form, usually on physical print media such as paper, cloth or transparencies. Many printers are primarily used as computer peripherals, and are permanently attached by a printer cable to a computer which serves as a document source. Other printers, commonly known as network printers, have built-in network interfaces (typically wireless or Ethernet), and can serve as a hardcopy device for any user on the network. In addition, many modem printers can directly interface to electronic media such as memory sticks or memory cards, or to image capture devices such as digital cameras, scanners; some printers are combined with a scanners and/or fax machines in a single unit. Present days printer may be classified as follows:

- Impact Printer: With this type of printer something strikes paper & ribbon together to form a character, like a typewriter. It is less expensive, fast and can make multiple copies with multipart paper. However, this type of printers is noisy and produces poor quality of graphics and/or text. Major types of impact printers are:

541 o Dot Matrix Printer- Forms characters using row(s) of pins, 9, 18, or 24 which impact the ribbon on top of the paper. Also called pin printers. The more pins, the smoother looking the characters. o Chain and Brand Printer- Uses characters on a band or chain that is moved into place before striking the characters onto the paper. • Non-Impact Printer: This type of printer does not involve actually striking the paper. Instead, it uses ink spray or toner powder. This type of printers is quite and can handle graphics and wider variety of fonts. However, they are expensive. Major types of non-impact printers are: o InkJet Printer- Sprays ink onto paper to form characters o Thermal Printer- Uses heat on chemically treated paper to form characters. Fax machines that use rolls of paper are also of this type. o Page Printer- Works like a copy machine, using toner and a heat bar. Laser printers are in this category 2.6. Hard Disk A hard disk drive (HDD) is a non-volatile storage device which stores digitally encoded data on rapidly rotating platters with magnetic surfaces. Early HDDs had removable media; however, an HDD today is typically a sealed unit with fixed media. Data is stored onto the disk in the form of files. A file is simply a named collection of bytes. The bytes might be the ASCII codes for the characters of a text file, or they could be the instructions of a software application for the computer to execute, or they could be the records of a database, or they could be the pixel colors for a GIF image. No matter what it contains, however, a file is simply a string of bytes. When a program running on the computer requests a file, the hard disk retrieves its bytes and sends them to the CPU one at a time. There are two ways to measure the performance of a hard disk: • Data rate - The data rate is the number of bytes per second that the drive can deliver to the CPU. Rates between 5 and 40 megabytes per second are common. • Seek time - The seek time is the amount of time between when the CPU requests a file and when the first byte of the file is sent to the CPU. Times between 10 and 20 milliseconds are common. • The other important parameter is the capacity of the drive, which is the number of bytes it can hold.

542 Data is stored on the surface of a platter in sectors and tracks. Tracks are concentric circles, and sectors are pie-shaped wedges on a track, like this: A sector contains a fixed number of bytes - for example, 256 or 512. Either at the drive or the operating system level, sectors are often grouped together into clusters. The process of low-level formatting a drive establishes the tracks and sectors on the platter. The starting and ending points of each sector are written onto the platter. This process prepares the drive to hold blocks of bytes. High- level formatting then writes the file-storage structures, like the file-allocation table, into the sectors. This process prepares the drive to hold files. 2.7 MODEM It is a device that allows two computers to communicate over telephone lines. It converts digital computer signals into analog format for transmission. A similar device at the other end converts the analog signal back into a digital format that the computer can understand. The name is an abbreviated for "modulator- demodulator." Modem - short for "modulator/demodulator." This device connects the computer to a telephone line for communication with another remote computer or information network. Each modem is rated for the amount of information it can process per second. These ratings are stated in bits per second (bps). Modems come in speeds ranging from 14,400 bps to 56,000 bps and above. 2.8 PORTS In computer hardware, a "port1" serves as an interface between the computer and other computers or devices. Physically, a port is a specialized outlet on a piece of equipment to which a plug or cable connects. Electronically, the several conductors making up the outlet provide a signal transfer between devices.

543 Electronically, hardware ports can almost always be divided into two groups based on the signal transfer: • Serial ports send and receive one bit at a time via a single wire pair. • Parallel ports send multiple bits at the same time over several sets of wires. Hot-pluggable ports can be connected while equipment is running. About the only port on personal computers that isn't hot-pluggable is the keyboard PS/2 connector; hot-plugging a keyboard on many computer models can cause permanent damage to the motherboard. Plug-and-play ports are designed so that the connected devices automatically start handshaking as soon as the hot plugging is done. USB ports and FireWire ports are plug-and-play. Auto-detect or auto-detection ports are usually plug-and-play, but they offer another type of convenience. An auto-detect port may automatically determine what kind of device has been attached, but it also determines what purpose the port itself should have. 2.9 EXERCISES 1. What is the purpose of having an input device in a computer? Describe any three input devices. How is a character types on a keyboard transmitted to a computer? 2. What is the role of the Central Processing Unit in a computer? What are sections of a CPU? 3. What is the purpose of having an output device in a computer? Describe any three output devices.

544 UNIT 3 □□□□□ SOFTWARE Structure 3.0 Objectives 3.1

Introduction 3.2 Business Model wise Software 3.3 Functions wise Software 3.4 Operating Systems 3.5 Single User OS: MS-WINDOWS 3.6

Exercises 3.0 OBJECTIVE The objectives of the Unit are to: • Explain the concept of Software • Identify different types of software • Discuss the functions operating systems • Classify the different OS based on characteristics • Outline general aspects of MS-WINDOWS 3.1 INTRODUCTION The software is the information that the computer uses to get the job done. Software needs to be accessed before it can be used. There are many terms used for process of accessing software including running, executing, starting up, opening, and others. Computer programs allow users to complete tasks. A program can also be referred to as an application and the two words are used interchangeably. Examples of software programs or applications would be the • Operating System (DOS, Windows 9x/Millennium/XP, O/S2, UNIX, MacOS 9x/10.x and various others), • Wordprocessor (typing letters), • Spreadsheet (financial info), • Database (inventory control and address book), • Graphics program, • Internet Browser, • Email and many others. 3.2 BUSINESS MODEL WISE SOFTWARE The three basic types of software are there:

545 • Commercial: Commercial software comes prepackaged and is available from software stores and through the Internet. • Shareware: Shareware is software developed by individual and small companies that cannot afford to market their software worldwide or by a company that wants to release a demonstration version of their commercial product. You will have an evaluation period in which you can decide whether to purchase the product or not. Shareware software often is disabled in some way and has a notice attached to explain the legal requirements for using the product. • Open source software. Some software is also release into the public domain without a license. Open Source software is created by generous programmers and released into the public domain for public use. There is usually a copyright notice that must remain with the software product. Open Source software is not public domain in that the company or individual that develops the software retains ownership of the program but the software can be used freely. Many popular Open Source applications are being developed and upgraded regularly by individuals and companies that believe in the Open Source concept. 3.3 FUNCTIONS WISE SOFTWARE Computer productivity is determined by programs, which are step-by-step instructions telling the computer how to process data. Software can be divided into two groups, system and application. System software: The operation of a computer is controlled by system software. As you boot the computer, the system software is stored in the computer's memory, which instructs the computer to load, store, and execute an application. Examples of system software are Windows XP and Windows Vista, which use a graphical user interface (GUI) that provides visual clues (icons) to help the user. DOS, another disk operating system, is text based and not user friendly. Application Software: Professional programmers write a variety of application software to satisfy needs of the public who wants to perform specific tasks on their computers. The basic types of application software are word processing, database, spreadsheet, and desktop publishing. Presently a user can purchase an integrated program. This means that a single program performs all applications and allows data to be transferred from one application to another. Microsoft Office 2007, Works, and ClarisWorks are examples of integrated software. Each application includes a word processing, database and spreadsheet section of the software.

546 There are numerous other applications available. There are software programs that can be used by musicians to produce musical scores and play them on a synthesizer, programs that assist an architect in designing a building, programs that produce the special effects that you see in movies, and programs that allow e-mail or electronic mail. Word Processing - Word processing is the most commonly used software in schools, home, and business. A key advantage of word processing software is that users can make changes such as spelling, margins, additions, deletions, and movement of text. A beginning computer student should learn word processing, as it is the basis of most software. Once you have learned how a word processor functions, you will be able to learn other software quicker. Functions of a Full-featured Word Processor may be summarized as follows: • Text Editing: Text can be changed by deleting it, typing over it or by inserting additional text within it. • Word Wrap and Centering: Words that extend beyond the right margin are wrapped around to the next line. Text can be centered between left and right margins. • Search and Replace; Move and Copy: Any occurrence of text can be replaced with another block of text. You can mark a block of text and move it elsewhere in the document or copy it throughout the document. • Layout Settings: Margins, tabs, line spacing, indents, font changes, underlining, boldface and italics can be set and reset anywhere within the document. • Headers, Footers and Page Numbering: Headers and footers are common text printed on the top and bottom of every page. Headers, footers and page numbering can be set and reset anywhere within the document. Page numbering in optional Roman numerals or alphabetic letters is common. • Style Sheets: After designing a document, its format can be used again. Layout codes (margins, tabs, fonts, etc.) can be stored in a style sheet file and applied to a new document, • Mail Merge: Creates customized letters from a form letter and a list of names and addresses. The list can be created as a document or can be imported from popular database formats. • Math and Sorting: Columns of numbers can be summed and simple arithmetic expressions can be computed. Lines of text can be reordered into ascending (A-Z) or descending (Z-A) sequence. • Preview, Print and Group Print: A document can be previewed before it is printed to show any layout change that may not normally show on screen (page breaks, headers, footers, etc.). Documents can be printed

547 individually or as a group with page numbers consecutively numbered from the first to the last document. • Footnotes and Endnotes: Footnote entries can be made at any place in the document, and the footnotes printed at the end of a page or document. • Spelling Checker and Thesaurus: Spelling can be checked for an individual word, marked block of text or an entire document. When words are in doubt, possible corrections are suggested. Advanced systems can correct the misspellings automatically the next time. A thesaurus displays synonyms for the word at the current cursor location. • File Management: Documents can be copied, renamed and deleted, and directories, or folders, can be created and deleted from within the program. Advanced systems set up a purge list of names or glimpses of document contents in order to allow a user to easily rid the disk of unwanted files. • Windows: Allows two or more documents to be worked on at the same time. Text can be moved or copied from one document to the other. • Columns: Columns can be created in all word processors by tabbing to a tab stop. However, true column capability wraps words to the next line within each column. Columns are required for writing resumes with employer information on the left and work history on the right. Script writing also requires column capability. Magazine-style columns flow words from the bottom of one column to the top of the next. • Tables of Contents and Indexes: Tables of contents and indexes can be generated from entries typed throughout the document. • Desktop Publishing: Graphics can be merged into the text and either displayed on screen with the text or in a preview mode before printing. A graphic object can be resized (scaled), rotated and anchored so that it remains with a particular segment of text. Rules and borders can also be created within the text. Graphics vs. Text Based Graphics-based programs (Windows, Macintosh, etc.) show a close facsimile on screen of the typefaces that will be printed. Earlier text-based DOS programs always show the same type size on screen. Text-based word processors are fine for typing letters and documents with a simple format. They are also very responsive and good for creative writing. Some authors still use ancient DOS word processors because they are more flexible than many GUI-based products, and they run fine under Windows. Graphics-based systems are necessary for preparing newsletters and brochures that contain a variety of font styles and sizes.

548 ? Database Software - Database software allows us to store and manipulate large quantities of data using the computer. For example, a database can sort the names, addresses, grades and activities for all of the students in a school. It would be possible to add or delete data and produce printed reports using the database. ? Spreadsheet Software - Spreadsheets store numeric data that can be used in calculations. A spreadsheet is used to store teacher's grades and then calculate student averages. The primary advantage of a computerized spreadsheet is its ability to redo the calculations should the data it stores be changed. Calculations can be made automatically as formulas have been preset into the spreadsheet. ? Desktop Publishing - Desktop publishing applications allow the user to create newspapers, newsletters, brochures, and similar types of publications. It is similar to word processing except it allows the user to use text, graphics, pictures, lines, shapes, patterns, and borders. Desktop publishing requires more skill and computer knowledge of design and layout. 3.4 OPERATING SYSTEM Every general-purpose computer must have an operating system to run other programs. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers. Operating systems provide a software platform on top of which other programs, called application programs, can run. For large systems, the operating system has even greater responsibilities and powers. It makes sure those different programs and users running at the same time do not interfere with each other. The operating system is also responsible for security, ensuring that unauthorized users do not access the system. The operating system has six major functions: 1. User Interface: All graphics based today, the user interface includes the windows, menus and method of interaction between user and the computer. 2. Job Management: Job management controls the order and time in which programs are run and is more sophisticated in the mainframe environment where scheduling the daily work has always been routine. In a desktop environment, batch files can be written to perform a sequence of operations which can be scheduled to start at a given time. 3. Task Management: Multitasking, which is the ability to simultaneously execute multiple programs, is available in all operating systems today. In

549 the desktop world, multitasking is necessary just for keeping several applications open at the same time so user can bounce back and forth among them. 4. Data Management: Data management keeps track of the data on disk, tape and optical storage devices. The application program deals with data by file name and a particular location within the file. The operating system's file system knows where that data are physically stored (which sectors on disk) and interaction between the application and operating system is through the programming interface. Whenever an application needs to read or write data, it makes a call to the operating system. 5. Device Management: Device management controls peripheral devices by sending those commands in their own proprietary language. The software routine that knows how to deal with each device is called a "driver." The operating system contains all the drivers for the peripherals attached to the computer. When a new peripheral is added, that device's driver is installed into the operating system. 6. Security: Multi-user operating systems provide password protection to keep unauthorized users out of the system. Large operating systems also maintain activity logs and accounting of the user's time for billing purposes. They also provide backup and recovery routines for starting over in the event of a system failure.

3.4.1 Classification of Operating Systems

Operating systems may be classified by both how many tasks they can perform "simultaneously" and by how many users can be using the system 'simultaneously'. That is: single-user or multi-user and single-task or multitasking. A multi-user system must clearly be multi-tasking. The table below shows some examples.

OS	Users	Tasks	Processors
MS/PC DOS	S	S	S
Windows 3x	S	QM	1
Macintosh System 7.*	S	QM	1
Windows 9x	S	M*	1
UNIX/LINUX	M	M	n
NT	S/M	M	n
Windows 2000	M	M	n

3.4.2 Types of Operating Systems

Operating systems are divided into categories that define their characteristics. Modern systems may use combinations of those described below.

- BATCH** The earliest type, allowed only one program to run at a time. The program was entered into the computer, then run till completed. The data used by the program could not be modified whilst the program was running. Any errors in the program or data mean starting all over again.
- INTER-ACTIVE** These allow the modification and entry of data whilst the program is running. Typical systems are airline reservations and languages such as BASIC.
- TIME-SHARING** These share the computer system amongst more than one user, and employ pre-emptive scheduling techniques.
- MULTI-TASKING** More than one process may be executed at once. The processor is switched rapidly between the processes. A user may run more than one process at a time.
- REAL-TIME** Primarily used in process control, telecommunications, etc. The OS monitors various inputs which affect the execution of processes, changing the computers model of the environment, thus affecting the outputs, within a guaranteed time period (usually > 1 second).
- MULTI-PROCESSOR** A computer that has more than one processor dedicated to running processes.
- EMBEDDED** An embedded operating system means the operating system is self-contained in the device and resident in ROM. Typical systems that use embedded operating systems are household appliances, car management systems, traffic control systems and energy management systems.

3.4.3 Loading of an Operating System (Booting)

When user turn on the power to a computer, the first program that runs is usually a set of instructions kept in the computer's read-only memory (ROM). This code examines the system hardware to make sure everything is functioning properly. This power-on self test (POST) checks the CPU, memory, and basic input-output systems (BIOS) for errors and stores the result in a special memory location. Once the POST has successfully completed, the software loaded in

551 ROM (sometimes called the BIOS or firmware) will begin to activate the computer's disk drives. In most modern computers, when the computer activates the hard disk drive, it finds the first piece of the operating system: the bootstrap loader.

3.5 SINGLE USER OPERATING SYSTEM: MS-WINDOWS

Operating systems such as Windows 95, Windows NT Workstation and Windows 2000 professional are essentially single user operating systems. They provide the capability to perform tasks on the computer system such as writing programs and documents, printing and accessing files. In essence, a single-user operating system provides access to the computer system by a single user at a time. If another user needs access to the computer system, they must wait till the current user finishes what they are doing and leaves. The Windows operating system supports the following file systems, FAT The MS-DOS operating system introduced the File Allocation Table system of keeping track of file entries and free clusters. Filenames were restricted to eight characters with an addition three characters signifying the file type. The FAT tables were stored at the beginning of the storage space. FAT32 An updated version of the FAT system designed for Windows 98. It supports file compression and long filenames. NTFS Windows NT introduced the NT File System, designed to be more efficient at handling files than the FAT system. It spreads file tables throughout the disk, beginning at the center of the storage space. It

3.5.1 Window Fundamentals

In a graphical operating system, information is represented in graphical ways. Little symbols or pictures (called icons) are used to display programs or information. Information is displayed inside windows, each of which has similar properties. It is possible to have more than one window on the screen at one time, and windows may be cascaded (on top of one another) or tiled (all displayed at once and all visible).

