

**2021**

**ZOOLOGY — HONOURS**

**Paper : CC-10**

**(Immunology)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer **any ten** questions.

1. Mention the primary lymphoid organs and state their functions in immunology. State the location and function of thymus. 3+2
2. What is the difference between antigenicity and immunogenicity? Distinguish between CD4+ and CD8+ cells. 2+3
3. Define antigen presenting cell. Give examples. Differentiate between Humoral immunity and cell-mediated immunity. (1+1)+3
4. What do you mean by isotype and allotype? Briefly explain 'agglutination' and 'precipitation' reactions. 2+3
5. Describe the structure of an immunoglobulin monomer with an appropriate labelled diagram. 3½+1½
6. What is hypersensitivity reaction? How does Type I hypersensitivity reaction differ from Type II hypersensitivity reaction? 2+3
7. Briefly describe principle and method of sandwich ELISA. Enumerate the different applications of ELISA. 3+2
8. Distinguish between monoclonal and polyclonal antibody. Describe the process of monoclonal antibody production. 1+4
9. What are cytokines? Mention the source and major functions of IL-2 and TNF- $\alpha$ . 1+(2+2)
10. What is adjuvant? Explain the chemical composition of any two adjuvants. Explain the role of adjuvants in vaccine. 1+2+2
11. Describe the structure of a T Cell receptor with suitable labelled diagram. 3½+1½

**Please Turn Over**

12. What is MHC? Distinguish between class I and class II MHC molecules. 1+4
13. Write down the principle of RIA. Write a short note on competitive ELISA. 2+3
14. What is a vaccine? Distinguish between active and passive immunization. 2+3
15. Write short notes on (*any two*) : 2½×2
- (a) Macrophage
  - (b) Acquired immunity
  - (c) ITAM
  - (d) Alternate complement pathway.
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