Date: 03-11-2023   Dept. No.   Max. : 100 Marks
Time: 09:00 AM - 12:00 NOON

PART – A   **(10 x 2 = 20 Marks)**

Answer the following, each within 50 words.

1. Distinguish between phenotype and genotype.

2. What is incomplete dominance?

3. What are Multiple alleles?

4. Write notes on Tetrad analysis.

5. Define nucleotide.

6. Distinguish between transcription and translation.

7. What is frame shift mutation?

8. Distinguish between transition and transversion mutation.

9. What is mass selection?

10. Define hybrid vigour.

PART – B   **(5 X 7 = 35 Marks)**

Answer the following, each within 500 words; Draw diagrams and flowcharts wherever necessary

11. (a) Explain monohybrid cross with suitable example.
                    OR
    (b) Write notes on Codominance and Lethal genes

12. (a) Describe complementary gene interaction with an example.
                    OR
    (b) Explain polygenic inheritance with suitable example.

13. (a) Describe the various stages of synthesis of DNA in prokaryotes.
                    OR
    (b) List out the salient features of genetic code.

14. (a) Write an account on any two types of chromosomal aberrations.
                    OR
    (b) Describe the structure of simple and composite transposable elements.

15. (a) What is pure line selection? Add a note on its merits and demerits.
<div align="center">OR</div>
   (b) Give an account on polyploidy and its role in plant breeding.

<div align="center">**PART – C**   **(3 X 15 = 45 Marks)**</div>

*Answer **any three** of the following, each within 1200 words. Draw diagrams and flowcharts wherever necessary*

16. What is law of Independent assortment? Explain the law of Independent assortment with an example.

17. Write a detailed account on sex linked inheritance.

18. Describe the structure and functioning of *lac* operon.

19. Write an essay on the various types of DNA repair mechanisms.

20. Write a detailed account on hybridization techniques in plants.

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