NOVEMBER 2023 **57152/416C1B**

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer any TEN questions each in 50 words.

1. What is the primary function of T and B lymphocytes in the immune system?

2. Define antigenicity.

3. Differentiate between innate immunity and acquired immunity.

4. What are immunoglobulins?

5. Differentiate between polyclonal and monoclonal antibodies.

6. Define the term Hybridoma Technology.

7. Differentiate between primary and secondary immunodeficiency.

8. Define the term “precipitation” in diagnostic immunology.

9. What is the function of the centromere in a chromosome?

10. Define a nucleosome and its significance in chromatin structure.

11. Define conjugation.

12. How do transposable elements contribute to genetic diversity?

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions each in 200 words.

13. Compare active and passive immunity with examples.

14. Explain the classical complement pathway.

15. Explain the various types of immunoglobulins and their respective role in the immune system.

16. Describe the process of lymphocyte activation, clonal proliferation and differentiation during an immune response.

17. Explain the different types of hypersensitivity reactions with examples.

18. Elaborate on the concept of gene imprinting, including its mechanisms and consequences for gene expression regulation.

19. Compare the prokaryotic and eukaryotic genomes, highlighting their key differences and similarities.

PART C — (4 × 10 = 40 marks)

Answer any FOUR questions each in 500 words.

20. Elaborate on the genetics of HLA systems, focusing on the diversity of HLA antigens and their importance in organ transplantation and disease susceptibility.

21. Discuss in detail about the antigen recognition process by T-cell receptors (TCR).

22. Explain the principles and applications of immunofluorescence, radioimmunoassay and ELISA.

23. Write in detail about the role of Cytokines in cell mediated immunity.

24. Discuss in detail about the gene transfer mechanisms.

25. Explain the theories of antibody production.

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