JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-V Semester (BT)

Course Code(Credits): 18B11BT513 (4) Max. Marks: 25

Course Name: Immunology

Course Instructors:Dr. Abhishek Chaudhary Max. Time: 1.5 Hour

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q.No	Question	CO	Marks
Q1	Since antibodies are glycoproteins, they can themselves function as potent immunogens to induce an antibody response. For each of the following immunization scenarios, indicate whether anti-immunoglobulin antibodies would be formed to isotypic (IS), allotypic (AL), or idiotypic (ID) determinants and justify your answer. a) A BALB/c mouse's anti-DNP antibodies are injected into C57BL/6 mice. b) A BALB/c mouse receives an injection of anti-BGG monoclonal antibodies from another BALB/c animal. c) A BALB/c mouse produces anti-BGG antibodies, which are then injected into a rabbit. d) A BALB/c mice's anti-DNP antibodies are implanted into an outbred mouse. e) The same mouse is given an injection of anti-BGG antibodies made in a BALB/c mouse.	CO-3	5
Q2	Tiselius and E. A. Kabat conducted a seminal experiment in 1939 that provided the first proof that specific serum protein fractions contained antibodies. I. What kind of experiment was it? Describe in depth, using an appropriate illustration, how they verified that the serum contained antibodies. II. Where the CDR regions located on an antibody molecule and what are are their functions? III. What do you understand by sIG and mIG? Give a clear and concise diagram that illustrates the main differences between them. IV. The T cell is said to be class I restricted. What does this mean?	CO-2	4+2+2 +1
Q3	What defense mechanisms might an insect, such a beetle or mosquito, have against infection? What similarities and differences might exist between insects and a plant's innate immune responses?	CO-1	3
Q4	A Th response refers to a type of T-helper cell response in the immune system, specifically Th1 and Th2, which differ in their roles. Give a detailed explanation of what you mean by Th1 and Th2 responses (2).	CO-2	2

Q5	Indicate which of the following antigen pairs is most likely to elicit an immune response. **Give a detail explanation for your response.** i. A protein with a sequence of (W-W-W-W-W-W-W)n A protein with a sequence of (C-D-E-W)n [letter indicated the single letter code for amino-acid] ii. Serum Protein in Freund's complete media Serum Protein in Freund's incomplete media iii. An amino acid polymer with a molecular weight of 45,000 An amino acid polymer with a molecular weight of 100,000 iv. Homopolymer of amino acid with a molecular weight 100,000 Copolymer of amino acid with a molecular weight 70,000	CO-3	6