

2021
M.Sc.
Third Semester
CORE – 09
BOTANY
Course Code: MBOC 3.11
(Genetics, Cytogenetics & Plant Breeding)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

UNIT-I

1. Gregor Mendel was fortunate in his study on the laws of heredity.
Discuss. Define Mendel's laws of heredity supported by examples. 5+9=14
2. Write notes on the following: 7×2=14
 - (i) Tautomerisation
 - (ii) Linkage

UNIT-II

3. Discuss in detail about chromosomal deletion and its effect. 14
4. Write notes on the following: 7×2=14
 - (i) Trisomy
 - (ii) Permanent hybrids

UNIT-III

5. What are polyploids? Give an account on origin, meiotic and breeding behavior of allopolyploids. Mention the differences between autopolyploids and allopolyploids. 14
6. Explain how alien addition and substitution lines are created in crop plants? 14

UNIT-IV

7. What does it mean by gene frequency? Explain gene frequency in a population with the help of Hardy-Weinberg law? 2+12=14
8. Write an illustrated account on the various causes of hybrid vigor and briefly mention about inbreeding depression. 14

UNIT-V

9. What is phenotypic variance? Describe the components of phenotypic and genotypic variance in a population. 2+12=14
 10. Write an illustrated account on male sterility in plants and its application in hybrid seed production. 14
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