552 In this picture, the windows have been cascaded. This makes each window appear on top of each other, one after the other. The front most window is considered to be the active window, ie, the window to which the users commands will be sent. In this picture, the images have been tiled. This makes all windows visible at the same time, but resizes the dimensions of each window so that they all fit on the available screen space at once. To cascade or tile all windows on the desktop area, right mouse click on an empty portion of the taskbar and select Cascade Windows or Tile Windows from the menu.

3.5.2 Window Properties

Each window has the same properties and behaves the same way. This provides a consistent interface to the user, as all commands are the same for each window and the operations that the user performs on each window are identical. In the diagram below, we see the basic window as presented by Windows 95 or Windows NT. Each property is listed on the diagram, and below is an explanation for each of the window components.

3.5.2.1 The Title Bar

This normally displays the name of the program associated with the window. If the background color of the title bar is blue, the window is active and any user commands will be processed by that window. You can also toggle between a maximized window size and the windows normal size by double clicking in the title bar area.

553 3.5.2.2 The Control Menu

Clicking on the Control Menu pops up a small Window of selectable options, which include the operations of Restore, Move, Size, Maximize, Minimize and Close the Window.

3.5.2.3 The Horizontal and Vertical Scroll Bars

When the amount of information displayed in the window exceeds the viewing space of the window, scroll bars are automatically to the side and bottom of the window. This allows the user to scroll the contents of the window in order to view the remaining information. Arrows are used to indicate the direction of scrolling on the scroll bar, and an indicator bar represents the relative position of the viewing area compared to the total size of the information. Clicking on the arrows associated with the scroll bar move the viewing window up or down one line, or across or back one character position. You can also click on the small indicator bar within the scroll bar and drag it with the mouse to quickly scroll the windows contents.

3.5.2.4 The Minimize Maximize Close Window Buttons

These buttons are located on the top right corner of each window. Clicking on them once performs the desired action associated with the button.

- The minimize button reduces the window and places it on the taskbar at the bottom of the window.
- The maximize button expands the window to fill the entire desktop screen area.
- The close button closes the window.

To minimize all windows on the desktop area, right mouse click on an empty portion of the taskbar and select Minimize all Windows from the menu.

3.5.2.5 Menu Bar

The menu bar presents a number of options that the program associated with the Window supports. On clicking an option on the menu bar will popup a submenu of choices that user can select from.

3.5.2.6 The Windows Borders

The windows borders show the dimensions of the

554 window. Any window can be resized, either made smaller or larger, by dragging the window border appropriately.

- To make the window taller or shorter: Move the mouse pointer to either the top or bottom window border, and when it changes to a resize arrow ??, then hold the left mouse button down and drag the window border to its new position, then let release the left mouse button.
- To make the window narrower or wider: Move the mouse pointer to either the left or right window border, and when it changes to a resize arrow ?, then hold the left mouse button down and drag the window border to its new position, then let release the left mouse button.

3.5.2.7 Moving a Window

A window can be repositioned on the desktop screen display area by moving the mouse cursor into the title bar area, then holding the left mouse button down and dragging the window to the new position, then releasing the left mouse button.

3.5.2.8 Switching between Windows

Switching between windows is possible by clicking on the programs icon on the taskbar or pressing ALT-TAB keys on the keyboard. When you press ALT-TAB, it will pop up a window of the available programs. Hold the ALT key down, and pressing the tab key will move the selection to the next window in the list. When the desired window is highlighted, release the ALT key and that window will become active. Clicking on the applications icon on the taskbar can also do switching to another application. The following picture shows the Windows taskbar, located at the bottom of the screen. This picture shows the ALT-TAB pop up window, which list the available programs the user can switch to.

3.5.3 Window objects and components

This section discusses window options such as buttons and dialog boxes.

3.5.3.1 Text Boxes

Text boxes allow you to enter text information. To enter text, first click inside ??????? ? ? ???? the text area using the mouse, and the cursor will change to a vertical flashing bar | showing you that text can now be entered. In this image, a text box allows the user to specify a file to find on that computer. The name of the text box entry field is called Named:

3.5.3.2 Radio Buttons

Radio buttons allow users to select one of a number of options from a selection. In the following image, a choice between Tiled and Centered is offered. A radio button is enabled when there is a black dot in its center. A radio button is disabled when it is empty. To enable a radio button, simply click once on it. To disable a radio button that is enabled, simply click once on it. It works like a toggle switch.

3.5.3.3 Check Boxes

Check boxes allow users to select one or more options from a selection. In the following image, the options Show window contents while dragging, Show icons using all possible colors and Stretch desktop wallpaper to fit the screen are all enabled. A check box is enabled when it has a tick in it, when a check box is empty, that option is not selected. To enable a check box, simply click once on it. To disable a check box that is enabled, simply click once on it. It works like a toggle switch.

3.5.3.4 Dialog Boxes

Dialog boxes allow you to make choices and enter data. They combine text boxes with radio buttons and check boxes. To close a dialog box, press the ESC key.

556 3.5.3.5 List Boxes List boxes present a number of choices. You select one by double-clicking on the item you want. Often the list of choices is in a scrollable window box. In this example, the Help dialog box of Windows lists a number of help topics that the user can double-click on to reveal the help associated with that item 3.5.3.6 Drop Down List Boxes To minimize the amount of screen space, list boxes can sometimes be arranged as a drop down list box. This displays a single item, but when the list box is clicked on, the range of items pops up in a secondary window. A drop down list box is shown below. In this example, it is part of the Dialog box associated with the Display Properties Notice the symbol at the end of the box. Clicking on this symbol reveals the list of options. 3.5.3.7 Tab Controls Tab controls allow a number of different dialog boxes associated with a device to be presented as a single combined control. For instance, if we looked at the screen display in Windows, there are so many things that can be changed, like screen saver, wall-paper, size and resolution, video display driver and so on. Putting all of these on a single dialog box is cumbersome and there is just not enough screen real estate. So, a number of dialog boxes are used, but they are combined using the tab control. It looks like multiple sections, and each tab has

557 a heading. Clicking on the tab item reveals the dialog box associated with that tab. In this example, the tab control for the Windows desktop properties is displayed. Note there are FOUR distinct dialog boxes; the current choice is Screen Saver. 3.5.3.8 Toolbars Toolbars appear on a number of windows and application programs. An example is the My Computer window. The toolbar is displayed underneath the Menu Bar Options of the window. An view looks like The toolbar consists of a number of icons (little pictures), each representing a command. As the mouse cursor is moved along each icon, a text description will pop up revealing the available control that is underneath the mouse cursor. Toolbars provide shortcuts to regularly used operations like cut and paste, close, and Help. 3.5 EXERCISES 1. What is computer software? Classify the software based different characteristics. 2. What is operating system? Discuss the functions of different types of operating system. 3. Discuss any one single user operating system.

558 UNIT 4 □□□□ DATA REPRESENTATION AND NUMBER SYSTEMS Structure 4.0 Objectives 4.1

Introduction 4.2 Set of Data Characters 4.3 Data Representation in Computer 4.4 Binary System 4.5 ASCII 4.6

Exercises 4.0 OBJECTIVES The objectives of the Unit are to: • Discuss the different modes of data representation • Discuss the different types of data • Discuss the basics of binary number system • Discuss the data representation in a computer system 4.1 INTRODUCTION In computer applications, data is frequently collected and recorded from documents to prepare information. Data coding means standard abbreviations or simplified representations of useful data. That is, the data to be fed into a computer has to be transformed to a form that the computer can understand. However, when the final results after processing are obtained, it is still in encoded form, which needs decoding for final output to be in such a manner that can be understood by any competent person. 4.2 SET OF DATA CHARACTERS Data is coded in natural language with a set of recognized character sets. A set of characters may consists of • Numeric characters: 0,1,2,3,4,5,6,7,8,9 • Alphabetic characters: A-Z and a-z • Special characters: +, -, /, * etc. The set of alphabetic and numeric characters combined are known as alphanumeric characters.

559 Data is broadly classified as: Numeric data (Integers/Real Numbers), Character data (Alphabetic/Alphanumeric data) and logical data. 4.3 DATA REPRESENTATION IN COMPUTER PCs are data processors. The PC's function is simple: to process data and the processing is done electronically inside the CPU and between the other components. On the basis of representation characteristics, data may be grouped as: • Analog data: Our daily data have many forms: sound, letters, numbers, and other characters (handwritten or printed), photos, graphics, film. All this data is in its nature analog. In this form, the data-signals are unusable in a PC. The PC can only process concise, simple data formats. • Digital data: The PC is an electric unit. Therefore, it can only deal with data, which are associated with electricity. That is accomplished using electric switches, which are either off or on. You can compare with regular household switches. If the switch is off, the PC reads numeral 0. If it is on, it is read as numeral one. We have seen that the PC appears capable of handling data, if it can receive them as 0s and 1s. This data format is called digital. If we can translate our daily data from their analog format to digital format, they will appear as chains of 0s and 1s, then the PC can handle them. So, we must be able to digitize our data. Pour text, sounds, and pictures into a funnel, from where they emerge as 0s and 1s: Your date Computer data 01110101011010101 10100101011010101 01010101011010101 01000101011010101 01101010101001100 00101011101100111 10101001010101010 4.4 BINARY SYSTEM The word "binary" describes a system that has only two possible digits. To understand this, let's first compare this to the Decimal system. The word "decimal" describes a system that has ten possible digits. These are the digits 0 through 9. Every number expressed in the decimal system is a combination of these ten digits. The binary system works essentially the same way, with the only difference that

560 it only has two digits (0 and 1). Every number expressed in the binary system is a combination of these two digits and read from right to left.

4.4.1 Binary Addition The following are the rules for binary addition: 1. $0+0=0$ 2. $0+1 = 1$ 3. $1+0=1$ 4. $1+1=10$ (ie, with carry-over of 1) Example: Add 110011_2 to 101101_2 Solution: 111_1 [carry over] 110011_2 101101_2 -----
----- 1100000_2

4.4.2 Subtraction The four rules of binary subtraction are as follows: 1. $0-0=0$ 2. $1-0=1$ 3. $1-1=0$ 4. $0-1=1$ Example Subtract $(0101)_2$ from $(1100)_2$ Solution: 2_2 Borrow 1100_2 0101_2 ----- 0111_2

4.4.3 Conversion from Decimal to Binary Successively divide the decimal number by two, until it is reduced to 0. When on division by 2, there is a remainder of 1; this becomes a binary digit 1. If there is no remainder, it becomes a binary 0. A. To convert the decimal number 19 to binary 1. $19/2=9$, remainder 1 2. $9/2=4$, remainder 1 3. $4/2=2$, remainder 0 4. $2/2=1$, remainder 0 5. $1/2=0$, remainder 1 So binary equivalent is 10011_2 [Write last remainder to first remainder from right to left] That is $(19)_{10} = (11001)_2$

561 4.4.4 Conversion from Binary to Decimal The decimal value of binary expression is equal to the sum of the decimal values of the binary digits. A. Convert the following numbers into their decimal equivalents 110110_2 1. $(110110)_2 = 1 \times 2^5 + 1 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 0 \times 2^0 = 32+16+0+4+2+0 = 52$

Needs of the Binary System Any electronic circuit can have only two possible states, on or off. A simple example is the light in our room. The switch has only two options, on or off. Another example of a binary system would be Morse code. It also works with only two digits, a dot or a dash. Anything expressed in Morse code is done with these two digits. Electronic circuits work the same way; they are either on or off. And every sequence of these two signals has a certain meaning. These two states of electronic signals or voltages in a digital computer. These two states may be compared with the two variables of the binary number system. High voltage (3v) in a computer may be considered as 1 and low voltage (0.5v) may be compared with 0. Every communication that takes place inside the computer uses this binary system. Bits vs. Byte In most computer systems, a byte is a unit of data that is eight binary digits long. A byte is the unit most computers use to represent a character such as a letter, number, or typographic symbol (for example, "gM", "5", or "?"). A byte can also hold a string of bits that need to be used in some larger unit for application purposes (for example, the stream of bits that constitute a visual image for a program that displays images or the string of bits that constitutes the machine code of a computer program). Binary Numbers Number of Bit 0 1 1 1 0101 4 01100111 8 The reason we have to group bits is that if you are being fed a continuous stream of bits you have no idea where one piece of information ends and the next one

562 starts. But if you receive groups of defined length, e.g. a byte containing 8 bits, it's easy to interpret them. A good example is how ASCII code (American Standard Code for Information Interchange) works. Any character, you type on your keyboard is interpreted by your computer as a byte (an 8 digit binary number).

4.5 ASCII ASCII specifies a correspondence between digital bit patterns and the glyphs (i.e., symbols) of a written language. This allows digital devices to communicate with each other and to process, store, and communicate character-oriented information. The ASCII character encoding or a compatible extension is used on nearly all common computers, especially personal computers and workstations. ASCII is, strictly, a seven-bit code, meaning it uses patterns of seven binary digits (a range of 0 to 127 decimal) to represent each character. The eighth bit was commonly used as a parity bit for error checking on communication lines or for other device-specific functions. Machines that did not use parity checking typically set the eighth bit to 0. Let us imagine a stream of bits sent from the keyboard to the computer. Let us look at a series of bits: 001100010011001000110011 Bits are combined into bytes (each 8 bits). These 24 bits are interpreted as three bytes. Let us read them as bytes: 00110001 , 00110010 , and 00110011 . When we convert these byte binary numbers to decimal numbers, you will see that they read as 49, 50, and 51 in decimal numbers. To interpret these numbers, we have to look at the ASCII table. You will find that you have typed the numbers 1,2, and 3. Limitations of 8-bit Character System Each character is 8 bits long and can store up to 256 values, of which some are control characters, some are letters, and some are punctuation, and so on. Of those 256 characters, first 128 are standardized by ANSI, meaning they are always exactly the same. The first 128 characters contain control characters (0-31), Indo- Arabic numbers, common punctuation, English alphabet in lower and upper cases, and some other stuff. The second 128 characters are not standardized and can mean different things depending on the codepage. However, a single 8-bit value is not enough for all languages. One solution is to use something called multi-byte character sets, where a character can take either one or two bytes. ASCII codes of selected symbols are given below:

563 0010_2 0011_2 0100_2 0101_2 0110_2 0111_2 0000_2 SP 0 @ P P 0001_2 ! 1 A Q a q 0010_2 " 2 B R b r 0011_2 # 3 C S c s Therefore A? 0100_2 0001_2

4.6 EXERCISES 1. Converts the following binary numbers into decimal systems a. 100111_2 , b. 110101_2 , c. 1010101_2 , d. 10001000_2 2. Converts the following decimals numbers in binary systems a. 564 b. 474 c.1025 d. 363 3. Write a note on ASCII 4. Explain the importance of binary system in data representation in computer.

Algebra 5.3 Logic Gates 5.4 Exercises 5.0 OBJECTIVES The objectives of the Unit are to: • Introduce the concept of Boolean algebra • Discuss the importance of logic gates • Explain different types of logic gates with help of truth table.

5.1 INTRODUCTION In Boolean algebra, all problems can be solved by reducing them into a string of two alternatives: yes/no, low/high or present/absent etc. One of the main functions of a computer is to carry out mathematical operations at a super fast speed. The speed can be achieved only with the help of electronic devices as their speed of operations is phenomenal. Any arithmetical problem can always be reduced to four basic operations: addition, subtraction, multiplication and division. And since computer has been extremely efficient in addition, the scientists had been attracted to simplify the rules further, i.e., to reduce all the above operations to "addition". Such additions are performed in computers with the help of electronic switching devices known as GATES. The mathematical operations are performed by logical operations of these gates which control the pulses. 5.2 BOOLEAN ALGEBRA Boolean algebra sometimes referred to as the algebra of logic, is a two-valued system of algebra that represents logical relationships and operations. English logician and mathematician George Boole, the first to apply these algebraic techniques to the logic process, contended that any statement could be assigned a binary value, such as "true/false" or "yes/no". In 1854 Boole wrote An Investigation of the Laws of Thought, in which he discussed ways of reducing logical relationships to simple statements of equality, inequality, inclusion, and

565 exclusion. Boole then showed ways to express these statements symbolically, using binary (two-valued) code, and created algebraic rules that governed these logical relationships. This relationship between mathematics and logic came to be known as Boolean algebra. Claude Shannon, a Massachusetts Institute of Technology graduate student, first observed in 1937 the connection between electronic circuits and Boolean algebra. During the mid-1940s Hungarian-American mathematician John von Neumann suggested using the binary system for storing computer programs. Thus, Boole's work, first interpreted by Shannon, provided one of the critical, pioneering ideas for the development of computer science, including modern computer processing and the design of computer circuitry. 5.3 GATES A logic gate is an elementary building block of a digital circuit. Most logic gates have two inputs and one output. At any given moment, every terminal is in one of the two binary conditions low (0) or high (1), represented by different voltage levels. The logic state of a terminal can, and generally does, change often, as the circuit processes data. In most logic gates, the low state is approximately zero volts (0 V), while the high state is approximately five volts positive (+5 V). There are seven basic logic gates: AND, OR, NOT, NAND, NOR, (E)XOR, and (E)XNOR. Boolean functions may be practically implemented by using electronic gates. The following points are important to understand. • Electronic gates require a power supply. • Gate INPUTS are driven by voltages having two nominal values, e.g. 0V and 5V representing logic 0 and logic 1 respectively. • The OUTPUT of a gate provides two nominal values of voltage only, e.g. 0V and 5V representing logic 0 and logic 1 respectively. In general, there is only one output to a logic gate except in some special cases. • There is always a time delay between an input being applied and the output responding. The basic operations of above gates are described below with the aid of truth tables.

