2023/08

**SET A**

# M.Sc. MICROBIOLOGY
## THIRS SEMESTER (SPECIAL REPEAT)
## IMMUNOLOGY
## MMB-304

**[USE OMR SHEET FOR OBJECTIVE PART]**

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

**(Objective)**

**Time: 30 mins.** **Marks: 20**

***Choose the correct answer from the following:*** ***1×20=20***

1. Antibody that has an extra constant region heavy chain domain:
   a. IgM b. IgE
   c. Both a and b d. IgD
2. Surface molecule involved in the transportation of peptide from cytosol to endoplasmic reticulum:
   a. MAC b. CLIP
   c. MHC d. TAP
3. Which of the following statement is incorrect regarding plasma cells?
   a. Plasma cells are effector cells b. Plasma cells secrete antibodies
   c. Plasma cells have surface receptors d. The precursor of plasma cells are B cells
4. Peptide length for class I MHC molecule is:
   a. 13-18 b. 10-18
   c. 8-10 d. 15-20
5. Antigen presenting cells like macrophages expresses which class of MHC molecules?
   a. Class I b. Class II
   c. Class III d. All of the above
6. Complement molecules are found mainly in :
   a. Thymus b. RBC
   c. Blood plasma d. WBC
7. Component pathway of complement system is involved in:
   a. Non-specific defence b. Innate immunity
   c. Adaptive immunity d. Both a and b
8. Grave's disease is caused due to:
   a. Destruction of thyroid cells b. Overstimulation of thyroid gland by autoantibodies
   c. Blocking the receptors d. All of the above
9. αβγ subunits are found in which subfamily of cytokine receptor?
   a. GM-CSF b. IL-2
   c. IL-6 d. Both a and b
10. $T_H$ mediate:
    a. Type I hypersensitivity b. Type II hypersensitivity
    c. Type III hypersensitivity d. DTH

11. The concept of vaccination was developed by:
    a. Edward Jenner
    b. Carl Landsteiner
    c. Louise Pasteur
    d. None of the above

12. $CD4^+$ receptor is present on which type of lymphocyte?
    a. $T_H$ cells
    b. $T_C$ cells
    c. $T_S$ cells
    d. B cells

13. Naturally acquired active immunity would be most likely acquired through which of the following processes?
    a. Vaccination
    b. Infection with disease causing organism followed by recovery
    c. Natural birth
    d. Drinking colostrum

14. Which of the following immune cells/molecules are most effective at destroying intracellular pathogens?
    a. T helper cells
    b. T cytolytic cells
    c. B cells
    d. Complement

15. Which of the following cell/s are phagocytic?
    a. Neutrophils
    b. Basophils
    c. Monocytes
    d. All of the above

16. Antigens from lymph are removed in which organ?
    a. Bone marrow
    b. Thymus
    c. MALT
    d. Lymph node

17. Which of the following is ODD regarding macrophage?
    a. $T_H$ cells
    b. Antigen presenting cells
    c. IgG
    d. DTH response

18. Factors effecting immunogenicity of an antigen include all EXCEPT:
    a. Molecular size
    b. Foreignness
    c. Complexity
    d. All of the above

19. Lymphocytes recognize certain discrete sites on antigen molecule called:
    a. Antigenic determinant
    b. Epitope
    c. Both a and b
    d. None of the above

20. Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule?
    a. Virus
    b. Bacteria
    c. Antigen
    d. None of the above

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## (Descriptive)

**Time : 2 hr. 30 mins.** **Marks : 50**

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

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|---|---|---|
| 1. | Define immunogenicity and antigenicity. Add a note on adjuvants and agglutination reaction. | 2+4+4=10 |
| 2. | Define hypersensitivity. Write about Hashimoto's thyroiditis and Insulin Dependent Diabetes Mellitus. Explain hypersensitivity type IV reaction with examples. | 1+5+4=10 |
| 3. | Define complement system. Explain the alternative pathway of complement activation. Write in brief how the complement system neutralizes viral infectivity? | 1+5+4=10 |
| 4. | How to differentiate between primary and secondary lymphoid organs? Write a note on antigen presenting cells. With the help of a diagram explain the structure of spleen. What type of reactions macrophages are involved in? | 2+3+4+1=10 |
| 5. | Explain in brief about Haematopoiesis. Write about the attributes of adaptive immunity. Explain the role of neutrophils and basophils. | 2+5+3=10 |
| 6. | Differentiate between innate and adaptive immunity. Explain the barriers of innate immunity. | 5+5=10 |
| 7. | With the help of IgG, explain the structure of antibody. Write in brief the functions of antibodies. Explain the structure of Class I MHC molecules. | 3+4+3=10 |
| 8. | Define haplotypes. Write about the genes and regions of chromosome encoding classes of MHC. Write the attributes of cytokines. What are the families of cytokine receptors? | 1+3+4+2=10 |

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