Reg. No ....   Name **23U543**

B. Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023
SEMESTER 5 : BOTANY
COURSE : **19U5CRBOT7** : GENETICS AND PLANT BREEDING
(For Regular 2021 Admission and Supplementary 2020/2019 Admissions)

Time : Three Hours   Max. Marks: 60

PART A
Answer All (1 mark each)

1. What is Population genetics?
2. What is Cytoplasmic inheritance?
3. Give an example for Non-Epistasis Gene Interaction.
4. What is allotetraploids?
5. What are mutagens?
6. Write the full form of NBPGR.
7. What is synaptonemal complex?
8. Define hybridisation.

                                                                        (1 x 8 = 8)

PART B
Answer any 6 (2 marks each)

9.   What is Non-Epistasis Gene Interaction? Give an example.
10. What is Principle of Segregation?
11. Explain dominance hypothesis of heterosis.
12. Differentiate between mass selection and clonal selection.
13. What are the functions of Synaptonemal complex proteins?
14. What is chromosomal sex-determination? Give an example.
15. What is Extranuclear inheritance? Give an example.
16. Differentiate between quantitative and qualitative traits.
17. Define Genotype frequency and Allelic frequency.
18. Write a note on Raphanobrassica.

                                                                        (2 x 6 = 12)

PART C
Answer any 4 (5 marks each)

19. Explain the inheritance of Comb pattern in Poultry.
20. Explain the genetical basis of heterosis.
21. Explain the Mechanism of Crossing Over.
22. Describe the types of disease resistance.
23. What are the different characters and traits selected for the experimental studies in Pea plants by Mendel?
24. What is Sex-Limited inheritance? Explain with an example.

                                                                        (5 x 4 = 20)

PART D
Answer any 2 (10 marks each)

25. What is Multiple allelism? Explain with an example.

26. Describe the different methods of hybridization.

27. The action of alleles of one gene masked the phenotypic expression of alleles of the other gene. What kind of gene interaction is mentioned above? Explain this interaction with any two examples.

28. What would be the sex of individuals with XY, XXY, XXXY, and XXXXY conditions in the Melandrium album? Explain the reason.

(10 x 2 = 20)