AND gate 2 Input AND gate A B A.B 0 0 0 0 1 0 1 0 0 1 1 1

566 The AND gate is an electronic circuit that gives a high output (1) only if all its inputs are high. A dot (.) is used to show the AND operation i.e. A.B. Bear in mind that this dot is sometimes omitted i.e. AB OR gate 2 Input OR gate A B A+B 0 0 0 0 1 1 1 0 1 1 1 1 The OR gate is an electronic circuit that gives a high output (1) if one or more of its inputs are high. A plus (+) is used to show the OR operation. NOT gate NOT gate A A 0 1 1 0 The NOT gate is an electronic circuit that produces an inverted version of the input at its output. It is also known as an inverter. If the input variable is A; the inverted output is known as NOT A. This is also shown as A1, or A with a bar over the top, as shown at the outputs. NAND gate 2 Input NAND gate A B A.B 0 0 1 0 1 1 1 0 1 1 1 0 This is a NOT-AND gate which is equal to an AND gate followed by a NOT gate. The outputs of all NAND gates are high if any of the inputs are low. The symbol is an AND gate with a small circle on the output. The small circle represents inversion. NOR gate 2 Input NOR gate A B A+B 0 0 1 0 1 0 1 0 1 0 0 1 1 0

567 This is a NOT-OR gate which is equal to an OR gate followed by a NOT gate. The outputs of all NOR gates are low if any of the inputs are high. The symbol is an OR gate with a small circle on the output. The small circle represents inversion. EXOR gate 2 Input EXOR gate A B A B 0 0 0 0 1 1 0 1 1 1 0 The 'Exclusive-OR' gate is a circuit, which will give a high output if either, but not both, of its two inputs are high. An encircled plus sign (⊕) is used to show the EOR operation. EXNOR gate 2 Input EXNOR gate A B A B 0 0 1 0 1 0 1 0 0 1 1 1 The 'Exclusive-NOR1 gate circuit does the opposite to the EOR gate. It will give a low output if either, but not both, of its two inputs are high. The symbol is an EXOR gate with a small circle on the output. The small circle represents inversion. 5.4 EXERCISES 1. What is Boolean algebra? Discuss its importance in development of computer systems. 2. What is logic gate? Discuss the relationship between logic gate and Boolean algebra. 3. Explain any three logic gates with help of truth tables. ? ? ? ?

568 UNIT 6 □□□□ PROGRAMMING LANGUAGE AND FLOWCHART Structure 6.0 Objectives 6.1 Introduction 6.2 Programming Languages 6.3 Flowchart 6.4 Exercises 6.0 OBJECTIVES The objectives of the Unit are to: • Explain the concept of programming language • Examine the features of programming language • Discuss classification of programming languages • Present an overview of history of programming language • Trace stages of program translation • Introduce the concept of Algorithm 6.1 INTRODUCTION Programming Language is an artificial language used to write a sequence of instructions that can be run by a computer. Similar to natural languages, such as Bengali, programming languages have a vocabulary, grammar, and syntax. However, natural languages are not suited for programming computers because their vocabulary and grammatical structure may be interpreted in multiple ways. The languages used to program computers must have simple logical structures, and the rules for their grammar, spelling, and punctuation must be precise. 6.2 PROGRAMMING LANGUAGES A programming language or computer language is a standardized communication technique for expressing instructions to a computer. It is a set of syntactic and semantic rules used to define computer programs. A language enables a programmer to precisely specify what data a computer will act upon, how these data will be stored/transmitted, and precisely what actions to take under various circumstances. Module : 2 569 6.2.1 Features of programming language Programming languages use specific types of statements, or instructions, to provide functional structure to the program. A statement in a program is a basic sentence that expresses a simple idea —its purpose is to give the computer a basic instruction. Statements define the types of data allowed, how data are to be manipulated, and the ways that procedures and functions work. Each programming language can be thought of as a set of formal specifications concerning syntax, vocabulary, and meaning. These specifications usually include: • Data and Data Structures • Instruction and Control Flow • Reference Mechanisms and Re-use • Design Philosophy Most languages that are widely used, or have been used for a considerable period of time, have standardization bodies that meet regularly to create and publish formal definitions of the language, and discuss extending or supplementing the already extant definitions. 6.2.2 Compiled and interpreted languages Computer programs written in any language other than machine language must be either interpreted or compiled. An interpreter is software that examines a computer program one instruction at a time and calls on code to execute the operations required by that instruction (e.g., BASIC). This is a rather slow process. A compiler is software that translates a computer program as a whole into machine code that is saved for subsequent execution whenever desired (C/C ++). There is an intermediate approach, which is to compile code not into machine language but into an intermediate language that is close enough to machine language that it is efficient to interpret—though not so close that it is tied to the machine language of a particular computer. It is use of this approach that provides the Java language with its computer-platform independence. 6.2.3 Classification Programming languages can be classified as either low-level languages or high-level languages. Low-level programming languages, or machine languages, are the most basic type of programming languages and can be understood directly by a computer. Machine languages differ depending on the manufacturer and model of computer. High-level languages are programming languages that must first be translated into a machine language before they can be understood and processed by a computer. Examples of high-level languages are C, C ++ , PASCAL, 570 and FORTRAN. Assembly languages are intermediate languages that are very close to machine language and do not have the level of linguistic sophistication exhibited by other high-level languages, but must still be translated into machine language. 6.2.3.1 Machine Languages In machine languages, instructions are written as sequences of 1s and 0s, called bits, that a computer can understand directly. An instruction in machine language generally tells the computer four things: 1. Where to find one or two numbers or simple pieces of data in the main computer memory (Random Access Memory, or RAM) 2. A simple operation to perform, such as adding the two numbers together, 3. Where in the main memory to put the result of this simple operation, and 4. Where to find the next instruction to perform. While the computer in machine language eventually reads all executable programs, they are not all programmed in machine language. It is extremely difficult to program directly in machine language because the instructions are sequences of 1s and 0s. A typical instruction in a machine language might read 10010 1100 1011 and mean add the contents of storage register A to the contents of storage register B. 6.2.3.2 Assembly Language Computer programmers use assembly languages to make machine-language programs easier to write. In an assembly language, each statement corresponds roughly to one machine language instruction. An assembly language statement is composed with the aid of easy to remember commands. The command to add the contents of the storage register A to the contents of storage register B might be written ADD B,A in a typical assembly language statement. Assembly languages share certain features with machine languages. For instance, it is possible to manipulate specific bits in both assembly and machine languages. Programmers use assembly languages when it is important to minimize the time it takes to run a program, because the translation from assembly language to machine language is relatively simple. Assembly languages are also used when some part of the computer has to be controlled directly, such as individual dots on a monitor or the flow of individual characters to a printer. 6.2.3.3 High-Level Languages High-level languages are relatively sophisticated sets of statements utilizing words and syntax from human language. They are more similar to normal human

571 languages than assembly or machine languages and are therefore easier to use for writing complicated programs. These programming languages allow larger and more complicated programs to be developed faster. However, high-level languages must be translated into machine language by another program called a compiler before a computer can understand them. For this reason, programs written in a high-level language may take longer to execute and use up more memory than programs written in an assembly language.

6.2.3.4 Salient features of machine language, assembly language and high-level programming language. Machine Language Assembly Language High Level Language Machine code or machine The term Assembly Language High-level languages are language is a system of refers to the lowest-level relatively sophisticated sets of instructions and data directly human-readable method for statements utilizing words and executed by a computer's programming a particular syntax similar to human central processing unit. computer. language. Every CPU has its own unique Assembly Languages are High level languages are machine language. Programs platform specific, and machine independent. must be rewritten or recompiled, therefore there is a different therefore, to run on different Assembly Language types of computers. necessary for programming every different type of computer. Machine code is the lowest-level Assembly language code is A high-level language provides of abstraction for representing a the next level of abstraction a notation for an abstract computer program for representing a computer machine program Machine language consists of Assembly languages use Instructions are more similar to words written in binary code, mnemonic codes to refer to natural language and it is customary to represent machine code instructions. these codes in more compact Such a more readable manner either in base 8 (octal) rendition of the machine or base 16 (hexadecimal) language is called an assembly language and consists of both numbers and simple words B.

572 6.2.4 Program Translation Sequence In developing a software program to accomplish a particular task, the program developer chooses an appropriate language, develops the algorithm (a sequence of steps, which when carried out in the order prescribed, achieve the desired result), implements this algorithm in the chosen language (coding), then tests and debugs the final result. There is also a probable maintenance phase. When you write a program in a source language such as Pascal or C, the program statements (in the source text file) needs to be converted into the binary bit- patterns which make sense to the target processor (the processor on which the software will be run). This process of conversion is called translation. Source Text Module Object Assembler Module Source Text Module Object LINKER LOAD Relocating Assembler Module MODULE Loader Source Text Compiler Object Module Machine Code Instructions

6.2.4.1 Assemblers Assemblers are programs that generate machine code instructions from a source code program written in assembly language. The features provided by an assembler are, • Allows the programmer to use mnemonics when writing source code programs. • Variables are represented by symbolic names, not as memory locations • Symbolic code is easier to read and follow • Error checking is provided • Changes can be quickly and easily incorporated with a re-assembly • Programming aids are included for relocation and expression evaluation. The assembler does not normally generate executable code. An assembler produces an object code file that must be further processed (linked) in order to generate a file that can be executed directly.

6.2.4.2 Interpreter The source code program is run through a program called an interpreter. Each line of the program is sent to the interpreter that converts it into equivalent machine code instructions. These machine code instructions are then executed. The next source line is then fetched from memory, converted and executed. This process is repeated till the entire program has been executed.

573 Examples of interpreted languages are BASIC (Beginners All Purpose Symbolic Instruction Code) and Java. 6.2.4.3 Compiler Compilers accept source programs written in a high level language and produce object code programs that are then linked with standard libraries to produce an executable file. Compilers generate code that is reasonably fast, but is target specific (it only runs on a particular computer system). Once the program has been written using the appropriate source statements, it is then passed to a compiler that converts the entire program into object code. The object code cannot be run on the computer system, so the object code file is then sent to a linker that combines it with libraries (other object code) to create an executable program. Because the entire program is converted to machine code, it runs very quickly. 6.2.4.4 Linker The BASIC interpreter already has its own libraries for Input and Output (I/O), so BASIC programs don't need linking. The source program is converted directly into executable code. Compiled languages (as well as assembled) need both linking and loading. The output of compilers and assemblers are stored in an intermediate format called object code. This is stored as a file on disk. The object code must be combined with other object code files or libraries (special object code files) before execution. 6.2.4.5 Loaders It is normally the responsibility of the Operating System to load and execute files. The part of the operating system that performs this function is called a loader. There are two types of loaders, relocating and absolute. The absolute loader is the simplest and quickest of the two. The loader loads the file into memory at the location specified by the beginning portion (header) of the file, and then passes control to the program. If the memory space specified by the header is currently in use, execution cannot proceed, and the user must wait until the requested memory becomes free. The relocating loader will load the program anywhere in memory, altering the various addresses as required to ensure correct referencing. The decision as to where in memory the program is placed is done by the Operating System, not the programs header file. 6.2.4.6 Locator Program locators convert the output of the linker (the executable file) into an absolute load format file. This type of file will eventually reside in specific memory locations, and is used to embed software into EPROM chips.

574 6.2.4.7 Cross Reference Utility (CRef) These allow the programmer to generate a table that lists all symbols, labels, names, modules etc. Each occurrence is listed, and generally the source program is given line numbers to facilitate this process. The Cref utility should detect data variables and assign symbols to them, presenting a variety of formats (by name, module etc). The Cref table is useful in debugging, as the programmer can ascertain in which modules a particular variable is referenced. 6.2.4.8 Disassembler Disassemblers convert machine code instructions into mnemonic opcodes and operands, facilitating debugging at the machine code level. The more sophisticated disassemblers provide for • generation of symbols and labels • cross reference tools • disassembly of memory or disk files • output of disassembly to disk file • relocation information 6.2.4.9 Debuggers and Monitors A monitor is a small program that allows machine code access. A monitor provides, • manipulation of memory • manipulation of processor registers • simple trace, single step, go commands • breakpoints • maybe a disassembler and inline assembler • disk/tape i/o Debuggers provide much the same facilities as monitors, but generally provide a wider range of features, • provision for HLL source debugging • split screens, windowing • reference by symbols, module names and labels • radix changing • dynamic tracing of hardware interrupts • Operating System calls and stack tracing 6.2.4.10 Cross Assembler Cross assemblers allow a programmer to develop machine code programs on one computer system for another system (target). In this way, a programmer can develop a machine code program for a Macintosh computer system using an IBM-PC. The cross-assembler running on the PC generates the machine code instructions necessary for the Macintosh. 6.3 FLOWCHART A graphic representation of an algorithm, often used in the design phase of programming to work out the logical flow of a program. It is independent of any programming language. Flowcharts use special shapes to represent different types of actions or steps in a process. Lines and arrows show the sequence of the steps, and the relationships among them. The characteristics of flowcharts may be summarized as follows: • A language to specify the logic of algorithms • Flowcharts are not a programming language, rather it is an algorithm specification language • In an algorithm we specify the computation operations (arithmetic, logical, data input, data output) to be done, and their sequence. • Each type of computation operation is denoted by a special symbol in the flowchart language • Symbols are connected by arrows to represent the order of the operations (sequence) • Flowchart are useful during algorithm design • A flowchart can be relatively easily translated to a C++ program 6.3.1 Definition A flowchart (also spelled flow-chart and flow chart) is a schematic representation of a process. They are commonly used in business/economic presentations to help the audience visualize the content better, or to find flaws in the process. Information system flowcharts show how data flows from source documents through the computer to final distribution to users. Program flowcharts show the sequence of instructions in a single program or subroutine. Different symbols are used to draw each type of flowchart. 6.3.2 ADVANTAGES The benefits of flowcharts are as follows: • Communication: Flowcharts are better way of communicating the logic of a system to all concerned. • Effective analysis: With the help of flowchart, problem can be analyzed in more effective way. • Proper documentation: Program flowcharts serve as a good program documentation, which is needed for various purposes.

576 • Efficient Coding: The flowcharts act as a guide or blueprint during the systems analysis and program development phase. • Proper Debugging: The flowchart helps in debugging process. • Efficient Program Maintenance: The maintenance of operating program becomes easy with the help of flowchart. It helps the programmer to put efforts more efficiently on that part 6.3.3 LIMITATIONS • Complex logic: Sometimes, the program logic is quite complicated. In that case, flowchart becomes complex and clumsy. • Alterations and Modifications: If alterations are required the flowchart may require re-drawing completely. • Reproduction: As the flowchart symbols cannot be typed, reproduction of flowchart becomes a problem. • The essentials of what is done can easily be lost in the technical details of how it is done. 6.3.4 Types of Flowchart The pictorial representation of the programs or the algorithm is known as flowcharts. It is nothing but a diagrammatic representation of the various steps involved in designing a system. Flowcharts are of three types: • System flowcharts: System flowchart describes the data flow for a data processing system. It provides a logical diagram of how the system operates. It represents the flow of documents, the operations performed in data processing system. It also reflects the relationship between inputs, processing and outputs • Run flowcharts: Run flowcharts are used to represent the logical relationship of computer routines along with inputs, master files, transaction files and outputs. • Program flowcharts: A program flowchart represents, in detail, the various steps to be performed within the system for transforming the input into output. The various steps are logical/arithmetic operations, algorithms etc. It serves as the basis for discussions and communication between the system analysts and the programmers. Program flowcharts are quite helpful to programmers in organizing their programming efforts. These flowcharts constitute an important component of documentation for an application. 6.3.5 Guidelines for drawing a flowchart Flowcharting is a tool for analyzing processes. It allows you to break any process down into individual events or activities and to display these in shorthand form showing the logical relationships between them. Flowcharts are usually drawn

577 using some standard symbols; however, some special symbols can also be developed when required. Some standard symbols, which are frequently, required for flowcharting many computer programs are shown in the following table:

Symbols	Explanation
Start or end of the program	Use it to represent an event, which occurs automatically. Such an event will trigger a subsequent action, for example "receive telephone call", or describe a new state of affairs.
Data Input or output operation	Stored data
Off-page connector	Decision making and branching. Use it to represent a decision point in the process. Typically, the statement in the symbol will require a 'yes' or 'no' response and branch to different parts of the flowchart accordingly.
Manual input	Predefined process
Connector or joining of two parts of program	Use it to represent a point at which the flowchart connects with another process. The name or reference for the other process should appear within the symbol.
Sequential Access Storage (Magnetic Tape)	Magnetic Disk
Direct Access Storage	Flow lines
Display	

578 There are no hard and fast rules for constructing flowcharts, but there are guidelines, which are useful to bear in mind. The following are some guidelines in flowcharting: • In drawing a proper flowchart, all necessary requirements should be listed out in logical order. • The flowchart should be clear, neat and easy to follow. There should not be any room for ambiguity in understanding the flowchart. • The usual direction of the flow of a procedure or system is from left to right or top to bottom. • Only one flow line should come out from a process symbol. ? ? ? ? ? ? or ? • Only one flow line should enter a decision symbol, but two or three flow lines, one for each possible answer, should leave the decision symbol. • Only one flow line is used in conjunction with terminal symbol. ? ? • Write within standard symbols briefly. As necessary, you can use the annotation symbol to describe data or computational steps more clearly. ----- This is top secret data • If the flowchart becomes complex, it is better to use connector symbols to reduce the number of flow lines. Avoid the intersection of flow lines if you want to make it more effective and better way of communication. • Ensure that the flowchart has a logical start and finish. • It is useful to test the validity of the flowchart by passing through it with a simple test data.

