



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours 4th Semester Examination, 2023

**ZOOACOR10T-ZOOLOGY (CC10)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer any **eight** questions from the following: 2×8 = 16
- (a) What is MALT?
  - (b) What is adaptive immunity? How does it differ from innate immunity?
  - (c) What do you mean by super antigen?
  - (d) Differentiate between epitope and paratope.
  - (e) What is hematopoietic stem cell?
  - (f) What is auto-immune disease?
  - (g) What is hapten? Give example.
  - (h) What is monoclonal antibody?
  - (i) How does sickle cell protect against malaria?
  - (j) What type of hypersensitivity are generally associated with an insect bite?
  - (k) What is adjuvant? Give example.
  - (l) What do you mean by ADCC?
2. Answer any **three** questions from the following: 3×3 = 9
- (a) What are MHC molecules? Differentiate between Class I and Class II MHC molecule. 1+2
  - (b) What is thymocyte? What do you mean by positive and negative selection during T cell maturation? 1+2
  - (c) Write a short note on immunization. 3
  - (d) Distinguish between agglutination and precipitation in antigen-antibody reaction. 3
  - (e) Mention the source and function of IL-4, IL-12 and IFN-gamma. 1+1+1
3. Answer any **three** questions from the following: 5×3 = 15
- (a) Differentiate between classical and alternative pathway of complement system. 5
  - (b) Explain different types of ELISA technique. State the basic principle of ELISA. 3+2
  - (c) Compare and contrast the phenotypical and functional features of neutrophils and macrophages. Name the main cytokines produced by these cells and their role in inflammatory response.  $2\frac{1}{2} + 2\frac{1}{2}$
  - (d) Describe the hybridoma technology. 5
  - (e) Classify immunoglobulin molecules based on the nature of H-Chain. Which of these classes of antibody secretes with body fluid? 4+1

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