

**B.Sc. BIOTECHNOLOGY
FOURTH SEMESTER
IMMUNOLOGY
BBT-402**

**SET
A**

[USE OMR FOR OBJECTIVE PART]

Duration: 1.30 hrs.

Full Marks: 35

Time: 15 min.

(Objective)

Marks: 10

1X10=10

Choose the correct answer from the following:

1. Physiologic barrier includes
 - a. Lysozyme
 - b. pH
 - c. interferons
 - d. All of the above
2. Activation of macrophages depend upon
 - a. Interaction with antigen
 - b. Interaction with antigen-MHC class II
 - c. Cytokines secreted by T_H cells
 - d. all of the above
3. What is not found in secondary follicles?
 - a. Germinal center
 - b. B cells
 - c. Macrophage
 - d. Mast cells
4. Positive selection in thymus is to remove
 - a. T cells acting against grafts
 - b. T cells acting against self-components
 - c. T cells acting against macrophage
 - d. B cells against B cells from another individual
5. How many amino acid residues are present in the extra domain of IgM?
 - a. Question is wrong
 - b. 440
 - c. 110
 - d. Both (b) and (c)
6. cysteine and proline in an antibody provides
 - a. flexibility
 - b. target for protein digestion
 - c. both are correct
 - d. only (a)
7. Which of the following is true regarding Haplotypes?
 - a. Expressed by mother and father
 - b. both sets are inherited by the offspring
 - c. Haplotypes are not codominantly expressed
 - d. Both (a) and (b)
8. C5a initiates
 - a. Opsonization
 - b. Viral neutralization
 - c. Smooth muscle contraction
 - d. increased expression of CR

9. Properdin increases the half-life of
- a. C5b6
 - b. C4b2b
 - c. C3bBb
 - d. C3bBb3b
10. M cell is involved in
- a. phagocytosis
 - b. expression of antibody receptor
 - c. release of lysozyme
 - d. Both (a) and (b)
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(Descriptive)

Time : 1 hrs. 15 min.

Marks : 25

[Answer question no.1 & any two (2) from the rest]

1. What is the relationship between immunologic memory and principle of vaccination? Explain phagocytosis with the help of a suitable diagram. What is the importance of chemical mediators during an immune response? 2+2+1=5

2. Explain the structure of antibodies with help of IgE and explain the significance during allergic reaction. Define precipitation and agglutination reactions. Explain the precipitin curve with the help of SRID and ODD. Mention its importance. Explain how interpretation of competitive ELISA is different from the rest of the types and write about the steps involved in competitive ELISA. 3+2+3+2=10

3. Explain the structure of MHC I molecules with a neat diagram. What is the importance of expression of class I MHC molecules during an immune response against virus infection? What are Haptens? Why are haptens antigenic and not immunogenic? What is the significance of haptens in the field of medical? Differentiate between affinity and avidity. 3+1+1+1+2+2=10

4. Explain the process of the classical pathway of complement activation. How activated complement systems cause lysis of the target cell? Explain the mechanism. What is the importance of the smaller fragments during an immune response? Justify your answer with an example. Explain the relationship between SLE and immune clearance. 3+3+2+2 =10

5. How to differentiate different granulocytes? Write about their characteristics. Explain the structure of lymph nodes. Do NK cell and T and B cell share similar receptors of antigens? Explain how NK cell are effective against a target cell. 1+4+2+3=10

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