Reg. No ..... Name **22U541**

B. Sc. DEGREE END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 5 : BOTANY

COURSE : **19U5CRBOT7 : GENETICS AND PLANT BREEDING**

(For Regular - 2020 Admission & Supplementary 2019 Admission)

Time : Three Hours Max. Marks: 60

PART A
Answer All (1 mark each)

1. What is qualitative trait?
2. Write the full form of NBPGR.
3. What are linked genes?
4. What is the F2 phenotype ratio of Dominant epistasis?
5. Define polyploidy
6. What are single cross hybrids?
7. State Hardy Weinberg law.
8. What is maternal effect?

(1 x 8 = 8)

PART B
Answer any 6 (2 marks each)

9. Differentiate between intergeneric and interspecific hybridization.
10. What is Polygenic inheritance? Give an example.
11. What is bivalent or tetrad condition?
12. Write a note on Raphanobrassica.
13. Write a note on the plant introduction agencies in India.
14. Two different types of sex chromosomes are present in human males. But in some organisms males contain only one type sex chromosome. Explain.
15. Differentiate between micro - mutation and macro - mutation. Describe mutation breeding for crop improvement.
16. Define Genotype frequency and Allelic frequency.
17. What is chromosomal sex-determination? Give an example.
18. What is Recessive epistasis? Give an example.

(2 x 6 = 12)

PART C
Answer any 4 (5 marks each)

19. Why did Mendel select Pisum sativum as the experimental plant?
20. Explain the Mechanism of Crossing Over.
21. Differentiate between composite and synthetic varieties.
22. What are Lethal genes? Explain with an example.
23. Write a note on alloteterapolyploids.
24. Eye color in Drosophila is an X-linked trait. Explain.

(5 x 4 = 20)

PART D
Answer any 2 (10 marks each)

25. How do scientists apply Mendelian genetics to predict the phenotype of genetic crosses? What are the limitations of Mendelian genetics on these predictions?
26. Homologous chromosome separate during meiosis and incorporated into different gametes and genetic information passes to offspring. List out patterns of inheritance passed not through chromosome, explain in detail with examples.
27. Explain the inheritance pattern of Comb pattern in Poultry. Write the F2 phenotype ratio.
28. Differentiate between heterosis and inbredding depression. Explain the genetic basis of heterosis.

(10 x 2 = 20)