579 6.4 EXERCISES 1. What is computer programming language? Discuss the different types of programming languages. 2. Discuss the concept of flowchart with an example. Enumerate the advantages and limitations of a flowchart. 3. Identify the different features of programming language and provide a guideline for flowcharting.

580 UNIT 7 □□□□ INTRODUCTION TO BASIC PROGRAMMING Structure 7.0 Objectives 7.1 Introduction 7.2

Downloading, installation and starting 7.3 Constants and Variables 7.4 Operators in BASIC/QBASIC 7.5 Selected

Commands/Functions 7.6 Exercises 7.0 OBJECTIVES: The objectives of the Unit are to introduce students to the

introductory commands and features of BASIC/QBASIC. 7.1 INTRODUCTION Professor J.G. Kemeny and Professor T.E.

Kurtz of Dartmouth College, USA invented Beginner's All-purpose Symbolic Instruction Code (BASIC) in 1964. Since then,

BASIC has undergone many modification and improvements, and now many versions of BASIC are available. In 1985

Microsoft released their version of BASIC called QBasic with their MS-DOS 5.0 operating system. Since then, nearly every

PC user owns their copy of QBasic, making it a widely known language. QBasic is a very simple language to pick up, and

yet it can accomplish a great deal. The best aspect of the language is its close resemblance to English. The important

features of BASIC irrespective of its versions can be summarized as follows: • Suitable for conversational programming •

Facility to manipulation of character strings • Dynamic program debugging • Ability to carry out arithmetic operations on

matrices • Provision for filing of programs and data • Simplified grammar • Less number of statements

581 7.2. DOWNLOADING, INSTALLATION & STARTING, CREATION OF QBASIC PROGRAM If your computer is running

any variety of a Microsoft operating system, it can run QBasic. Microsoft Windows ME, Windows 2000, and Windows XP

do not come with QBasic but it can be installed on these systems. To get a copy of QBasic from the web, go to

<http://www.fluid.tue.nl/student/colleques/NLS/software.html> (This link works as of 03 September 2007). Download both

the files QBASIC.EXE and QBASIC.HLP in a folder where from you want to run qbasic. Installation • On your desktop, click

on "Start" • Click on Run. Then in the Run dialog box type CMD and click on OK. • A DOS window (sometimes called a

command prompt window) starts up. • Change the default directory to the root directory of C • Make a new directory to

hold your programs. You only need to do this once. Call the directory QBASIC. Use the MD command [md qbasic] •

Change to qbasic folder • Copy QBASIC.EXE and QBASIC.HLP files here. • Start the QBasic system by typing qbasic. The

QBasic development window appears: • Hit ESCAPE (tap the Esc key) to clear the welcome message.

582 How to Create and Run a Program • You may have to left-click the mouse in the QBasic window to give it "focus".

The window has focus when the top bar of the window is light blue. To make selections from the menu, use the "Alt" key

followed by the first letter of the menu. Or you can use the arrow keys to change the menu selection. Hit enter to make a

selection. Hit Escape to undo a choice. Hit tab to move among choices in a dialog box.) • Enter you program by typing

on the keyboard. The characters should appear in the window. The example program is: PRINT "Hello" END If you type

"print" in lower case, the QBasic system will automatically change it to upper case. • Run the program by tapping the F5

key (on the top row of the keyboard). The program starts executing statements one by one starting with the first

statement. This program prints "Hello" to the screen: • Hit the Enter key (or any other) to return to the QBasic window A

QBasic program consists of lines of text, one after another, each line of a program stays by itself on one line. A line which

has an instruction for the computer is called a statement. Not all lines are statements. Some lines are blank. Others are

comments intended for a human reader, but not for the computer. Usually the computer runs a program starting with

the first statement and proceeding statement by statement until the end of the program is reached. Characteristics of the

BASIC program are: • Each line of the program is a single statement containing a keyword/ command (LET, PRINT etc.)

with some other expressions. • In QBASIC, line number is not essential. • If you use line number, a line number must be

an integral number (1 to 99999) • Line number should always be in ascending order. 7.3 CONSTANTS AND VARIABLES A

character denotes any letter, digit, punctuation mark, or any other sign used in the representation of information in any

language. BASIC/QBASIC, like other programming languages, has the following character set: 1. Alphabets: A to Z and a

to z 2. Numerals: 0-9

583 3. Special characters: minus (-), plus (+), multiplication (*), division (/) parenthesis [()], comma (,), semi colon (;), dollar

(\$), decimal point (.), greater than (>), less then (<) and quotation mark ("). 7.3.1 Constants Constants are those that

do not change while executing the program. QBASIC deals with two types of constants: 1. Numeric Constants: All

numbers belong to this category because their values remain constants. Examples: 95 -2.14 etc. 2. String Constants: It is

any set of valid BASIC characters enclosed in quotation marks. They are used to represent non-numeric information such

as name of a person and places, days of a week etc. Examples: "Kolkata", "Rabindranath Tagore" etc. 7.3.2 Variables A

variable, simply defined, is a name which can contain a value. Programming involves giving values to these names and

presenting them in some form to the user. A variable has a type which is defined by the kind of value it holds. If the

variable holds a number, it may be of integer, floating decimal, long integer, or imaginary. If the variable holds symbols or

text, it may be a character variable or a string variable. Type of a The number it can hold Example of a Example of a

variable number variable Integer A whole number, from- 5 a% 32,767 to 32,767 A whole number, from more Long Integer

than -2 billion to more than 92,345 a& 2 billion Single Precision A number with up to 6 digits 3.725 a! after the decimal

point. Double Precision A number with up to 15 3.1417583294 a# digits after the decimal point A variable is a small

amount of computer memory that has been given a name. Names for variables are single words that the programmer

picks. The names don't have to be real words, but it helps in understanding the program if they are. The name is:

584 • Up to 40 characters long • The first character must be A-Z, a-z, • The rest of the characters must be A-Z, a-z, 0-9, or "." • No spaces are allowed inside of a name. • You can't use a word that is already used for something else. (You can't use PRINT as a name for a variable.) • The last character of the name tells what type of data the memory holds: o SUM% holds an integer (no decimal point) o SUM& holds a potentially very big integer o SUM holds a floating point number (can have a decimal point) o SUM# holds a potentially very big floating point number o SUM\$ holds a string of characters • Different names mean different places in memory. • The last character is part of the name, (so SUM% and SUM are different variables.) • If two names differ only in upper and lower case characters, they are really the same name.

7.4 OPERATORS IN BASIC/QBASIC

In BASIC/QBASIC a set of special symbols called 'operators' are used to indicate the nature of operations to be performed on data. These symbols may connect a single variable or a single constant or a combination of variables and constants. The operators are classified as Arithmetic and Logical or Relational.

Arithmetic Operators: The five symbols or operators used for arithmetic operations in BASIC/QBASIC are:

Symbol	Operation	Example	Meaning
+	Addition	10+5=15	Add 10 and 5
-	Subtraction	10-5=5	Subtract 5 from 10
*	Multiplication	10*5=50	Multiply 10 by 5
/	Division	10/5=2	Divide 10 by 5
^	Exponentiation	10^2=100	10 to the power 2

Arithmetic operations are carried out in a definite order by computer. The sequence is as follows:

585 operator meaning priority

- 1 - negation
- 2 * multiply
- 3 / divide
- 3 + addition
- 4 - subtraction
1. Expression within parenthesis are solved first
2. Exponentiations are taken up next
3. Multiplications and Divisions follow
4. Additions and Subtractions are done last
5. If there a number of multiplications and divisions or additions and subtractions, the operations in either case are done from left to right.

Logical Operators: Logical or relational operators are those which are used for comparing two numerical quantities, and sometimes string quantities. The following symbols are used: = Equal to > < Not equal to < | Greater than > Less than < = Greater than or equal to > = Less than or equal to

Advanced operations:

Operator	What it does	Example	Result
\	divides and turns the result into an integer (the whole number)	7 \ 2	3
^	Raises a number to the power of	3 ^ 4	243
	another number (means: 3 * 3 * 3 * 3)	2.5 ^ 3	15.625
SQR	Calculates the square root of a number	SQR(9)	3
	because: 3 ^ 2 = 9	SQR(16)	4
	because: 4 ^ 2 = 16	SQR(5)	2.236

586 Divides two numbers, and if the result is not an integer (for example 2 MOD - 3.25), finds out how much to subtract from the first number in order to get the integer result. 17 MOD 5 (because: 17/5 = 3.4 subtract 3 from the first number in 17-2 = 15 order to get the integer result. 15/5 = 3)

7.5 SELECTED KEYWORDS/FUNCTIONS

7.5.1 REM

It is the short form of REMARK. This statement places remarks or comments in a program and provides information to those reading a program. Example: REM Program is written by Amitava Duttagupta

REM It helps you to calculate compound interest

7.5.2 LET

The statement LET A=4 is called an assignment or LET statement. It assigns the value to a variable. A single LET statement cannot define more than one variable. Examples: LET X\$="Satyen Bose" LET A= 100

7.5.3 PRINT

The PRINT statement is an instruction to display on the screen whatever is mentioned after the keyword PRINT. The computer acts on the PRINT statement after one types RUN to execute the program. Each PRINT statement prints on a separate line. Examples

```
Input Screen Output
PRINT "S. Dasgupta" S.
Dasgupta
PRINT "India" India
PRINT "Kolkata 700108" Kolkata 700108
RUN LET Y=10 5,10 LET Z=5 PRINT Z,Y RUN
```

587 PRINT command has many variations and each has its corresponding syntax. The items are separated by either semicolon (;) or comma (.). When commas are used in a PRINT statement, the data are spaced out at the time of display. The reason is that a computer divides the screen into several zones. If space in the current line is not sufficient to print all items, it will move automatically to the next line. If semicolons are used in a PRINT statement, the data are printed next to each other with no space left between them The PRINT statement can also be used to insert a blank space between two lines of printed text. When a statement comprises on the command PRINT and is not followed by anything, the output on the screen is blank line.

7.5.4 END

It is used to terminate a program. It is the last statement in a program and signifies that the program is completed.

7.5.5 INPUT

LET statement is used for supplying data to a program. The INPUT statement is similar, faster and convenient way to supply data to a program. It enables us to provide the data during the execution of a program. The following are the important features of the INPUT statement:

- The INPUT statement can request more than one value in single statements. Example: INPUT X, Y, Z.
- The INPUT statement enables us to reuse the same progrn for different values. When the program is run again, the new sets of values for the variables (X, Y, and Z) have to be inputted.
- The data or values supplied must be of the same type as the variables in the INPUT statement.
- An INPUT statement asking for two or more variables must have commas separating the variables. The values that are fed in response to the prompt (?) must also, in such cases, be separated by commas.
- When we use an INPUT statement in a program, it is good to include a message which tells the user what to enter. The syntax is PRINT "prompt"; variable.

588 Examples INPUT X, Y, Z 10, 15, 25 (User's response by keying in data) Program Computer's Response User's Response
INPUT NAMES, AGE, ADDRESS\$? Satish, 52 Kolkata PRINT NAMES, AGE, ADDRESS\$ Satish 52 Kolkata END RUN INPUT
"Enter your name"; NAME\$ Enter your name Satish PRINT NAME\$ Satish 7.5.6 READ...DATA If there is a large amount data to be processed, it is inconvenient to key in the entire data during the program execution through INPUT statement. In such a case READ statements are found useful. The READ statement is always used in conjunction with a DATA statement. They are used in the following form: READ[Variable1, Variable2,...] DATA[DATA1, DATA2...] Example REM ****
READ A, B, C READ X, Y, Z DATA 10, 15, 25, 27, 36, 49 END The program encounters the first READ statement with a list of variables A, B, C and the first three values (10, 15, 25) from the DATA statement are read into these variables in order and in one-to-one correspondence. That is, it lets A=10, B=15, and C=25. When the computer reads the second READ statement, it assigns X=27, Y=36 and Z=49 A data statement can be anywhere in the program but not after the END statement. However, all data statements are generally placed at the end of the program before END statement. The points to remember are: • Types of variables in READ statement and values in DATA statement should be of same type. • DATA can be in excess of the variables and there is no need that every item in a DATA statement be actually read.

589 • If the values in a DATA statement are less than the number of variables in READ statement, an execution time error will occur. • There can be more than one DATA statement to provide data to one READ statement. 7.5.7 IF...THEN It is a decision making statement and, depending upon the decision, it can change the order of execution of statements. It is always used in conjunction with a relational expression. It allows the computer to evaluate whether a specific relation is TRUE or FALSE and to perform the transfer of control to a particular statement if it is TRUE. Example: 10 INPUT A, B, C, D In this program after calculating the values of N and 20 LET N=A+B M, the value of M is checked to see whether it is 30 LET M=C-D equal to 0 or not. If it is 0, the control is transferred to 40 IF M = 0 THEN 10 10 thus avoiding a division by 0. When it is not equal 50 LET X=N/M to 0, the assignment statement at line number 50 is 60 PRINT X executed and after printing the value of X the control 70 GOTO 10 is again transferred to line number 10. 80 END 7.5.8 IF...THEN...ELSE In the simple IF...THEN statement, IF condition is true, THEN the action specified takes place. But IF the condition is false, the program proceeds to the next line. When IF...THEN is used with ELSE, an additional option is created. Example: 10 IF A=B THEN 20 ELSE 30 20 PRINT "All letters are equal"; GOTO 40 30 PRINT "Nothing seems equal" 40 END 7.5.9 FOR...NEXT When series instructions get repeated, a loop is said to be created. We can use the FOR...NEXT...STEP statements to simplify the formation of loops. Let us assume that we want print the word "Great" five times.
590 FOR I=1 TO 5 It will print the word Great five times, one time each in five PRINT "Great" lines. The variable I is the counter, which keep a count of NEXT I number of times the process has been repeated. The END expression 1 TO 5 tells us that the process is to be repeated five times, while value of I will be increase by 1 RUN [F5] in each STEP. Default step is 1, hence it can be dropped. After the 5th pass through the loop, the loop is broken and program execution moves on to the statement that follows the NEXT statement. You can increase or decrease the values of the control variable (here, it is I) by a desired number of steps each time. Examples: FOR I=1 to 100 STEP 5 FOR I=100 to 2 STEP -2 FOR I=A TO F STEP N In the third example, values of A, F and N have to be obtained either from an assignment statement or by inputting the values through an INPUT statement. 7.5.10 While...WEND WHILE...WEND statements in pair execute a series of statements in a loop as long as a given condition is true. The general form is: WHILE [condition]BASIC StatementsBASIC Statements WEND When the WHILE statement is encountered, the condition is evaluated. If condition is TRUE, the statements between the "WHILE and WEND" are executed; and the control is returned to back to the WHILE statement. The condition is again tested and if it is still TRUE, the process is get repeated. If it is not true, the execution returns to the statement immediately following WEND. This kind of loop processing is used when we don't know how many times the loop should be evaluated. Examples: LET N=100 WHILE N<= 10 PRINT N; " "; LET N= N-4.5 WEND END
591 Output 100 95.5 91 86.5 82 77.5 73 68.5 64 59.5 55 50.5 46 41.5 37 32.5 28 23.5 19 14.5 7.5.11 SWAP The SWAP statement exchanges the values of two variables. It takes the form: SWAP [U,V]. U and V are the names of two variables. They may be any type but both of them must be of the same type. Example N\$="New" M\$="York" PRINT N\$; " "; M\$ New York PRINT SWAP N\$, M\$ PRINT N\$, " "; M\$ York New END 7.5.12 DO...LOOP You can start with the statement DO, and end with the statement LOOP. You can LOOP UNTIL or WHILE, or DO UNTIL or WHILE a condition is true. Another option is to break out of the loop manually as soon as a condition is true. Example: CLS pi! = 3.1415 DO 'Begin the loop here INPUT "What is the radius of the circle? (-1 to end)", radius! IF radius! = -1 THEN EXIT DO area! = pi! * radius! ^ 2 PRINT "The area of the circle is ", area! PRINT LOOP 'End the loop here END Now we can end the program by entering -1 as the radius. The program checks the radius after the user inputs it and checks if it is -1. If it is, it exits the loop. If it isn't it just keeps going its merry way. The PRINT with no arguments prints a blank line so we can separate our answers.

