

QP Code: 22/PT/14/VIB

POST-GRADUATE COURSE

Term End Examination — June, 2022/December, 2022

ZOOLOGY

Paper-6B : IMMUNOLOGY AND MICROBIOLOGY

Time : 2 hours]

[Full Marks : 50

Weightage of Marks : 80%

Special credit will be given for precise and correct answer. Marks will be deducted for spelling mistakes, untidiness and illegible handwriting. The figures in the margin indicate full marks.

1. Answer *two* questions : 9 × 2 = 18
 - a) State the major features of adaptive immunity against innate immunity. Discuss how the immune system comes into action to heal a cut or wound. 4 + 5
 - b) Describe the structural differences between MHC class I and MHC class II molecules. State the major differences between classical and alternative complement pathways with mentioning the components involved in this process. (Use suitable diagram necessary wherever). 4 + 5
 - c) What is hypersensitivity type I reaction ? Elaborate the structure of F_c receptor and its interaction with IgE. State the mechanism of degranulation and its significance in type I hypersensitivity. 1 + 4 + 4
 - d) Discuss different types of antigen-antibody reactions. State the mechanisms of removal of antigen-antibody complexes from body fluid and tissue. State the role of NK cells. 4 + 3 + 2

2. Answer *three* questions : 6 × 3 = 18
 - a) Describe the structure of a lymph node with diagram. Explain how lymph nodes recruit lymphocytes in a specific immune reaction. 3½ + 2½

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- b) Which types of cells possess MHC class I and to whom they are presenting antigens ? Discuss about endogenous antigen processing and presentation pathway. $2 + 4$
- c) Write the functions of V, D, J segments. Explain how they recombine to develop antibody diversity. $2\frac{1}{2} + 3\frac{1}{2}$
- d) Discuss the immune reaction exerted against extracellular and intracellular protozoa. What are the roles of interferons (IFNs) in viral infection ? $3 + 3$
- e) What is systemic anaphylaxis ? Explain with examples. Explain Asthma as hypersensitive disorder. $3 + 3$
- f) Write short notes on : $3 + 3$
- i) Myeloid progenitor cell
 - ii) TCR-MHC complex.
3. Answer *two* questions : $4 \times 2 = 8$
- a) What are different classes of immunoglobulins ? Where they are found ? Mention the role of each classes in immunity. $1 + 1 + 2$
 - b) What are the differences between immunogen and antigen ? Explain epitope and its importance. $2 + 2$
 - c) Define TLRs and their functions. State their role in immunity against bacteria. $2 + 2$
 - d) Why thymus is called a primary lymphoid organ ? Explain with a description of structural organization of the tissue. $1 + 3$
4. Answer *two* questions : $3 \times 2 = 6$
- a) What is HEV ? Mention their structure and role in immunity. $1 + 2$
 - b) What is ADCC ? Which type of immune cell is involved in this process and how ? $1 + 2$
 - c) State the role of cytokines as the mediators of hypersensitivity.
 - d) Describe the molecular structure of MAC and their function in immunity. $2 + 1$