

Reg. No

Name

24U543

B. Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2024

SEMESTER 5 : BOTANY

COURSE : 19U5CRBOT7 : GENETICS AND PLANT BREEDING

(For Regular 2022 Admission and Supplementary 2021/ 2020 / 2019 Admissions)

Time : Three Hours

Max. Marks: 60

PART A

Answer All (1 mark each)

1. What is emasculation?
2. What is Genotype frequency?
3. What are Bt crops?
4. Give an example for recessive epistatic gene interaction.
5. What is maternal effect?
6. What is qualitative trait?
7. Write the full form of NBPGR.
8. Who proposed the Chromosome theory of linkage?

(1 x 8 = 8)

PART B

Answer any 6 (2 marks each)

9. What is Dominant epistasis? Give an example.
10. What is polygenic inheritance?
11. Differentiate between direct and indirect introduction.
12. What is Allelic frequency? Write the formula to calculate Allelic frequency.
13. What is Punnett square? Who proposed it?
14. Define apomixis. Write its use.
15. Differentiate between micro - mutation and macro - mutation. Describe mutation breeding for crop improvement.
16. Explain the inheritance of eye colour in Drosophila.
17. Explain the advantages of GM crops.
18. What is Interference? Write the formula to calculate interference.

(2 x 6 = 12)

PART C

Answer any 4 (5 marks each)

19. Explain the mechanism of Crossing Over.
20. Explain the different types of hybridisation.
21. What is pedigree analysis? What are the symbols used in the pedigree?
22. Describe the methods of mutation breeding.
23. What are the important findings of Monohybrid experiment?
24. Explain the inheritance of Comb pattern in Poultry.

(5 x 4 = 20)

PART D

Answer any 2 (10 marks each)

25. What is chromosomal sex determination? Explain with an example.
26. Explain the pattern of inheritance of Flower color in *Lathyrus odoratus*. Write the F₂ phenotype ratio.
27. What is Multiple Factor Hypothesis? Explain the reasons for continuous variation with ear size in maize.
28. Differentiate between heterosis and inbreeding depression. Explain the genetic basis of heterosis.

(10 x 2 = 20)