(7 pages) **Reg. No. :** .....

Code No. : 5680 **Sub. Code : WMBM 31**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2025

Third Semester

Microbiology – Core

IMMUNOLOGY AND MICROBIAL GENETICS

(For those who joined in July 2023 onwards)

Time : Three hours Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. Give example for the process of microbial engulfment

   (a) Phagocytosis (b) Exocytosis

   (c) Chemotaxis (d) All the above

2. Graveyard of Immune system is

   (a) Spleen (b) Lympnode

   (c) Thymus (d) None of the above

3. MHC class I molecules are primarily involved in

   (a) Recognition of glycolipid antigens

   (b) Resistance to fungi

   (c) Resistance to viruses

   (d) Activation of neutrophils

4. Which of the following immunoglobulins makes the largest percentage in breast milk?

   (a) IgM (b) IgD

   (c) IgG (d) IgA

5. One principal function of complement is to

   (a) Inactivate performs

   (b) Mediate the release of histamine

   (c) Bind antibodies attached to cell surfaces and to lyse these cells

   (d) Phagocytize antigens

6. Which T-lymphocyles activate the B-cell response?

   (a) Helper T-cells

   (b) Cytotoxic T-cells

   (c) Suppressor T-cells

   (d) Memory T-cells

7. Pollen would most likely evoke which type of hypersensitivity response

(a) Cytotoxic (Type II)

(b) Immune complex (Type III)

(c) Cell-Mediated (Type IV)

(d) Immediate Type (Type I)

8. Which hypersensitivity reactions are T cell-mediated?

(a) Type I (b) Type II

(c) Type III (d) Type IV

9. What is a graft between different members of the same species termed?

(a) Autograft (b) Isograft

(c) Xenograft (d) Allograft

10. Which of the following histone pairs forms tetramers in solution?

(a) H1, H2A (b) H2A, H2B

(c) H2B, H3 (d) H3, H4

11. Protein phosphorylation cannot occur on which of the following amino acid residues?

(a) Serine (b) Threonine

(c) Tyrosine (d) Tryptophan

12. Which of the following enzymes do not mediate post-translational modifications?

(a) Kinases (b) Ligases

(c) Phosphatases (d) Helicases

13. The process of recombination in prokaryotes takes place in this way

(a) Transformation (b) Conjugation

(c) Transduction (d) All of the above

14. This process involves transferring naked DNA fragments between bacteria

(a) Vectoring (b) Transformation

(c) Transduction (d) Conjugation

15. Consequences of transposons insertion into the gene coding region

(a) DNA repair

(b) Enhanced gene expression

(c) Nucleotide synthesis

(d) Gene silencing

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

16. (a) Give a detailed note on Bone marrow.

Or

(b) Describe Class I MHC Molecule.

17. (a) Describe general characters of Antibody.

Or

(b) Give a short note on lectin pathway of complement activation.

18. (a) Give a brief note on anaphylactic reactions.

Or

(b) Explain ODD reaction.

19. (a) Explain the features of chromatin.

Or

(b) Explain gene imprinting.

20. (a) Describe natural competence in Streptococcus.

Or

(b) Give a brief note on Transposons.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

21. (a) What is immunity. Explain Innate immunity in detail?

Or

(b) Describe Secondary lymphoid organs.

22. (a) Write a detailed note on complement.

Or

(b) Differentiate the nature of different immunoglobulins.

23. (a) Summarize the features of hypersensitivity.

Or

(b) Write an essay on agglutination reactions.

24. (a) Differentiate prokaryotic and Eukaryotic genome.

Or

(b) Give the salient features of Nucleosome.

25. (a) Give a short note on bacterial transformation.

Or

(b) Give a brief note on Generalized Transduction.