592 7.5.13 INKEY\$ It reads a character from the keyboard. It returns a null string if there is no character to return. For standard keys, INKEY\$ returns a 1-byte string containing the character read. Example: PRINT "Press Esc to exit" DO LOOP UNTIL INKEY\$=CHR(27) 27 is the ASCII code for Esc. 7.5.14 LINE INPUT INPUT reads input from the keyboard or a file. LINE INPUT reads a line of up to 255 characters from the keyboard or a file. 7.5.15 TIMES Function It returns the computer's current system time. The TIMES statement sets the current system time on your computer. Examples: PRINT TIME\$ it outputs current system time TIME\$="09:55:54" it set current system time. 7.5.16 Space\$ Function it returns string of spaces. Example: PRINT SPACE\$(15) 7.6 WORKOUT EXAMPLES 1. Program to generate first five even number FOR I=1 to 10 STEP 2 PRINT I NEXT I END 2. Program to print the sum of first 10 natural numbers LET SUM=0 FOR I=1 TO 10 INPUT N LET SUM=SUM+N NEXT I PRINT SUM END 3. Program to generate (a) the n numbers from 1 to 5; (b) the products obtained

593 by multiplying each number successively by 2, 3 and 4. FOR K=1 TO 5 LET P= 2*K LET Q=3*K LET R=4*K PRINT K, P, Q, R NEXT K END 4. Program to print the odd numbers from 1 to 16 in the descending order. FOR I=15 0 1 STEP-2 PRINT I NEXT I END 5. Program to find average marks of students INPUT N LET S=0 FOR I=1 TO N INPUT MARKS LET S=S+MARKS NEXT I AVERAGE=S/N PRINT "number of students=", N PRINT "Average marks=", AVERAGE END 6. Program to inputs three numbers and outputs the square and cube of each number FOR I= 1 TO 3 INPUT "Enter the number"; N GOSUB sixty END sixty: REM It is a subroutine for calculating square and cube of a number. SQ= N * N CU= SQ * N PRINT N,SQ,CU RETURN [GOSUB sixty implies that program control should transfer to the portion of the program starting with label "sixty"] 7. Program to find the largest of three numbers and square and cube of that number.

594 INPUT X, Y, Z IF X = Y AND Y = Z AND X = Z THEN GOTO sixty GOSUB seventy GOSUB twenty PRINT N,SQ, CU sixty: END seventy: REM subroutine to finds square and cube of a number IF X < Y AND X < Z THEN N = X ELSE GOTO a100 GOTO a110 a100: IF Y < X AND Y < Z THEN N = Y ELSE N = Z a110: RETURN twenty: REM subroutine finds square and cube SQ = N * N CU = SQ * N RETURN 8. Searches a list of people's ages and prints out those above 50. ten: READ A IF A < 50 THEN forty GOTO ten forty: PRINT A GOTO ten DATA 25, 39, 55,99,27,49,51 END 9. Program to find the largest of six numbers REM "To print the largest number" READN LET L=N FOR 1=1 TO 5 READ N IF N<L THEN L=N NEXT I PRINT "Largest number is "; L DATA 254, 568, 124, 45, 254, 548

595 10. Program to determine eligibility to vote INPUT "Enter your age "; AGE INPUT "Enter your nationality "; NAT\$ IF AGE < 18 AND NAT\$="INDIAN" THEN forty ELSE fifty forty: PRINT "You can vote" GOTO sixty fifty: PRINT "You cannot vote" sixty: END 7.6 EXERCISES 1. Explain the various functions of the QBASIC statements 2. Explain with examples any five QBASIC keywords/commands. 3. Write a program which could do the following operations 1. To read 20 positive real numbers 2. To find the largest number among them, and 3. To print out the largest value with a appropriate label. 4. AN organization wants to know how many of its employees are getting a basic pay of Rs. 5000.00 per month. Write a program to list the names of those employees whose basic pay is less than Rs5000.00. Given: Rao 5000.00, Tripathi 4512.00, John 8954.00 Aziz 6521.00 and Soren 8741.00

596 UNIT 8 □□□□□ INTRODUCTION TO MS-WORD XP Structure 8.0 Objectives 8.1

Introduction 8.2 Important Concepts 8.3 Creating Documents 8.4 Toolbar and Rulers 8.5 Status Bar and Task Pane 8.6 Page Setup 8.7 Formatting Document 8.8 Spelling and Grammar Checking 8.9 Saving and Opening Document 8.10 Printing 8.11 Mail Merge 8.12

Exercises 8.0 OBJECTIVES The objectives of the Unit are to introduce students to the introductory commands and features of Microsoft Word. • Create a new document • Use toolbars • Apply formatting commands • Rearrange text • Use the spell checking function • Insert and manipulate tabs • Save, open, and print a document 8.1 INTRODUCTION Microsoft Word XP is a word processing program that can be used to create various types of documents from letters and memos to calendars and lists. Documents can be created, saved, and edited at the desire of the creator from a blank document or via one of the many Wizards included with Word. 8.2 IMPORTANT CONCEPTS The following table presents a list of important terms along with short explanations for easy understanding of the later part of the Unit. Module : 3

597 Term Description Insertion Point The insertion point is the point where the next characters typed from the keyboard will appear on the display screen. A blinking vertical line usually represents the insertion point. You can reposition the insertion point by pressing the arrow keys or by moving the I-beam pointer. Backspace Remove characters to the LEFT of the insertion point. Delete Remove characters to the RIGHT of the insertion point. Tab A key on computer keyboards that inserts a tab character or moves the insertion point to the next tab stop. Some applications respond to the tab key by inserting spaces up to the next tab stop. This is often called a soft tab, whereas a real tab character is called a hard tab. Menu Bar A horizontal menu that appears on top of a window. Usually, each option in a menu bar is associated with a pull-down menu Task Pane The task pane is an alternative to the dialog boxes that provides commonly used commands and controls for choosing options. Formatting Styles A style is a set of formatting characteristics that you can apply to text, tables, and lists in your document to quickly change their appearance. When you apply a style, you apply a whole group of formats in one simple task. Header & Footer Headers and footers are areas in the top and bottom margins of each document page. You can insert text or graphics in headers and footers. Hanging Indents Paragraph formatting in which the second and subsequent lines of a paragraph are indented more than the first line. Common uses for the hanging indent are bulleted and numbered lists Auto Correct The AutoCorrect Options button appears as a small, blue Options box when you rest the mouse pointer near text that was automatically corrected, and changes to a button icon when you point to it. If you find on occasion that you don't want text to be corrected, you can undo a correction or turn AutoCorrect options on or off by clicking the button and making a selection. Paste Options The Paste Options button appears just below your pasted selection after you paste text. When you click the button, a list appears that lets you determine how the information is pasted into your document.

598 8.3 CREATING A DOCUMENT When you start Microsoft Word, a new, blank document appears on the Word screen and the Standard and Formatting toolbars are displayed just below the menu bar. Initially, these toolbars are set to what are referred to as 'default' settings. When you open Word, you will see a blank page. This blank page is entitled, 'Document*!'. With no other preparation, you can start typing immediately. What you type appears with all the 'default' settings. You can easily change the settings, as you'd like. To create another new document at any time, click the New button on the standard toolbar. 8.4 TOOLBAR & RULERS Toolbar You can use these toolbars to set your font styles and sizes, start a new document, print, cut, copy, paste, change the justification, and many other things. You can display or hide toolbars as you work. To do this, click the toolbar by using the right mouse button (Windows). If no toolbars are displayed, click the View menu, choose Toolbars and then select the desired toolbar from the list. By selecting Customize... at the bottom of the list, you can choose to enlarge the toolbar buttons, add color to some of the buttons, and hide ToolTips. If you use large toolbar buttons, you may need to resize the toolbars to see all of the buttons. Rulers You can use the horizontal ruler to set tab stops and indents for selected paragraphs. To display or hide the rulers, click the View menu and select Ruler. The horizontal ruler is always displayed at the top of the document window. The vertical ruler is displayed only in page layout view or in print preview. The indent markers and tab stops on the horizontal ruler reflect the settings for the paragraph that contains the insertion point. 8.5 STATUS BAR AND TASK PANE Status Bar The status bar at the bottom of the Word window provides information about

599 the active document or the task you are working on. The status bar displays a brief description of the currently selected command or toolbar button. The status bar also displays information about the text visible on the screen and whether certain working modes (e.g. overtype) are active. The status bar also provides shortcuts to a number of useful features. • To open the Find and Replace dialog box, double-click any location indicator on the status bar, such as the page number or section number. • To turn the macro recorder on or off, double-click REC. • To turn the Track Changes feature on or off, double-click TRK. • To turn extend selection mode on or off, double-click EXT. • To turn overtype mode on or off, double-click OVR. • To change the language format of selected text, double-click Language. • To resolve errors in grammar or spelling, double-click the Spelling and Grammar Status icon. Task Pane The task pane is an alternative to the dialog boxes. You can dock the pane on the right or left hand side of the window or float it on the screen. It displays commands and controls for choosing options. The blue text is a link that is a command. To turn the task pane on/off, click the View menu and select Task Pane. The task pane has different panes. You can switch to another pane by clicking the black arrow in the upper right hand corner of the pane and then choosing another pane. The back and forward arrows can be used to move between panes you have recently displayed. 8.6 PAGE SETUP It's often easiest to set the paper size and page orientation (portrait or landscape) before you begin a document. But you can easily change these and other settings at any time. You can also use the same options throughout a document, or you can divide a document into sections and set different options

600 for each section. To change the paper orientation, click the File menu and select Page Setup; the Margins tab is the default. Select either portrait or landscape under the orientation section. Margins determine the distance between the text and the edge of the paper. Type or select desired margin measurements and specify the part of the document the settings will apply to. If you plan to print on both sides of the page and the margins will be different on the left and right, select the Mirror margins under the multiple pages field option so that the margins on facing pages mirror each other. When all settings are chosen, click OK. You can divide a document into any number of sections and format each section the way you want. To create a new section, click the Insert menu and select Break. The Break dialog box appears allowing you to specify the type and section of break. In normal view, Word displays a double dotted line to indicate a section break. The line is non-printable. All section formatting, such as page orientation and the margins, is stored in the section break. When you delete a section break, you delete the section formatting for the section that precedes the section break. The text becomes part of the section that follows, taking on the formatting of that section. 8.7

FORMATTING DOCUMENT Selecting Text Before you can move, format, delete, or otherwise change text you must select the item. You select using the mouse or keyboard; selected text is highlighted. When using the mouse to select, simply move the pointer to the beginning of the desired text to be selected, click and hold down the left mouse button, and then move the mouse until all the desired text is highlighted releasing the button when you reach the end. To cancel the selection, click outside the selection, or use the arrow keys to move the insertion point. Select Nonconsecutive Items You can select a word in the first paragraph, and a word in the fifth paragraph, but not all the words in between. This is helpful if you want to perform the same task on multiple items, such as delete them or change their formatting. 1. Select the first item you want, such as a word or paragraph. 2. Hold down CTRL. 3. Select any additional items you want.

601 Copying and Pasting Sometimes in a document, you may want to duplicate a piece of information or move a paragraph to another location. To copy text, highlight the text you want to copy. Click the Copy button on the Standard toolbar. Click the cursor on the location where you want the text inserted. Then use the Paste button to insert the text in that location. If you want to move the text, you can follow the same procedure, but use the Cut button from the Standard toolbar. Correcting and Deleting To correct simple typing mistakes, press either the [BACKSPACE] or the [DELETE] key. Depending on your computer, the key will delete either the text preceding or following the insertion point respectively. To delete more than a few characters, it's faster to select the text you want to delete and then press either the [BACKSPACE] or the [DELETE] key. Undoing Mistakes If you make a mistake in Word, you can "undo" the action or command. For example, if you accidentally delete a word, you can bring it back again by pressing the Undo button or clicking the Edit menu and selecting Undo. If you decide to go through with the action after all, you can press the Redo button or click the Edit menu and select Redo. There are certain actions you can't undo, such as saving or printing a document. Formatting Documents To change the appearance of text, select the text and then apply the formats you want. To change common formats quickly, use the Formatting toolbar or click the Format menu and select Font.... To change the style of a word from a normal type style, highlight the word(s) you want to change and select the Bold button B, Italic button I, and/or Underline button U. You can apply other character formats, such as hidden text, superscript, and subscript by clicking the Format menu and selecting Font.... Word is preset to align text flush with the left margin, leaving a ragged right edge. Text alignment can be set by using the alignment buttons on the Formatting toolbar or by clicking the Format menu and selecting Paragraph.... Headers and Footers Every Word document contains headers and footers, areas in which you can put a document or chapter title, author name, page number, graphics, watermarks, and any other essentials that you want to repeat over several (or all) pages in the document. However, you can create customized headers and footers that are different for the first page, have different text for different chapters in a book, 602 and contain different numbering styles for different sections of your document (i, ii, iii, or 1, 2, 3). To get into the headers and footers of a document, click the View menu and select Header and Footer. The body of your document turns gray, and dashed boxes labeled "Header" and "Footer" appears at the top and bottom of each page, along with a Header and Footer toolbar. The Header and Footer toolbar has many options that are described below: Page Number Inserts page numbers that automatically update when you add or delete page Insert Number of Pages Prints the total number of pages in the active document by inserting a NUMPAGES field at the insertion point. To print page numbers in the style "Page 25 of 125," type the word "Page", click where you want to insert the current page number, type the word "of", and then click where you want to insert total number of pages. Format Page Number Formats the page numbers in the current section Date (Header and Footer toolbar) Inserts a date field that automatically updates so that the current date is displayed when you open or print the file. Time (Header and Footer toolbar) Inserts a time field that automatically updates so that the current time is displayed when you open or print the file. Page Setup (File menu) Sets margins, paper source, paper size, page orientation, and other layout options for the active file. Show/Hide Document Text Displays or hides the document text while you work in the header or footer area. Switch Between Header and Footer Moves the insertion point between the areas in which you create or change headers and footers.

603 Different First Page Header/Footer In many documents, the first page is the title page. Therefore, it's often redundant (and repetitious, too) to have the header and footer information appear on a title page. 1. To choose a different header/footer for the first page, click the View menu and select Header and Footer. 2. On the Header and Footer toolbar, click the Page Setup button. The Page Setup dialog box appears. 3. Click the Layout tab, and then check Different first page. Click OK. 4. The header and footer on the first page are labeled "First Page Header" and "First Page Footer." Add any content you like to the header and footer for the first page, and then scroll down to another page to add content to the header and footer for the rest of the pages. Indent Paragraphs To change the indentation of text, do one of the following: Create a first-line indent 1. Select the paragraph you want to indent. 2. If you don't see the horizontal ruler, click Ruler on the View menu. 3. On the horizontal ruler, drag the First Line Indent marker to the position where you want the text to start. Increase or decrease the left indent of a paragraph 1. Select the paragraph you want to change. 2. On the Formatting toolbar, click Increase Indent or Decrease Indent . 3. The paragraph indent is increased or decreased by one tab stop each time the icon is selected. If you want to change the position of the indent, you can first set a different tab stop. Change the right indent of a paragraph 1. Select the paragraph you want to change. 2. If you don't see the horizontal ruler, click Ruler on the View menu. 3. On the horizontal ruler, drag the Right Indent marker to the position where you want the text to end.

