

QP Code: 23/PT/14/VIB

POST-GRADUATE COURSE

Term End Examination — June, 2023/December, 2023

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) What is innate immunity ? Discuss the components and their mechanism of action in innate immunity. Mention the role of NK cells in immunity. 2 + 4 + 3
 - b) Who are the lymphoid lineage cells ? Give examples. Mention the role of thymus and spleen in immunity. State the function of Th1 and Th2 cells. 2 + 4 + 3
 - c) What is the meaning of 'pattern of infection' in epidemiology ? State three major patterns of disease outbreak. Mention the role of IFNs in immunity against virus. 2 + 3 + 4
 - d) What is the role of complement system in immunity ? State the differences between classical and alternate pathway of complement system. How is MAC formed ? What are the functions of soluble components of complement system ? 2 + 4 + 2 + 1
2. Answer *three* questions : 6 × 3 = 18
 - a) Mention the components of adaptive immunity and their functions. State the features of adaptive immunity. 3 + 3
 - b) Differentiate between MHC class I and MHC class II. State the chromosomal organisation of human MHC molecules. 4 + 2
 - c) State the function of a lymph gland with suitable diagram. Mention its importance in immunity. 4 + 2

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- d) Compare between the antigen recognition process of B cell and T cell. What is conformational determinant and how does it work in immunity ? 4 + 2
- e) Show the structure of an immunoglobulin molecule (IgG). Describe the means of generation of structural diversity of immunoglobulin in brief. 2 + 4
- f) State the mechanism of IgE mediated degranulation process with suitable diagram. 6
3. Answer *two* questions : 4 × 2 = 8
- a) State about the major functional components of invertebrate immunity and their functions.
- b) Explain the role of complement system and ADCC in defense against protozoan and helminth infection.
- c) State the types of APC in our immune system. Briefly state the organization of MHC-TCR complex during antigen presentation. 1 + 3
- d) What is inflammation ? State the role of cytokines during inflammation. 1 + 3
4. Answer *two* questions : 3 × 2 = 6
- a) What is systemic anaphylaxis ? Give examples. 2 + 1
- b) State the importance of CDR and RAG in immunoglobulin structure and function. 1½ + 1½
- c) What is hapten ? What is its relation with a carrier ? What is adjuvant ? 1 + 1 + 1
- d) What is plasma cell ? State its difference with mast cells. 1 + 2
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