

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2021
BOTANY
FBOT2C05: GENETICS, BIOSTATISTICS, PLANT BREEDING AND EVOLUTION

Time: 3 Hours

Maximum Weightage: 30

Part A: All questions can be answered. Each carries *two* weightage (Ceiling 6 weightage).

1. What are IS elements?
2. Discuss Mendel's law of inheritance.
3. What is the breeding procedure for transfer of Recessive genes in crop plants?
4. Discuss various sources of nutritional quality traits in crop plants.
5. Distinguish F- test from chi-square test.
6. Explain briefly the significance of regression coefficient.
7. List paleontological evidences of evolution.

Part B: All questions can be answered. Each carries *four* weightage (Ceiling 12 weightage).

8. What are Transposons? Mention their genetic and evolutionary significance.
9. Define Polygenic inheritance? Explain Polygenic inheritance of DDT resistant alleles in *Drosophilla*.
10. Give an account on the different kinds of statistical softwares. Explain their applications.
11. Define Heterosis. Briefly explain the features and practical achievements of heterosis in crop plants.
12. Discuss the postulates of theory of Darwinism.
13. Write an account on the theories and experimental evidences of origin of life.
14. Outline the applications and limitations of Autopolyploidy breeding.

Part C: All questions can be answered. Each carries *six* weightage (Ceiling 12 weightage).

15. Give a brief account of various plant breeding methods used for drought tolerant varieties in crop plants.
16. What are the principles of Experimental design? Discuss various methods of designing an experiment.
17. Discuss the different reproductive isolating mechanisms in nature. Discuss their relative significance in variation.
18. Describe the method of Gene mapping in bacteriophage.