604 Create a hanging indent 1. Select the paragraph in which you want to create a hanging indent. 2. If you don't see the horizontal ruler, click Ruler on the View menu. 3. On the horizontal ruler, drag the Hanging Indent marker to the position at which you want the indent to start. Formatting text by using styles A style is a set of formatting characteristics that you can apply to text, tables, and lists in your document to quickly change their appearance. When you apply a style, you apply a whole group of formats in one simple task. For example, instead of taking three separate steps to format your title as 26 pt, Arial, and right-aligned, you can achieve the same result in one step by applying the Title style. The following are the types of styles you can create and apply: • A paragraph style controls all aspects of a paragraph's appearance, such as text alignment, tab stops, line spacing, and borders, and can include character formatting. • A character style affects selected text within a paragraph, such as the font and size of text, and bold and italic formats. • A table style provides a consistent look to borders, shading, alignment and fonts in tables. • A list style applies similar alignment, numbering or bullet characters, and fonts to lists. You can create, view, and reapply styles from the Styles and Formatting task pane. Direct formatting that you apply is also stored in this pane, so that you can quickly reapply it. You can also have Microsoft Word modify a style automatically, meaning that Word detects when you alter the formatting of text containing a style, and then automatically updates the style. When Word automatically updates the style, all text formatted with that style is updated to match the formatting of the text you just changed. Creating a new style 1. If the Styles and Formatting task pane is not open, click the Format menu and select Styles

605 and Formatting. The Styles task pane appears on the right-side of the window. 2. In the Styles and Formatting task pane, click New Style. 3. In the Name box, type a name for the style. 4. Do one of the following: a. In the Style type box, click Character. b. In the Style type box, click Paragraph. c. In the Style type box, click Table. d. In the Style type box, click List. 5. Select the option that you want, or click Format to see more options. Reveal and Adjust Text Formatting The Styles and Formatting task pane can provide you with formatting information about your document. You can also use it to modify or clear the formatting; compare the formatting of different selections, or to find blocks of text with similar formatting. • To access this task pane, click the Format menu and select Styles and Formatting. • When Available formatting is selected in the Show box in this task pane, you can see the formatting used in your document, including styles you've created and default heading styles. You can also show all styles in the task pane, or define a custom view. To make adjustments to the formatting in your Word document: • Click on the Format menu and select Reveal Formatting. • Select the text whose formatting you want to review. The formatting information appears in the Reveal Formatting task pane. Setting Tabs Tab stops are preset at 0.5-inch intervals from the left margins. To move the insertion point to the next tab stop in the current paragraph, press [TAB]. When setting or changing tab stops, make sure that you select all paragraphs that should be affected by the change. If you want tab stop settings to be the same for several paragraphs, you can save time by setting the tab stops before you start typing. When you press [ENTER]

606 or [RETURN] to start a new paragraph, Word carries the paragraph formatting, including the tab settings, to the next paragraph. To set precise measurements for tab stops, click the Format menu and select Tabs.... The Tabs dialog box appears. In the Tab Stop Position: field, type the position for a new tab. Under the Alignment section, select the alignment for text typed at the tab stop. Under the Leader section, select the leader leaders as you like. After all tabs are set, click OK. The ruler can also be used to set tabs. To add a new tab, click once on the ruler where you want the new tab setting to be. Setting tabs will eliminate all the default tabs to that point. You can move an existing tab by clicking and holding on the tab symbol while dragging it to the new location. A tab can be removed by dragging it off the ruler. Viewing Multiple Pages in Word It is great if we can see several pages at a time in print preview Here's how: 1. On the File menu, click Print Preview. 2. Right-click the toolbar and click Standard. The Standard toolbar appears. 3. Right-click the toolbar again and click Customize..., The Customize dialog box appears. 4. Holding down the CTRL key, drag a copy of the Multiple Pages button from the Print Preview toolbar to the Standard toolbar. 5. Click Close to close the Customize dialog box. 6. Click Close to close Print Preview. Now the Multiple Pages button appears on the Standard toolbar in print layout view. Just click it, and select how many pages you want to view.

8.8 SPELLING AND GRAMMAR CHECKING

Once you've typed your document, you may want to check the spelling. To start the spell check process, press the Spelling and Grammar button or click the Tools menu and select Spelling and Grammar Pressing [F7] will also start the process. Microsoft Word checks for spelling errors by using its main dictionary, which contains the most common words. When a misspelled word or a word is found that isn't Spelling and Grammar: EngUih (U.S.) Click on the AuteRecoverfmwry field and then specify a time for how often you'd like in the spelling dictionary, the dialog box will list the misspelling and suggested 607 corrections. Click on the correct word in the list and click Change to accept the correctly spelled word. If the word is spelled correctly, you can click Ignore and the spell check continues. Word also checks the grammar of the document as it checks the spelling. As with spelling errors, suggestions are provided for different sentence wording or corrections for sentences Word thinks are grammatically incorrect. While typing a document, misspelled words will be underlined in red and grammatical errors will be underlined in green. To turn the spelling and/or grammar functions off, click the Tools menu and select Options. Click the Spelling & Grammar tab and uncheck Check spelling as you type and/or Check grammar as you type.

Word Count Toolbar

If you need to know how many words are in your document, Microsoft Word can count them for you. Word can also tell you how many pages, paragraphs, and lines are in your document, as well as the number of characters, either including or not including spaces. To view the Word Count Toolbar, click on the View menu, point at Toolbars, and select Word Count. It appears as a floating toolbar, which you can anchor if you want. As you add or delete content, click Recount to update the count.

8.9 Saving Documents and Opening Document

Saving Document

To save a document, click the Save button on the Standard toolbar or click the File menu and select Save. If this is the first time you've saved the document, the Save As dialog box appears. From the Save in: field, select the drive, directory, or folder where you want to save the file. Type a name for the document in the File name: field. Click Save. For subsequent saves, click the File menu and select Save, The file is saved automatically to the location you selected previously. When you save a document, it remains open on your screen so that you can continue working. To close a document when you're finished with it, click the File menu and select Close. If you have a document that you've already saved, but want to 608 save it under a different name or in a different format, click the File menu and select Save As. This allows you to choose a new name, directory, or format to save the document as.

Opening Documents

Word keeps track of the documents you've worked on most recently. You can quickly open one of these documents by choosing it from the list at the bottom of the File menu. As many as nine documents can be listed at the bottom of the file menu. To change the number of documents in this list, click the Tools menu and select Options...; then select the General tab. Type the number of documents you want to list in the Recently used file list field.

8.10 PRINTING

To print a document, click the File menu and select Print.... The Print dialog box appears. You can select the number of copies and how many pages of the document you want to print. At the top of the box it will tell you which printer you are printing to. Once you have specified all the information, click OK. Printing Envelopes If you've just typed a letter, chances are you'll want to address an envelope. Click the Tools menu, then point at Letters and Mailings, and select Envelopes and Labels... If the address is selected in your document or if Word can guess the address block, the address is printed in the Delivery Address: field. If there's nothing there or if it's incorrect, type in the correct address. The Return Address: field is the registration address for the version of Word that you're using. This can be changed if necessary. The Preview field shows how the printed envelope will look. The Feed field indicates how the envelope should be fed into the printer's manual feed tray. If this feed does not work, another feed option can be selected. Click Print when ready.

8.11 MAIL MERGE

Mail merge is a software function describing the production of multiple documents from a single template form (a word processing document) and a structured data source. This technique is typically used to create personalized

609 letters and pre-addressed envelopes or mailing labels for mass mailings. The procedure of mail merging is typically carried out using a word processing program. The template is a word processing document which contains fixed text, which will be the same in each output document, and variables, which act as placeholders that are replaced by text from the data source. The data source is typically a spreadsheet or a database which has a field or column matching each variable in the template. When the mail merge is run, the word processing system creates an output document for each row in the database, using the fixed text exactly as it appears in the template. The steps involved are: Step 1: Select Document Type Step 2: Starting Document Step 3: Select Recipients Step 4: Write your letter Step 5: Preview your letter Step 6: Complete the merge Step 1: Select Document Type The document may be letter, email message or envelopes etc. On the Tools menu, click Letters and Mailings, and then click Mail Merge Wizard. The Mail Merge task pane appears. 1. Under Select document type, click Letters, and then click Next: Starting Document. Step 2: Starting Document 1. Under Select starting document, click Use the current document Step 3: Select Recipients 1. Under Select recipients, Click Type a new list. Click on Create 2. Begin typing your list in boxes provided such as Title, First Name, LastName,.... 3. Click on the New button to add more entries. 4. Once done» Click on Close button 5. It will force you to save your database » save it where you can remember the path with no space in the name. 6. Then from the Mail Merge Task bar on the right choose the options to use the existing list. 7. Then click on the "Write your letter" step of the wizard. 610 Step 4: Write your letter 1. If you have not already done so, write your letter now. To add recipient information to your letter, click a location in the document, and then click one of the items below: a. Address Block b. Greeting Line c. Electronic Postage d. Postal barcode e. More items 2. When you have finished writing your letter, Click Next. Then you can preview and personalized each recipient's letter Step 5: Preview your letter 1 One of the merged letters is previewed here. To preview another letter, click one of the following 2. You can also change the recipient list 3. When you have finished previewing your letter, click Next. Then you can print the merged letters or edit individual letters to add personal comments. Step 6: Complete the merge 1. Mail merge is ready to produce your letters 8.12 EXERCISES A. Short questions 1. When saving, click ___ to keep a previously named version of a document. 2. Give three examples of character format. 3. To open new document, click ___ icon or use ___ from the file menu. 4. To move text to another location, click ___ icon or use ___ from the edit menu. 5. o open an existing file, click the ___ icon or use the ___ from the file menu. 6. Click _ _ to clear the screen of a document so you can continue working on another document. 7. To copy text to a new location, one must follow four important steps. List them. 8. ___ symbol in the document shows the user the location of the mouse.

611 9. Clicking the mouse changes the location of the _____ which blinks to show the location of the next character to be typed. 10. Default tabs are set at every _____. 11. Default margin measurements are set at ____ (top), (bottom), ____ (left and right). 12. Default alignment is _____. 13. To save a file you must indicate the location you wish to save it. If you save it to a floppy, you would designate the ___ drive. If you save it to the hard drive, you would designate the ___ drive.

612 UNIT 9 □□□□ INTRODUCTION TO CDS/ISIS Structure 9.0 Objectives 9.1 Introduction 9.2 System Functions 9.3 Hardware Requirements 9.4 CDS/ISIS Product Family 9.5 Characteristics of CDS/ISIS 9.6 Limitations 9.7 Database Structure 9.8 General database creation guidelines 9.9 Database creation 9.10 Backup/Restoration 9.11 Import/Export of records 9.12 Exercises 9.0 OBJECTIVES The objectives of the Unit are to present a brief overview of bibliographic database software. It will cover: • System Functions • Hardware Requirements • CDS/ISIS Product Family • Characteristics of CDS/ISIS • Basic steps of database creation • Basics of indexing techniques 9.1 INTRODUCTION CDS/ISIS is a menu-driven generalized information storage and retrieval system designed specifically for the computerized management of structured non- numerical databases. The name of the software, CDS/ISIS is derived from a division of UNESCO, The Computer Documentation Service / Integrated Software Information Systems. One of the major advantages offered by the generalized design of the system is that CDS/ISIS is able to manipulate an unlimited number of databases, each of which may consist of completely different data elements. CDS/ISIS offers an integrated programming facility allowing the development of specialized applications and/or the functional extension of the software as originally provided. Module :

4

613 The ISIS software family is a set of textual database software based on the same data formats to which a very strong retrieval engine (for searching information) and an even more powerful formatting language (for displaying/ output of information) is applied. The data format allows for textual information of the 'semi-structured' type to be stored in a highly economical but still very organized way: all texts are stored in 'fields', and fields can have an undefined number of occurrences (zero, one or more), an undefined length (between the limits of -depending on the ISIS-member - about 8 to 64 Kb) and, if desired, subdivided into subfields. By these capabilities, ISIS software can accommodate for the international information formats MARC, CCF and other ISO-2709 based formats. These formats are most widely used in libraries, documentation- and information centres, but as long as the information fits within this semi-structured textual frame (alphanumeric data which can be grouped into logical, structured records) ISIS delivers the right approach.

Applications for factual information (directories of organizations, projects, experts, scientists...) abound as well as more catalogue-like, bibliographic databases. 9.2 SYSTEM FUNCTIONS The major functions provided by CDSMSIS allow you to:

- Define databases containing the required data elements
- Enter new records into a given database
- Modify, correct or delete existing records
- Automatically build and maintain fast access files for each database in order to maximize retrieval speed
- Retrieve records by their contents, through a sophisticated search language
- Display the records or portions thereof according to your requirements
- Sort the records in any sequence desired
- Print partial or full catalogues and/or indexes
- Develop specialized applications using the CDSMSIS integrated programming facility.

9.3 HARDWARE REQUIREMENTS The minimum and recommended hardware requirements for running CDSMSIS are the following:

- CPU: 486 processor at 40 MHz (Pentium at 100 MHz or higher recommended)
- RAM: 8MB (16MB or more recommended)
- 1 floppy disk unit

614 • 1 hard disk (with at least 4Mb free) • 1 VGA 640x480 color screen (super VGA 800x600 or higher recommended) • 1 printer (optional) • Although CDS/ISIS is a Windows 3.1 based program, it runs under Windows 95 and Windows NT without specific known problems. 9.4 CDS/ISIS - PRODUCT FAMILY Some of the products available in the CDS/ISIS software family are:

- CDS/ISIS for DOS
- CDS/ISIS for Windows (all versions)
- CDS/ISIS for UNIX (character mode)
- JavalSIS, Client - Server Internet suite
- UNESCO/BIREME ISIS__DLL, programming tool
- BIREME WWWVISIS / Ibisus GENISIS
- WinIDIS, the interface to IDAMS

9.5 CHARACTERISTICS The salient characteristics of CDS/ISIS may be summarized as follows:

- CDS/ISIS is a generalized Information Storage and Retrieval System
- It is intended to be used for structured non-numerical databases containing mainly texts
- It may manage stand-alone as well as local network database systems
- It is specialized in handling variable-length
- The data are stored in records, with fields and subfields as structural units
- Fields, parts of fields, processed fields and all or marked words in fields can be 'inverted', i.e. registered into a very efficient index file for immediate location into the databases
- Data extraction' or definitions of what exactly to register, can be defined for indexing, displaying and conversion of data
- Records with fields, parts of fields or processed fields can be formatted for display, printing or sending through the Internet; this formatting can define character-mode, Rich Text Formatted or HTML-formatted outputs.
- The processing of fields, both in producing indexed elements and in output (screen, print or client), is based on a formatting language which includes programmed add-ons, therefore allowing an open-ended multitude of formats.

615 • Unlike Dbase or MS-Access, CDS/ISIS is not a relational database system, although it provides some relational facilities.

- CDS/ISIS deals with questions like: "which research projects deal with basic education in India?"
- It may be expanded by advanced users (programmers) for adding new services and tools
- A wide variety of solutions for Internet publishing of data are already available
- CDS/ISIS allows the user to design the record structure of each database his own
- Once the database has been created, CDS/ISIS allows to:

- o Create new records, to put new information in the archive
- o Keep the stored information up-to-date by adding new data elements, modifying existing ones and deleting unnecessary information
- o Analyze the content of the database to extract searchable information following your own instruction
- Search and retrieve subsets of the stored information
- Display or print the results the way you want
- Records are stored in a file named "Master File" (MST)
- Each record in the database can be referred to by its unique number, called "Master File Number" (MFN)
- The MFN is automatically assigned by the system when a the record is created
- You may access a record not only by its number but by its content. For this purpose, you may maintain a dictionary of searchable terms, also called "Inverted File" The retrieval functions allow for:

- Field based selection (with suffixes)
- Prefixed organization of index-elements
- Truncations
- Boolean combinations OR, AND, NOT
- Proximity operators (word distances, within field/occurrence)
- Selection of elements from other databases
- Direct selection of terms from the indexes
- Free-text sequential searching. The Windows based ISIS-software can deal with (references to) non-textual information by invoking dedicated software tools to deal with the multimedia files pointed to. An important part of the ISIS software solution exists of the manifold of user-programmed solutions, either as ISIS-Pascal programs or independent programs, provided by the highly international user's community.

616 9.6 LIMITATIONS The ISIS software family is not: • Typical database software oriented towards administrative purposes, which imply fixed structure formats, calculations and other numerical handling. • Relational software which allows organization of data into interlinked tables (however data from different ISIS-databases can be joined into one output format, therefore allowing semi-relational setups). • An 'integrated library system' addressing all library automation functions, although such a system can be developed based on the database engine and the programming tools • A commercial product, trying to incorporate more and more bells and whistles, wizards and other fancies, in order to stand out in the commercial debate. • ISIS software cannot easily deal with: o Numerical values, so applications where intensive calculations (as in accounting and stock management) are needed are not good candidates o Very dynamic data where high numbers of information units are to be replaced all the time by new values (as in financial systems) o Data where the presentation lay-out elements (fonts, page characteristics...) need to reside with the data themselves or are set for individual words (as in text processors and electronic publishing software) o Huge text documents (like books), unless these are split into smaller subunits (as 'records')

9.7 DATABASE STRUCTURE Although a CDS/ISIS data base will appear as a single file of information, in actual fact it consists of a number of logically related but physically distinct computer files. The management of the physical files is the responsibility of CDS/ISIS. However some basic knowledge of the purpose and function of the major files associated with a data base will help to understand the system better. Data base definition files Before a data base can be accessed for processing, it must be made known to CDS/ISIS by defining certain characteristics of its record structure and contents. The Data base definition services allow you to create and/or modify a data base definition. A CDS/ISIS data base definition consists of the following components, each stored in a separate file:

617 • Field Definition Table (FDT): The FDT defines the fields which may be present in the records of the data base and their characteristics. • Data entry worksheet(s) (FMT): One or more screen layouts used to create and/or update the master records of the data base. • Display format(s) (PFT): Display formats define precise formatting requirements for either on-line display of records during searching or for the generation of printed output products such as catalogues and indexes. • Field Select Table(s) (FST) : One FST defines the fields of the data base to be made searchable through the Inverted file. Additional FSTs define the most frequently used sorting requirements for the data base. Master file

The Master file contains all the records of a given data base, each record consisting of a set of variable length fields. Each record is identified by a unique number, automatically assigned by CDS/ISIS when it is created, called the Master File Number or MFN. To provide a fast access to each master file record, CDS/ISIS associates a special file to the Master file, called the Cross-reference file, which is in fact an index giving the location of each record in the Master file. Inverted file

CDS/ISIS allows virtually unlimited number of access points for each record through the creation of a special file called the Inverted file. The Inverted file contains all terms which may be used as access points during retrieval for a given database, and, for each term, a list of references to the Master file record(s) from which the term was extracted. The collection of all access points for a given data base is called the dictionary. You define the searchable elements for a given database by means of a Field Select Table (FST), which contains the fields to be inverted and the indexing technique to be used for each field.] ANY file An optional type of file, associated with the Inverted file, is the Any File. It is used in retrieval to link together certain related terms. An "any term" is a collective name assigned to a table of search terms.

