

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2025

(Regular/Improvement/Supplementary)

BOTANY

FBOT2C05: GENETICS, BIOSTATISTICS, PLANT BREEDING AND EVOLUTION

Time: 3 Hours

Maximum Weightage: 30

Part A: Answer any *four* questions. Each carries 2 weightage.

1. What is QTL Mapping?
2. Write an account on the linkage in humans citing an example.
3. What is polygenic inheritance? Cite an example.
4. Give an account on standard deviation.
5. What is SPSS? Mention its significance in data analysis.
6. Write a short note on applications and limitations of distant hybridization.
7. Explain modern synthetic theory of evolution.

(4 × 2 = 8 weightage)**Part B: Answer any *four* questions. Each carries 3 weightage.**

8. Write a note on the gene mapping in bacteria.
9. Explain Hardy-Weinberg principle. Write a note on the factors effecting equilibrium.
10. What is Binomial distribution? Describe the characteristics of the Binomial distribution and provide examples of situations where it is applicable.
11. Write an account on experimental designs? Make a comparison between CRD and RBD.
12. Explain the procedure of clonal selection mentioning its merits, demerits and achievements.
13. Write a note on the allopolyploidy breeding with its role in evolution.
14. Discuss Darwinian and Post-Darwinian theories of evolution.

(4 × 3 = 12 weightage)**Part C: Answer any *two* questions. Each carries 5 weightage.**

15. Write an essay on transposable elements found in bacteria, drosophila and maize.
16. Explain the methodology of mutation breeding. Comment on its merits, demerits and achievements.
17. Explain the theories and experimental evidences for the origin of life.
18. Compare and contrast the z-test, t-test, and chi-square test in terms of their uses and assumptions.

(2 × 5 = 10 weightage)