

2021
B.E. (Bio-Technology) Seventh Semester
BIO-703/713: Plant Tissue Culture

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Answer the following briefly:-
- Define cybrid.
 - What are phytoalexins
 - What is pollen dimorphism?
 - What is a conditioned media?
 - Name any two techniques used to assess cell viability
 - Define suspensor
 - Differentiate between selectable marker and a reporter gene.
 - Give composition of plant cell wall.
 - Name the growth factor which exhibits polar transport
 - What is a compact callus? (10x1)

UNIT – I

- II. Explain the process of protoplast isolation, fusion and heterokaryon selection. Define symmetric and asymmetric hybrids. (10)
- III. a) Name different type of media used in plant tissue culture. Elucidate the composition of plant tissue culture medium.
- b) Why do plant cells exhibit totipotency? Explain the competence acquisition and mechanism involved in regeneration. (2x5)
- IV. Write short note:-
- Haploid plant production through androgenesis
 - Somatic embryogenesis initiation in vitro. Explain the stages involved (2x5)

UNIT – II

- V. Discuss briefly techniques employed for in vitro pollination and fertilization in plants. (10)

P.T.O.

(2)

- VI. a) Explain various technique utilized to enhance the survival of cryopreserved germplasm.
- b) Discuss any three techniques for the production of secundar metabolites using plant tissue culture. What advantages do these techniques offer over conventional metabolite production? (2x5)
- VII. How will you create disease resistant plant by employing direct and indirect methods of genetic engineering in crop plants? (10)

x-x-x