When an ANY term is used in a search, the table with that name is retrieved, and the individual terms in the table are automatically grouped together. The criterion for the establishment of an ANY term is the likelihood of its frequent occurrence in queries. Geographic groupings will, in most cases, meet this criterion, but other types may qualify equally well. Relationships between the files The logical relationship between the major files of a CDS/ISIS data base is best

618 perceived by examining the way in which retrieval is performed. Retrieval from a database is done by specifying a set of search terms which are looked up in the Inverted File to locate the list of MFNs associated with each term. These lists are then manipulated by the program according to the search operators you have specified in your search formulation until, at the end of the search, a single list, called the hit list, is obtained, corresponding to the MFNs of the records satisfying your search formulation. If at this point you request a display of the records retrieved, CDS/ISIS will read each record in the hit list from the Master file, format it according to the specified format and display it on the screen. You may also save one or more hit lists, which you may later use to print the records using the Print Dialog services. A saved hit list is called a save file. The following figure shows the role of the different components of a CDS/ISIS database:

Field 1 Records-1 Field Field 3 absent Field 4 Field 1 absent Database Records-2 Field 2 Field 3 Field 4 Fields-<< Records-<< Database

619 9.8 GENERAL DATABASE CREATION GUIDELINES The generalized nature of CDS/ISIS allows you to define databases according to your specific requirements. The following paragraphs cover some basic topics on database design. However, in order to get the most out of CDS/ISIS you should be fully familiar with all the facilities it offers.

Data elements: The first step in designing your data base should be a careful and comprehensive analysis of the data elements required. Items normally eligible to be selected as data elements would be those that must be able to be processed individually. In determining this, you should ask yourself typical questions such as: "Will the item be needed for sorting?"; "Must it be searchable?"; "Will there ever be a need to print it differently than others, e.g. in bold face or upper case?"; etc. If the answer to any of these questions is yes, then the item should be selected as a data element.

Fields and subfields. Data elements may be stored in fields or subfields. A field is identified by a numeric tag and is defined in the FDT of the database. You may think of the tag as the name of the field as it is known by CDS/ISIS. Each time you want CDS/ISIS to perform an operation on a particular data element you must supply the tag of the field where that data element is stored. For example, in the FDT the title is assigned tag 24. If you wanted to display the contents of the title field you would ask CDS/ISIS to display V24 CDS/ISIS normally treats the contents of a field as a continuous string of characters and as a single entity. You may, however, subdivide a field into subfields. In this case the field contains more than one data element, each being stored in a different subfield. Unlike fields, subfields are not identified by a tag but by a subfield delimiter. A subfield delimiter is a 2-character code preceding and identifying a variable length subfield within a field. It consists of the character A (not sign) followed by an alphabetic or numeric character, e.g., ^a. The Imprint field may be defined as containing the place of publication, publisher and date of publication in the three subfields a, b and c respectively. A sample Imprint could be: ParisAbUnescoAcl985 In designing a database, remember that the CDS/ISIS formatting language has a facility for automatically replacing subfield delimiters by punctuation marks. Try, if possible, to choose delimiter codes in such a way that the replacing punctuation is suitable for the application, otherwise you will have to format each subfield individually.

Repeatable fields: In those cases where a given data element may occur more than once in a given record, CDS/ISIS will create as many fields as required to hold all the occurrences of the data element. This type of field is called a repeatable field. A typical example is the Author field in a bibliographic record. All the occurrences of a repeatable field have the same tag. Repeatable fields may contain subfields, which gives you a facility for handling 2-dimensional tabular data (one dimension being the field, and the other the subfields). Furthermore, you may define a field to be repeatable even though it contains a single data element. It may be useful, for example, to be able to break down a relatively long text such as an abstract or a summary, into paragraphs to improve its legibility in a printout. By defining such a field as repeatable, you may then use the formatting language facilities, provided for repeatable fields, to indent the first line of each paragraph. Another example is when you want to be able to search such long fields by words. By entering each paragraph as a separate occurrence, you may later use the (F) operator of the search language to restrict to a paragraph the search for two or more words, which you would not be able to do if the field was not repeatable (see under "Field level and proximity search operators")

Control characters: Certain characters stored in a field, although keyed in as data, will be interpreted by CDS/ISIS as control characters, rather than data characters, and will normally activate some special type of processing. Control characters are normally reserved for CDS/ISIS use and may not therefore be used as data. Subfield delimiters are an example of control characters. Other control characters recognized by CDS/ISIS are described below.

9.9 DATABASE CREATION To create a database using CDS/ISIS, one has to complete the following four steps before entering the data: 1. Creation of Field Definition Table (FDT) 2. Creation of Data Entry Worksheet (FMT) 3. Creation of Display/Print Format (PFT) 4. Creation of Field Selection Table (FST)

9.9.1 Creation of FDT The Field Definition Table (FDT) provides information on the contents of the master records in a given data base. In particular it defines the various fields which may be present and a number of parameters for each field. The FDT is used to control the creation of data entry worksheets for the data base. FDT parameters are:

621 1. Tag: The tag is a unique numeric value (in the range 1-32767) identifying the field. You will use the tag of the field each time you want CDS/ISIS to perform a given operation on the field. The tag is stored in the master record and is associated with the contents of the corresponding field. 2. Field Name: The field name is a descriptive name you assign to the field. It is normally used in data entry worksheets to label the field on the screen. You may consider that this is the name of the field as you know it, whereas the tag is the name by which the field is known to CDS/ISIS. The field name can be up to 30 characters long. While creating a data entry worksheet, CDS/ISIS will supply this name as the default name of the field. 3. Field Length: This is a number (in the range 1-32000) indicating the expected length of the field. The maximum record length is 32000 characters. 4. Type The field type indicates possible restrictions on the data characters which may be stored in the field. The field type may be one of the following: • Alphanumeric: The field may contain any alphanumeric character. • Alphabetic: The field may only contain alphabetic characters (note that the space is not an alphabetic character!). During data entry, CDS/ISIS will check this restriction, issue a message if it is not satisfied and request you to correct the field. • Numeric: The field may only contain numeric characters (0-9). During data entry, CDS/ISIS will check this condition, issue an error message if it is not satisfied and request you to correct the field. • Pattern: The field has a fixed structure controlled by an entry pattern that you define in the data entry worksheet. The entry pattern defines the type of character that can be entered in each position of the field. Repeatability: This parameter defines whether the field is repeatable (i.e. it may occur more than once in any given record) or not. An R indicates that the field is repeatable. Note that P-type (pattern) fields may not be repeatable. The number of occurrences of a repeatable field is only limited by the maximum record length. 5. Subfields/Pattern: Depending on the type of field defined, this entry defines either the set of subfields, if any, allowed in the field (for types X, A or N), or the pattern (for type P). • Subfields: If the field contains subfields, the allowed subfield identifiers are defined here, in the order in which they must appear. Note that the not sign (A) identifying the subfield delimiter is not entered. For example, if a field may contain the subfields Aa Ab and Ac, these are defined in the FDT as abc (and not Aa Ab and Ac)

622 • Pattern: A pattern is a character by character description of the contents of the field. For each field position you define in the pattern the type of character which it may contain as follows: X the position may contain any alphanumeric character A the position must contain an alphabetic character 9 the position must contain a numeric character Other the position must contain the indicated character. Note that X and A must be entered in upper case. Here are some examples of patterns and corresponding entries: Pattern Entry 99-999/AA 35-674/XE (valid) 35-J56/XE ('j' is invalid) XXX(AA)9 Xrr(BB)7 (valid) ...(78)9 (« 78 » is invalid) 9.9.2 Creation of Data Entry Worksheet Data entry worksheet(s) (FMT): One or more screen layouts used to create and/ or update the master records of the data base. CDS/ISIS provides a specially designed editor to create these worksheets. A worksheet consists of a set of fields, which have been defined in FDT for each of which one must provide a number of parameters such as: • Tag : A number uniquely identifying a particular field • Line and column (l/c) • Position of field value • Field attributes • Field length • Field type • Field pattern • Help message • Default value 9.9.3 Formatting Language (Creation of Display/Print Format) The formatting language allows you to define precise formatting requirements for database records. Through this language you may select one or more specific data elements in the order you want and optionally insert constant text of your choice, e.g. to label some or all the fields, as well as specify vertical and horizontal spacing requirements. A collection of formatting commands in the language 623 described here is called a format. Some of the important commands are described here: Field Selector Field selectors are commands used to extract a specific field or subfield from a record. A special command allows you to extract the MFN of the record, even though the MFN is not a field. To extract a field from a record code the letter V followed by the tag of the field to be extracted. The V (a mnemonic code for Variable length field) is the command telling CDS/ISIS that you want to extract a field. It may be entered indifferently in upper or lower case. Format Output v24 >An< Electric hygrometer apparatus for measuring water-vapour loss from plants in the field Subfield command To extract a particular subfield from a given field just append the corresponding subfield delimiter to the tag, as shown in below. Note that, as alphabetic subfield delimiters are case insensitive, you may enter the subfield delimiter code in either upper or lower case. Format Output v26^a Paris Extracting a fragment of a field or subfield You may need, in some cases, to extract a portion of a field which is not a subfield, particularly when the field has a fixed format throughout a database (e.g. a standardized date of the form YY-MM-DD). You may do this by appending the offset/length command immediately after the field or subfield command to which it applies. This command may be coded * offset, length where: • *offset indicates the position of the first character to be extracted from the field or subfield (character positions are counted from zero • .length indicates the number of characters to be extracted; if omitted the remainder of the field (or subfield) starting from offset will be taken. Example: 99-Nov-05 Format Output V1*3.3 Nov

624 Indentation command When CDS/ISIS executes a field or subfield command it will normally output the field contents at the current line position, which depends on the last command executed. If the field cannot be fully contained in the current line, CDS/ISIS will create as many additional lines as required. Normally the continuation lines begin at line position 1. You may alter this by providing an indentation command, which must immediately follow the field (or subfield) command. The indentation command is coded (f,c) or (f), where: f indicates the number of spaces to be left from the left margin before formatting the first (or only) line of the field. It is only effective if the field is formatted at the beginning of a line, otherwise it is ignored; c indicates the number of spaces to be left from the left margin before formatting all continuation lines of a field formatted on more than one line. A value of zero may be specified for either f or c. If only f is needed, you may omit c (CDS/ISIS will supply zero by default). However, if c is required you must also specify f Some examples are given below. Format Output v44 Methodology of plant eco-physiology: proceedings of the Montpellier Symposium v44(10) Methodology of plant eco-physiology: proceedings of the Montpellier Symposium v44(5,9) Methodology of plant eco-physiology: proceedings of the Montpellier Symposium v44(0,8) Methodology of plant eco-physiology: proceedings of the Montpellier Symposium MFN command To extract the MFN of a record code the following: MFN or MFN(d), where d is the number of digits to be displayed. If (d) is omitted 6 digits will be displayed by default. Mode Command CDS/ISIS may display data in three different modes: • Proof mode: In this mode, fields are displayed exactly as they are stored in the record. This mode is normally used to display records for proofreading purposes.

625 • Heading mode: This mode is normally used for headings when printing catalogues and indexes. All control characters embedded in the data, such as filing information (see under "Filing information") and descriptor delimiters (> and <) are ignored, whereas subfield delimiters are replaced by punctuation. • Data mode: This mode is similar to heading mode, but, in addition, each field is automatically suffixed with a full stop (.) followed by two spaces (or just two spaces if the field already ends with a punctuation mark). When CDS/ISIS formats a subfielded field in heading or data mode it will automatically replace embedded subfield delimiters by punctuation marks (the initial subfield delimiter, if any, is always ignored). Furthermore, the special character combination "< >," is replaced by "," thus providing a simple way to format fields containing lists of key phrases enclosed in triangular brackets (and saving keystrokes during data entry). The standard subfield delimiter replacement table provided is as follows: ^A replaced by "," ^B through to Al replaced by "," all others replaced by "." A mode command is coded Mmc, where: m specifies the mode as follows: P proof mode H heading mode D data mode c specifies case translation as follows: U data are converted to upper case L data are left unchanged A mode command may appear as many times as necessary in a format, each remaining in effect until it is changed by a subsequent one. In the absence of an explicit mode command, CDS/ISIS will use MPL by default (proof mode, no upper case conversion). Examples of mode commands are given in the table below.

626 Format Output mpl, v24 >An< Electric hygrometer apparatus for measuring water-vapour loss from plants in the field mhl, v24 Electric hygrometer apparatus for measuring water-vapou loss from plants in the field mdl, v24 An Electric hygrometer apparatus for measuring water-vapou loss from plants in the field. mdu, v24 AN ELECTRIC HYGROMETER APPARATUS FOR MEASURING WATER-VAPOUR LOSS FROM PLANTS IN THE FIELD. mpl, v26 ^aParis^bUnesco^c1965 mhl,v26 Paris, UNESCO, 1965 mdu,v26 PARIS, UNESCO, 1965. mpl,v69 Paper on: >hygrometers<> plant transpiration<>moisture<>water balance< md, v26 Paper on: hygrometers; plant transpiration; moisture; water balance. Horizontal and Vertical Spacing Commands The formatting language provides five commands to control horizontal and vertical spacing. They are summarized in the table below: 1. The Xn command inserts n spaces before formatting the next data. However, if less than n positions are available on the current line, CDS/ISIS will simply skip to a new line. 2. he Cn command causes the next data to be formatted starting from position n of the current line. If the current line position is greater than n, then the next data will be formatted starting on position n of the following line. 3. The / command forces a new line and causes therefore the next data to be formatted at the beginning of a line. 4. The # command performs the same function as the /, but the skipping to a new line is unconditional. Thus you may use the combination / # to ensure that one (and only one) blank line will appear on the output (note - that the combination ## may cause one or two blank lines to be inserted depending on whether the line being formatted when the first # is executed is empty or not).

627 5. The % command suppresses all contiguous blank lines (if any), existing between the current line and the last non-blank line, at the time this command is executed. Thus the following format: Literals A literal is a string of characters, enclosed between appropriate delimiters, which will be inserted as is in the output. Literals may be used, for example, to label fields. Three types of literals may be specified:

- Conditional literals: define text which will be output only if the associated field is present in the record. If the associated field selector is a subfield command (e.g. v24Aa), the text will be included only if the requested subfield is present in the field. If the associated field selector specifies a repeatable field, the text will only be included once, regardless of the number of occurrences of the field. Conditional literals are enclosed in double quotation marks (""), e.g. "Title: "
- Repeatable literals: like conditional Literals, they define text to be output only if the associated field or subfield is present in the record. If the field is repeatable, however, the literal will be repeated for each occurrence of the field. Repeatable Literals are enclosed in vertical bars (|) e.g. |Author:|
- Unconditional Literals: define text which is always output regardless of the presence of fields. Unconditional Literals are enclosed in single quotes ('), e.g. 'Summary1. As unconditional Literals are always output as a single block of text (i.e. they cannot be split between two lines), their length should not exceed the line width otherwise they will be truncated. To output text exceeding one line, you should break it down into two or more Literals. You may also provide any required indentation by using the Cn command. Note that a literal must not contain the same literal delimiter, e.g. an unconditional literal cannot contain a single quote (although it may contain a double quote and/or a vertical bar). Conditional and/or repeatable Literals are associated to a field or a subfield by their position in the format: Literals preceding a field selector (also called prefix-Literals) will be output before the field contents, whereas Literals following the field selector (also called suffix-Literals) will be output after the field contents. If a repeatable prefix-literal is immediately followed by a "+" sign (e.g. |xxx|+) it will be output before all but the first occurrence of the field. If a repeatable suffix-literal is immediately preceded by a "+" sign (e.g. +|xxx|) it will be output after all but the last occurrence of the field. Repeatable prefix-Literals and all suffix-Literals are formatted as if they were physically part of the associated field contents, and obey therefore the field 628 indentation command, if any. Conditional prefix-Literals do not inherit the field indentation (you may however use the Cn command to provide indentation, if required). Examples of the different types of Literals are given below: Format Output MFN: 004 'MFN:', mfn(3)/ Title: An Electric hygrometer apparatus for mdl,"Title: "v24(0,7) measuring water-vapour loss from plants in the field. MFN: 004 Title: AN ELECTRIC HYGROMETER 'MFN:',mfn(3)/mdl, APPARATUS FOR MEASURING "Title:",mdu,v24(0,7) WATER-VAPOUR LOSS FROM PLANTS IN THE FIELD. MFN: 004 Title: AN ELECTRIC HYGROMETER 'MFN:',mfn(3)/mdu, APPARATUS FOR MEASURING "Title:",v24(0,7) WATER-VAPOUR LOSS FROM PLANTS IN THE FIELD. v70 Grieve, B.J.Went, F.W. v70|;| Grieve, B.J.; Went, F.W.; v70+;|;| Grieve, B.J.; Went, F.W. |;|v70 ; Grieve, B.J.; Went, F.W. |;|+v70 Grieve, B.J.; Went, F.W. "Authors"/v70(3,3)+;|;| Authors Grieve, B.J.; Went, F.W. "(by :", v70+;|;|)" by: Grieve, B.J.; Went, F.W. mdl,v26 Paris, Unesco, 1965. mdl,v26"" Paris, Unesco, 1965 mdl,v26,n7#v99,v30^a Paris, Unesco, 1965. p. 247-257. Paris, Unesco, 1965. mdl,v26,""/#v44|;|, v30^a Methodology of plant eco-physiology: proceedings of the Montpellier Symposium: p. 247-257. "

629 IF Command The IF command allows you to implement context-sensitive formats, i.e. formats able to produce output which may vary depending on the contents of the record being formatted. It is coded as follows: IF condition THEN format4 ELSE format-2 Fl, where:

- Condition is a boolean expression
- Format-1 is a CDS/ISIS format which will be executed if and only if the boolean expression is True;
- Format-2 is a CDS/ISIS format which will be executed if and only if the Boolean expression is False.

