

2023
B.A./B.Sc.
Sixth Semester
CORE – 14
BOTANY
Course Code: BOC 6.21
(Plant Biotechnology)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. Define tissue culture. Describe the method in the preparation of culture media and its various composition. 3+11=14
2. Write notes on *any two* of the following: 7×2=14
 - (a) Germplasm conservation
 - (b) Protoplast isolation, culture and fusion
 - (c) Androgenesis

UNIT-II

3. Write a note on the history, nomenclature, types and applications of restriction enzymes. 14
4. Write notes on *any two* of the following: 7×2=14
 - (a) Restriction mapping
 - (b) Cloning and expression vectors
 - (c) pUC18

UNIT-III

5. Describe PCR. 14
6. Write notes on *any two* of the following: 7×2=14
 - (a) Colony hybridization
 - (b) Insertional inactivation

(c) Genomic library construction

UNIT-IV

7. Describe the various methods of direct gene transfer. 14
8. Write notes on any two of the following: 7×2=14
- (a) Role of *vir* gene in Ti plasmid
 - (b) Role of luciferase as reporter gene
 - (c) Role of NOS and OCS gene in *Agrobacterium tumefaciens*

UNIT-V

9. Give your thoughts on why transgenic plants should be encouraged or discouraged. 14
10. Write notes on any two of the following: 7×2=14
- (a) Round-up ready soyabean
 - (b) Moondust carnations
 - (c) Humulin
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