

POST GRADUATE : ZOOLOGY
[M.Sc.]

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POST GRADUATE : ZOOLOGY

[M. Sc.]

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**Group
B**

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POST GRADUATE : ZOOLOGY

[M.Sc.]

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**PGZO-2
Ecology, Environmental
Biology & Toxicology**

GROUP - A

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POST-GRADUATE : ENGLISH
[M.Sc.]

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**PGZO-2
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Unit 1 □ Introduction to Ethology

Unit 2 □ Innate Behaviour

Unit 3 □ Perception of the Environment

Unit 4 □ Neural and Hormonal Control of Behaviour

Unit 5 □ Genetic and Environmental Components in the

Development of Behaviour

Unit 6 □ Communication

Unit 7 □ Ecological Aspects of Behaviour

Unit 8 □ Social Behaviour

Unit 9 □ Reproductive Behaviour

Unit 10 □ Biological Rhythms

Unit 11 □ Learning and Memory

Unit 12 □ Concepts of Evolution and Theories of Organic

Evolution with an Emphasis on Darwinism

Unit 1 □ Aims and scope of comparative physiology

Structure

- 1.1 General physiological functions and principles**
- 1.2 Validity of comparative approach**
- 1.3 Organisms and cell physiology**
- 1.4 Suggested questions**

1.1 General physiological functions and principles

The science of physiology is the analysis of function in living organisms. Physiology is a synthesizing science which applies physical and chemical methods to biology. The term physiology originated from the greek word 'Physiologikos' which means 'discourse on natural knowledge.' French physician Jean Fernel introduced the term in 1552. Physiology is thus a branch of science that deals with normal functions of the body.

In the science of physiology, there is nothing supernatural about life. All the living processes of an organism can be explained on the basis of physico-chemical changes and structural peculiarity. The progress of ancillary subjects like biology, microscopic anatomy, physics, chemistry, have been very useful in understanding the working processes of the living organisms. All physiological processes are governed by basic laws of physics and chemistry. Accordingly to the changes in the environment, functional alterations also occur and thus the survival is made possible. Hence, it is held that Physiology is a tripod science, its three legs being Anatomy, Physics and Chemistry. To know physiology, one has to study the subject with a sound basic knowledge of these three subjects. Blood flow through cardio-vascular system is governed by the 'Laws of fluid dynamics', exchange of fluids between different body compartments is regulated by hydrostatic pressure and osmotic pressure ; transfer of information signal involving transaction and development of action potential ; exchange of gases, and solutes obey the laws of diffusion. A study of all these physical phenomenon in the body comes under the head Biophysics. Biochemistry is the branch of science that explains the functions of the body on a chemical basis. All biochemical reactions including energetics are all governed by chemical laws and principles of thermodynamics. A study of structure of an animal comes under the study of Anatomy. The study of gross structure is called macroscopic anatomy, while the study of fine structures is called microscopic anatomy. Histology, cytology, histochemistry and cytochemistry all come under the study of microscopic anatomy. Medical statistics is a branch of science that deals with evaluation of experimental

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GROUP B(I)

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POST GRADUATE ZOOLOGY
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Basic Physical and
Chemical Principles**

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A

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POST GRADUATE ZOOLOGY
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PGZO-5
Laboratory Course-5

Group

A

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[M. Sc.]

Paper : Group

PGZO-5 : B

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Group B

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[M.Sc]

PAPER : PGZO - 6

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PAPER : PGZO - 6

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**PGZO-6
Quantitative Biology &
Biotechnology,
Immunology &
Microbiology**

Group

A(I)

Quantitative Biology

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[M.Sc]

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**PGZO-6
Quantitative Biology &
Biotechnology,
Immunology &
Microbiology**

**Group - B
Immunology & Microbiology**

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POST GRADUATE ZOOLOGY

[M.Sc]

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Group

A

Developmental Biology

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[M.Sc]

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PGZO-7 : B

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Group – B

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POST GRADUATE ZOOLOGY
[M. Sc]

PAPER : PGZO - 8
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Group A (I)

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Unit 1 □ Diversity, structure and function of insects with reference to their pest status

Structure

- 1.1 Introduction
- 1.2 Major insect orders of agricultural importance
- 1.3 External structures
- 1.4 Anatomy : cuticle and sensory system

1.1 Introduction

Insects appeared about 200 million years ago during the course of evolution of life on earth, during the carboniferous epoch, but man came on the scene only half a million years ago. It seems that insects have utilized every possible opportunity to colonize almost all habitats available on the earth, and now they exhibit the greatest diversity of all life forms. From an anthropocentric interest the amazing diversity of insect species is generally categorized into *Beneficial, Harmful and Neutral groups*. This categorization is made broadly considering their economic importance.

The common examples of beneficial insects are the silkworms, honeybees, lac insects etc, although a great range of other groups of beneficial insects, from species of natural enemies like predators and parasitoids of pest insects to those insects that provide important clues to forensic scientists, are also known. The examples of harmful insects that are often cited are the agricultural and household pests, forest pests, insects of medical importance (mosquitoes, flies, ectoparasites etc) and other such groups. However, considering the unfathomable diversity of insects, most of the insect species fall within the Neutral group of this rather artificial categorization, that is, they are neither beneficial, nor harmful from an economic point of view.

In this unit a very basic discussion on some aspects of insect structure and function has been made.

1.2 Major Insect orders of agricultural importance

For this part please consult unit 2 of this paper.

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[M. Sc]

PAPER : PGZO - 9
GROUP : B

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Group B

Developmental Biology & Immunology

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Unit 3	□ Macrophage isolation from potential fluid of mice	15-17
Unit 4	□ Identification of thymus, bursa and spleen	18-22
Unit 5	□ Antigen-antibody reaction by blood group test	23-24

POST GRADUATE : ZOOLOGY

[M.Sc.]

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Group - A

Endocrinology, Cell & Tissue Structure

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<hr/>		
Unit-2	☐ Identification of stages of oestrous-cycle in rat	15
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Unit-3	☐ Identification of neurosecretory cells in cerebral ganglia (cockroach), demonstration of neurosecretory centre	16-18
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Unit-4	☐ Identification of blood cell types	19-22
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Post Graduate Zoology
[M. Sc.]

PAPER : PGZO 10
GROUP : B

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Group

B

Quantitative Biology & Biotechnology

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UNIT 2	□ Gel electrophoresis of serum protein	19
UNIT 3	□ Analysis & interpretation of southern, northern & western blotting from gel photograph	25
UNIT 4	□ Data (protein & gene) bank analysis	32
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