

314162

S-4193

M.Sc. (Fourth Semester)

Examination, 2024-25

BOTANY

Paper Second

(Biotechnology and Genetic Engineering)

[BOT-C-020]

Time : Two Hours]

[Maximum Marks : 60

Note : Attempt any *four* questions. All questions carry equal marks. Do not attempt questions in parts.

1. Discuss the scope and application of plant cell the tissue culture in agriculture, horticulture and biotechnology Provide examples of its use in crop improvement, disease elimination and conservation.
2. Explain the following :
 - (a) Cellular differentiation.
 - (b) Androgenesis.

What is cryo preservation and how it is applied in plant tissue culture? Discuss the methods, challenges and significance of cryopreservation in the long term conservation of plant genetic resources.

4. What is gene cloning? Describe the steps of gene cloning in a bacterial cell.
 5. What are cloning vectors? Describe the salient features of a plasmid based cloning vector.
 6. What are transgenic plants? Describe a method to produce transgenic plants.
 7. Describe techniques for genetic improvement for industrially important microbes.
 8. Explain the following :
 - (a) Molecular markers.
 - (b) Microarray Technique.
-