

2024
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. What is tissue culture media? Give a detailed account on the important role of vitamins and hormones in culture media. 2+12=14
2. Give an account on the difference and applications between somatic embryogenesis and zygotic embryogenesis. 7+7=14

UNIT-II

3. What are cloning vectors? Citing an example for each, elaborate on prokaryotic and eukaryotic vectors. 3+11=14
4. Write notes on the following: 7×2=14
 - (a) Mention any five restriction enzymes with their respective cutting sites.
 - (b) Refer to the table and construct a circular restriction map.

	2 kb	3 kb	4 kb	6 kb	7 kb	13 kb	26 kb
ECoRV							26
BamH1		3	4	6		13	
EcoRV/ BamH1		3	4	6, 6	7		

UNIT-III

5. Prepare a flowchart for cDNA library synthesis. 14

6. Write short notes on the following: 7×2=14
(a) Conditions for primer design
(b) *Taq* polymerase

UNIT-IV

7. Describe the *Agrobacterium tumefaciens* mediated gene transfer method. 14
8. Write notes on the following: 7×2=14
(a) GFP
(b) Microprojectile projection

UNIT-V

9. Supporting your answer with relevant examples, discuss the role of transgenics in bioremediation. 14
10. Write notes on the following: 7×2=14
(a) Bt cotton
(b) Biosafety concerns in biotechnological applications
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