An [f_ command may therefore also take one of the following alternate forms:

- IF condition THEN format-1 Fl
- IF condition THEN ELSE format-2 Fl

As there is no restriction in the commands you may use in format-1 or format- 2, IF commands may be nested to any desired depth. The Fl keyword must, in this case, be used to close each IF command (you may think of IF and Fl as a pair of parentheses). For example: if p(v1) then v24 else if p(v2) and a(v3) then v5 fi fi The IF command is particularly useful to develop generalized formats for integrated databases, which contain different types of records. In this case you will normally have distinctive mark for each type of record (typically there will be a field containing a code identifying the type of record). Thus, by checking the type of record with an IF command, you may perform, through a single format, specific formatting for each type. Repeatable Groups Repeatable fields are handled in a special way. In the absence of any other indication, CDS/ISIS treats all the occurrences of a repeatable field (in the order they have been entered) as a single string of text A repeatable group alters the way CDS/ISIS would normally handle the occurrences of a repeatable field, by processing one occurrence at a time rather than all together. In most cases the use of simple formatting commands, such as the mode command or repeatable literals, is sufficient to adequately handle repeatable fields, as in the examples given below:

630 Format Output mpl,v70 Grieve, B.J.Went, F.W. mdl,v70 Grieve, B.J. Went, F.W. v70+;| Grieve, B.J.; Went, F.W.] There are cases, however, where you will need to format repeatable fields in other ways. A frequent case is, for example, the need to format each occurrence on a new line, which may only be done by using a repeatable group, as shown below: Format Output v70/v26^a Grieve, B.J.Went, F.W. Paris Grieve, B.J. (v70/),v26^a Went, F.W. Paris In the first case the newline command (/) is executed after formatting all the occurrences of field 70; whereas, in the second case, it is executed after each occurrence. The example below shows the handling of repeatable subfielded fields (assuming that the record contains two occurrences of field 20 as indicated). Here the use of a repeatable group has helped to properly display the various subfields of each occurrence of the repeatable field in a tabular manner. Record content 20 ^aNew York^bMcGraw Hill^c1988 20 ^aLondon^bAcademic Press^c1975 Format: /(v20^a,c13,v20^b,c31,v20^c/) Output: New York McGraw Hill 1988 London Academic Press 1975 Format: /v20^a,c13,v20^b,c31,v20^c/ Output: New YorkLondon McGraw HillAcademic Press 19881975

631 9.9.4 Field Selection Table A Field Select Table (FST) defines criteria for extracting one or more elements from a master file record. Depending on the context in which an FST is being used, these elements may then be used to create inverted file entries for the record from which they were extracted, for sorting records in the desired sequence before producing a printed report, or to reformat records during an import or export operation. An FST consists of one or more lines each defining three parameters: 1. A field identifier (column labeled ID); 2. An indexing technique (column labeled IT); and 3. A data extraction format coded using the CDS/ISIS formatting language. Whenever CDS/ISIS is requested to extract elements using an FST, it will read the relevant master file records and carry out, for each record and for each FST entry, the following process: • Execute the format to extract from the record the corresponding data; • Apply the specified indexing technique to the data produced by the format; and • Assign to each element thus produced the specified field identifier. Indexing Techniques An indexing technique specifies a particular processing to be performed on the data produced by the format in order to identify the specific elements to be created. There are 5 unique indexing techniques which you may use. They are given a numeric code from 0 to 4 as explained below. • Indexing technique 0: Build an element from each line extracted by the format. This technique is normally used to index whole fields or subfields. The CDS/ISIS will build elements from lines, not from fields. It is therefore your responsibility to produce the correct data through the format, especially when you are indexing repeatable fields and/or more than one field. In other words, when using this technique, your data extraction format should output one line for each element to be indexed. • Indexing technique 1: Build an element from each subfield or line extracted by the format. As CDS/ISIS will search the output of the format for subfield delimiter codes, for this technique to work correctly your format must specify proof mode. Note that indexing technique 1 is in fact a shortcut to using indexing technique 0. For example: Record content: ^aParis ^bUnesco ^c1965

632 FST Format output Elements produced 11 mpl,v26 ^aParis^bUnesco^c1965 Paris Unesco 1965 10
 mhlTv26^a/v26^b/v26^c Paris Paris Unesco Unesco 1965 1965 11 mdl,v26 Paris, Unesco, 1965 Paris, Unesco, 1965 •
 ndexing technique 2: Builds an element from each term or phrase enclosed in triangular brackets (>...<). Any text outside brackets is not indexed. Note that this technique requires proof mode, because the other modes delete the brackets. A field containing "Mission report describing a >university course< in documentation training< at an East African >library school<" will produce the following elements when indexed with this technique: university course documentation training library school • Indexing technique 3: Does the same processing as indexing technique 2 except that terms or phrases are enclosed in slashes (/..). For example the following text: Mission report describing a /university course/ in /documentation training/ at an East African /library school/ will produce the following elements when indexed with this technique: university course documentation training library school • Indexing technique 4: Build an element from each word in the text extracted by the format. A word is any sequence of contiguous alphabetic 2 characters. When you use this indexing technique, you may prevent certain non- significant words from being indexed by defining them in a special file called the Stopword file. 9.10 DATABASE BACKUP To avoid accidental loss of data, the CDS/ISIS provides a facility for making a backup of the master file. From the master file backup the inverted file can be

633 generated. An inverted file backup is also possible. However, one should remember that restoration of database from a master file backup requires the existence of the matching FDT. CDS/ISIS also provides options for data export and import. During EXPORT/IMPORT functions, a Field selection table (FST) can be used to limit the parts of a record to be exported &/or imported or to move data from one field to another. This means a database can be reformatted by exporting and reimporting it. The record structure used for importing and exporting is known as ISO 2709, which allows the import or export of MARC records. Import of data into CDS/ISIS database provides the following options: • Merge: imported records will be added to any existing records. If the imported records have the same MFNs they will not be imported. • Load: any existing records will be lost and only the imported records will be there. • Update: works like merge and if the import records have the same MFN as the existing records they will be overwritten. The procedures of backing up databases can be summarized as follows: • If all the files of the database has been copied just copy them back to recover the database. • If only the database definition files have been copied o create a new database with the same name o Replace the files with the back up files o Import the exported MST file and 9.11 IMPORT/EXPORT OF RECORDS

The Import command allows you to import data from external files recorded according to the ISO-2709 standard format for information interchange. When you select this command CDS/ISIS will first display an Open Dialog Box, where you select the file to be imported, and then the Import Dialog Box which contains the various parameters you must also supply. The Export command allows you to extract a data base or a portion thereof normally for transmitting it to other users. You may also use this command to perform some reformatting of the records of a data base and then use the import function to store the reformatted data into the original or a different data base. When you select this command CDS/ISIS will first display an Open Dialog Box, where you select the output file, and then the Export Dialog Box which contains the various parameters you must also supply. Name of input ISO file: This field contains the name of the file you are

634 importing. The file must be in the standard ISO 2709 format as described in the CDS/ISIS Reference Manual. First MFN to be assigned: If you specify this parameter CDS/ISIS will renumber sequentially each input record starting from the MFN you specify. Normally you will enter 1 if you use the Load option, and a number which is one higher than the highest currently assigned MFN in the database if you use the Merge or Update options. In the latter case, however, if you specify an already assigned MFN, CDS/ISIS will automatically start numbering from the next MFN to be assigned in the data base (i.e. the Merge and Update options will behave in the same manner). Tag containing MFN: Alternatively to the option above (which will be ignored if an Input tag is specified), you may assign the MFN from a field in the input record. In this case you specify here the ISO tag of the field containing the MFN. Note that the field must contain a numeric value and may only be used for this purpose, as it will not be stored in the records of the receiving data base. Reformatting FST: This parameter is optional. If you leave it blank, the fields in the output record will retain their tag and contents. Alternatively, you may perform a certain amount of reformatting by providing the name of an FST. The FST, when used as an import reformatting file is interpreted in the following manner: • Each line of the FST represents an output field; • Each output field is assigned a tag equal to the field identifier defined in the corresponding FST line; • The data extraction format given in the FST defines the contents of the field. In this format you must use the ISO tag of the fields as defined in the input file. Each line produced by the format (or each element, if the FST specifies indexing techniques 2, 3 or 4) will generate a new occurrence of the output field. Note that the stopword file of the receiving data base, if present, will be used in processing indexing technique 4. Assume for example that your input file contains the following fields: 100 Author (repeatable) 200 Title 300 Keywords (repeatable) 400 Notes A reformatting FST for this file could be the following: 10 (v1007) [output field 1 same as input field 100] 20 v200 [output field 2 same as input field 200] 30 [output field 3 contains keywords]

635 enclosed in <gt;...<, each keyword taken from one occurrence of input field 300] Gizmo conversion table: This field may contain the name of a Gizmo conversion table to be used for import. This facility is provided to facilitate interchange of text containing diacritical marks between different hardware and/or software platforms.

Load/Merge/Update: This parameter indicates how the imported records are loaded into the data base: • Load: In this case the resulting data base will contain only the incoming records. Because this option erases any records which may already exist in the data base, CDS/ISIS will always request a confirmation that you actually intend to do so. • Merge: Merges the records in the input file with those already existing in the data base, if any. However, input records with the same MFN as an existing record are not replaced (unless they are marked for deletion). CDS/ISIS will display the MFN of such records, if any. • Update: The same as Merge except that records with the same MFN are automatically replaced. Note that the Merge and Update options are functioning as described above only if you are importing the MFN of the records (i.e. you have filled the Tag containing MFN field). If not CDS/ISIS will simply add the incoming records to the Master file and assign sequential MFNs starting from the highest MFN already assigned or from the MFN you have specified in the First MFN to be assigned field. Export option has almost similar parameters to define before exporting the data. 9.12 EXERCISES 1 Discuss the relationship between different components of CDS/ISIS 2 Explain the formatting language of CDS/ISIS with examples. 3 Discuss the importance of indexing techniques of CDS/ISIS. 4 Explain the characteristics and limitations of CDS/ISIS.

636 UNIT 10 □□□□□

LIBRARY AUTOMATION Structure 10.0 Objectives 10.1 Introduction 10.2 Benefits & Barriers of Library Automation 10.3 Modules & Functions 10.4 Computer based Acquisition System 10.5 Computer based Cataloguing 10.6 Computer based Serial Control 10.7 Library OPAC 10.8

Exercises 10.1 OBJECTIVES The objectives of the Unit are to: • Familiarize with the concept of library automation • Discuss the benefits and barriers of library automation • Know the basic functions of different modules • Understand the salient features of the different modules 10.1 INTRODUCTION Planning for an automated system should be part of an overall long-range plan for the library. Automation should always be used as a means to achieve overall better member services. Library automation is the use of computer to perform such traditional activities as acquisition, cataloging and circulation. Now-a-days, it encompasses related field such as information retrieval, inter library loan services, access to online internet based resources and access to external databases. 10.2 BENEFITS AND BARRIERS OF LIBRARY AUTOMATION The benefits of application of computer in housekeeping operations and information services in a library are:

• Improved library management • Linking items of library material in all service points to catalog records. • Improved ILL • Increased job-satisfaction • Improve access to world information resources

637 • Improved information retrieval options • Remote access to library catalog (OPAC) • Facilitate copy cataloging • Improve and simplify inventory management • Encourage cooperative collection development However, there are certain problems, which may hinder the application of computer in library management and user oriented services. Some of those are: • Time consuming • Costs • Staff may not find sufficient time to provide appropriate services during library automation phase • Access to the automated system may not be available during system breakdown. • Improper/lack of training the library personnel as well as members of the library • Retrospective conversion of library catalog is a big problem for a large library. • Improper investment for library automation software • Integrated library management (ILM) software does not follow international standards. 10.3 MODULES AND FUNCTIONS Planning for library automation covers various facets: automation of library functions, use of electronic resources within the library, accessing remote electronic resources, office automation and member services. Major modules of any ILM software are: • Acquisition Module: It includes tasks such as periodical requests for documents, purchase order, receipt of materials, budget control, analysis of vendor performance, etc. • Cataloging Module: This module performs various cataloging tasks such as: original cataloging using MARC protocol, copy-cataloging, editing and retrieving catalog data. • OPAC Module: It allows remote searching of catalog databases using various parameters. • Serials Module: It covers tasks such as subscribing/renewals of journals, checking of loose issues, budget control etc. • Circulation Module: Performs the tasks involved in circulation functions

638 such as material check-in, checkout, reservation, sending overdue notices, fine calculations etc. • ILL Module: It performs various tasks for borrowing and lending materials among the libraries. 10.4 COMPUTER BASED ACQUISITION SYSTEM Libraries have automated acquisition system for a variety reasons including lowering unit costs, improving services, speeding the processing works, and linking with other systems thus reducing duplicate of work. The benefits are: • Reduce drudgery and error of works, which are routine in nature • Enhance information sharing • Improve efficiency and timeliness • Provide various management information reports. • Monitor status of item/activity • Optimize staff time and efforts. The infrastructure necessary for computer based acquisition system include: • Access to external databases/sources of information: It is necessary for verification of bibliographic details, it helps in identifying the cost of the documents. • Access to internal files/databases: In case of ILM software access to the following type files/databases is important: Library catalog, membership records, budget file, order files, in-process file and various authority files. 10.5 COMPUTER BASED CATALOGING The catalog is the most valuable surrogate to information resources of any library, tt can easily be devolved as a byproduct of computerized acquisition system. The benefits of computerized catalog are: • Reduced the cost of cataloging. • Enable integrating the Internet based resources in the library's catalog. • Provide remote access to the library's catalog • Generate spine labels and catalog cards. • Update present status the of items • Identify the location of an item The infrastructure necessary for computer based catalog includes: • Access to external databases/sources of information: It is necessary for verification of bibliographic details. It helps in identifying the cost of the documents. Access to authority files and thesaurus are also important. • Access to internal files/databases: In case of ILM software access to the

639 following type files/databases is important: library's own authority files, access to OPAC. 10.6 COMPUTER BASED SERIALS CONTROL The question of management of serials by computer produces mixed reactions. Some believe that it is the most difficult operations to computerize because of idiosyncrasies of serials. Other claim that it is the idiosyncrasies that make management of serials a good candidate for computerization. Major idiosyncrasies of the serials systems are: • Different publication schedules • Change of o Title o Publisher o Frequency of publication schedule • Formation o Split o Merge o Ceased • Additional/special issues • Payment schedule • Subscription to serials may start at different point of time. • Certain issues may lose in transit. As considerable manual efforts are needed for management of serials, the computerization may • Reduce the drudgery and error • Offer greater control over budget • Improve claim monitoring The infrastructure necessary for a computer based serials control systems are access to: • External database: Verification of bibliographic details of new serials is very important. External database may enable data import. It helps in verifying the exchange rates, subscription price etc. • Internal databases: It needs access to OPAC, master file of serials, vendors and publishers. It needs access to budget, invoice and renewals files. 10.7 LIBRARY OPAC OPAC is a distinct module of ILM software. It allows searching remotely by various access points, some of which are not possible in the card catalog. The

640 basic components are: • User interface • Database • IR Options • Help Remote access to library catalog is not a new approach. Book catalog were an early form of remote access to the library resources. The major functions of OPAC may be summarized as follows: • Locating materials by known criteria • Identify documents on given subject • Facilitate resource sharing • Enable copy cataloging • Enable access for 24x7 style • Compile bibliography within very short time • Access virtual resources. • Avail enhanced IR facilities • Facilitate remote reservation 10.8 EXERCISES 1. Discuss the concept of library automation and identify the benefits and barriers of library automation. 2. Discuss the importance of computer based acquisition system 3. Write on library OPAC.

Hit and source - focused comparison, Side by Side

Submitted text	As student entered the text in the submitted document.
Matching text	As the text appears in the source.