

2022
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. Write notes on the following: 7×2=14
 - (a) Mendel's law of segregation
 - (b) Genetic recombination
2. (a) Discuss on the types of mutation. 7
(b) Write a note on the organization of eukaryotic chromosome. 7

UNIT-II

3. (a) Discuss gene duplication with an appropriate example. 7
(b) Elaborate on the types of aneuploidy. 7
4. (a) Discuss allopolyploidy with an example. 7
(b) Write a note on permanent hybrids. 7

UNIT-III

5. (a) Discuss on the origin, meiotic and breeding behaviours of haploids. 7
(b) Write a note on Giemsa banding of chromosome. 7
6. Write notes on the following: 7×2=14
 - (a) FISH
 - (b) Genome and chromosome engineering

UNIT-IV

7. (a) Define gene flow. Discuss its barriers. 7
(b) Discuss the process of hybridization. 7
8. Write notes on the following: 7×2=14
(a) Pedigree method
(b) Mechanism of speciation

UNIT-V

9. Write notes on the following: 7×2=14
(a) Concept of combining ability
(b) Genotypic variance
10. (a) Write a note on the breeding mechanism for pest resistance. 7
(b) How is inbred improvement achieved? Discuss. 7
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