2026

ZOOLOGY

(Major)

Paper : ZLG4200204MJ

(Immunology)

Full Marks : 45

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : 1×5=5

(a) Which of the following is a primary lymphoid organ?

(i) Spleen

(ii) Lymph node

(iii) Bone marrow

(iv) Tonsils

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(b) What type of antibody is produced in the primary immune response?

(i) IgA

(ii) IgG

(iii) IgM

(iv) IgE

(c) Which cells are mainly responsible for presenting antigens to T cells?

(i) Neutrophils

(ii) Mast cells

(iii) Dendritic cells

(iv) Eosinophils

(d) What is the role of MHC molecules in the immune system?

(i) Binding pathogens directly

(ii) Presenting antigens to T cells

(iii) Producing cytokines

(iv) Activating complement

(e) Which of the following is NOT a characteristic of innate immunity?

(i) Specificity

(ii) Immediate response

(iii) No memory

(iv) Physical barriers

2. Write short notes on any *five* of the following : 2×5=10

(a) Structure of an antibody

(b) Functions of B cells

(c) Define haptens with examples

(d) Physical barriers of innate immunity

(e) Monoclonal antibodies and their uses

(f) Adjuvant

(g) Toxoid vaccines

(h) Immunoglobulin G

(i) Memory T cell

(j) Types of epitopes

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3. Answer any *four* questions : 5×4=20

(a) Describe the structure and function of lymphoid organs.

(b) Give the properties of cytokines with help of examples.

(c) Discuss complement system pathways.

(d) Compare innate and adaptive immunity.

(e) Explain hypersensitivity reactions (types I–IV).

(f) Distinguish between a B-cell receptors and T-cell receptors.

(g) Structure and function of T-cell receptors.

(h) Types of vaccines and their applications.

(i) Role of cytokines in immune regulation.

(j) Antigen-antibody interactions in diagnosis.

4. Answer any *one* question : 10

(a) Describe the cells and organs of the immune system in detail.

(b) Explain antigen processing and presentation via MHC I and II pathways.

(c) Discuss the complement system : components, pathways, and functions.

(d) Elaborate on vaccines : types, mechanisms, and importance in public health.

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