JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

MSc-II Semester (BT)

Course Code (Credits):20MS1BT212 (3) Max. Marks: 15

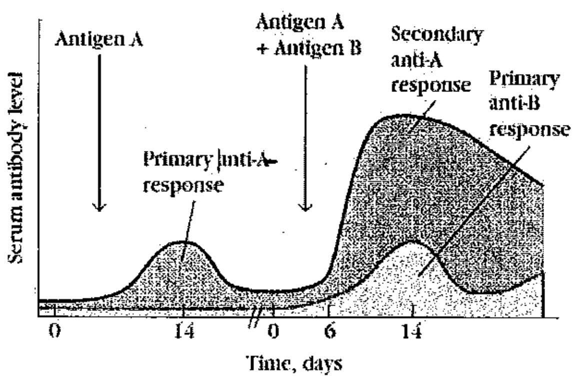
Course Name: Immunology

Course Instructor: Dr. Abhishek Chaudhary Max. Time: 1 Hour

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculators is not allowed

Q.No	Question	CO	Marks
Q1	Describe the historical controversy between Elie Metchnikoff and Von Behring and Shibasaburo Kitasato regarding the mechanisms of immunity. How did Metchnikoff's cellular theory and Kitasato humoral theory differ, and how did later discoveries help integrate both concepts into the modern understanding of the immune system		5
Q2	Explain how antigens are processed and presented via exogenous and endogenous pathways. Highlight the key differences in antigen source, cellular compartments involved, MHC molecules, and T-cell responses. How do these pathways ensure effective immune surveillance against extracellular and intracellular pathogens?		5
Q3	An experimental animal is injected with antigen A. Serum antibody levels are measured at regular intervals using ELISA. After 30 days, the same antigen is administered again. The ELISA results as shown in fig. show a slow rise in antibody titer after the first injection and a rapid, higher antibody titer after the second injection. **a.** Explain the immunological basis for the differences observed in antibody levels and response time  **b.** If an animal is injected with a mixture of antigen A and antigen B after 30 days, the immune response against antigen A is very strong and rapid, whereas the response against antigen B is slower and of lower magnitude, Why?		5

(7)