



‘समानो मन्त्रः समितिः समानी’

**UNIVERSITY OF NORTH BENGAL**  
B.Sc. Honours 5th Semester Examination, 2023

**CC12- ZOOLOGY**  
**IMMUNOLOGY**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*

1. Answer any **five** questions from the following: 1×5 = 5
- Name two professional antigen-presenting cells.
  - What is the macrophage population in liver called?
  - What is hapten?
  - Which immunoglobulin is involved in allergic reaction?
  - What is CDR?
  - Exogenous pathway of antigen presentation is associated with class II MHC molecules. (True/False)
  - What is toxoid?
  - What is the function of membrane attack complex?

2. Answer any **three** questions from the following: 5×3 = 15
- Differentiate between innate and adaptive immunity.
  - Write a short note on different T-cell subsets and their functions.
  - What will be the fate of IgG molecules when exposed to pepsin and papain enzymes?
  - Describe the host immune response to malarial parasite.
  - Match the following in column A with those of column B.

Column A	Column B
A. Epitope	I. IgM
B. Bone marrow	II. APC
C. MHC class II	III. NK cell
D. J-chain	IV. Hemopoiesis
E. Perforin	V. Antigen

3. Answer any **two** questions from the following: 10×2 = 20
- Describe the process of complement action through the classical pathway. How are complement molecules related to anaphylactic reaction? 8+2
  - Draw and describe the structure of MHC Class I molecule. Describe the process of antigen presentation by endogenous pathway. (2+4)+4
  - Describe the importance of affinity and avidity in Ag-Ab interaction. Discuss the process of monoclonal antibody production. 4+6
  - What do you mean by antigenic shift and antigenic drift? What are the ideal conditions and strategies for successful vaccination? (2+2)+6

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