REV-01
MMB/05/06

2025/11

SET A

M.Sc. MICROBIOLOGY
THIRD SEMESTER
IMMUNOLOGY
MMB-301

[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 min. **Marks: 20**

1X20=20

Choose the correct answer from the following:

1. The term 'attenuation' stands for
   a. infectivity of the organism is reduced
   b. The organism has been heat killed
   c. DNA from the organism
   d. all of the above

2. Which of the following does not belong to innate immunity?
   a. Macrophages
   b. cytokines
   c. TLRs
   d. Immunologic memory

3. Which is not true about adaptive immune response
   a. Antigen specific
   b. Diversity
   c. Active against self cells
   d. Both (a) and (b)

4. Which of the following does not fall under Lymphoid progenitor cells
   a. Neurrophils
   b. Eruthrocytes
   c. Megakaryoytes
   d. B-cells

5. Which of the following is a primary lymphoid organ
   a. Spleen
   b. Bone marrow
   c. lymph nodes
   d. MALT

6. Adjuvant are used when
   a. Amount of antigen is less
   b. Antigen has low immunogenicity
   c. Haptens
   d. all of the above

7. What is the percentage of lymphocytes present in the lymph?
   a. 100
   b. 99
   c. 20
   d. 40

8. Discreet sites on the surface of antigen is called as
   a. Epitope
   b. Antigenic determinant
   c. antibody
   d. Both (a) and (b)

9. Cytokines released by monocytes are called
   a. Lymphokines
   b. Monokines
   c. Interleukins
   d. None of the above

10. The principle of RIA depends on
    a. Competitive binding
    b. Antigen-antibody interaction
    c. Enzyme-substrate complex
    d. None of these

11. The following damage cells by releasing pharmacologically active mediators
    a Macrophages
    b Neutrophils
    C Mast cells
    D Only (a) and (b)

12. Dendritic cells do not express
    a Receptors for Ab
    b Class II MHC
    C CD28
    D All of the above

13. Secondary follicles are NOT found in the following
    a Tonsils
    B Payer's patch
    C Medulla of Thymus
    d Marginal zone

14. Type II hypersensitivity is mediated by
    a IgM
    B IgG
    C IgD
    D Both (a) and (b)

15. Iodine is not absorbed by the thyroid gland in Hashimoto's thyroiditis due to
    a Low concentration of iodine in the diet
    B Lack of thyroid hormones
    C Destruction of protein involved in absorption
    D all of the above

16. Properdin increases the half-life of
    a C5b6
    B C4b2b
    C C3bBb
    D C3bBb3b

17. Rocket electrophoresis is an example of
    a. ELISA
    b. RIA
    c. Precipitation reaction
    d. Agglutination reaction

18. Blood borne antigen interacts with matured lymphocytes in
    a. lymph nodes
    b. Payer's patch
    c. Spleen
    d. none of the above

19. Endocrine means of cytokine action is
    a. Between nearby cells
    b. Within the same cell
    c. Redundancy
    d. Between distant cell

20. Immature T cells are called as
    a. Younger T cells
    b. Thymocytes
    c. Older T cell s
    d. None of the above

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Descriptive

Time : 2 hrs. 30 min. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Define Immunity. What is the role of attenuation in the process of making vaccines? Explain in brief. Explain anatomic barrier and inflammatory respond of innate immunity. **1+3+6 = 10**

2. What is the importance of hematopoiesis? Write a note on B cells and T cells and mention their importance. What is the significance of macrophages and neutrophils during an immune response? Give a detailed account of lymph nodes with a suitable diagram. **1+4+2+3=10**

3. Define immunogenicity and antigenicity. Explain the factors that influence immunogenicity. What is the importance of adjuvants and mention their types. Write in brief RIA. **2+3+3+2= 10**

4. **Write short note on the following (any two)** **5 + 5 = 10**
   a) Indirect ELISA
   b) Alternative pathway of complement activation

5. Explain the structure of thymus with a neat diagram. Explain the role of basophils and mast cells in an immune response. Explain the mechanism of phagocytosis. **4+4+2=10**

6. What is the difference between autoimmune disease and hypersensitivity? Explain IDDM and rheumatoid arthritis. **2+4+4=10**

7. How type III hypersensitivity causes tissue damage? Explain with the help of an example. Explain the relation between C3b and opsonization. Explain the use of smaller fragments of the complement system during an immune response. **6+2+2 =10**

8. Explain the attributes of cytokines. Write briefly about immunoelectrophoresis and rocket electrophoresis. **4+3+3=10**

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