

1079

B.E. (Biotechnology) Seventh Semester
BIO-713: Plant Tissue Culture

Max. Marks: 50

Time allowed: 3 Hours

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:-

- a) Give diagram of Ti plasmid.
- b) What is hairy root culture?
- c) Vegetative and generative nuclei are present in _____.
- d) Define totipotency.
- e) Explain the role of endosperm in embryogenesis
- f) Name two cryoprotectants used in germplasm storage.
- g) Give two applications of secondary metabolites.
- h) Give composition of plant cell wall.
- i) What is the role of gibberellin in plant tissue culture?
- j) What is a friable callus? (10x1)

UNIT - I

- II. Give function of various organic and inorganic components of plant tissue culture media. (10)
- III. a) Discuss various stages of somatic embryogenesis. How does the somatic cell acquire competence and role of the growth hormones.
b) Discuss haploid production and its application in crop improvement. (5,5)
- IV. Write short note:-
a) Regeneration process in plant (5,5)
b) Isolation and culture of single plant cell

UNIT - II

- V. a) Discuss briefly techniques employed for overcoming the pollination barrier
b) Explain various stages in long term storage of germplasm. Give relevance of each stage. (2x5)

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- VI. Explain various Genetic Transformation Strategies employed for improvement of crop plant. (10)
- VII. Explain method for optimizing the secondary metabolite yield using plant tissue culture. (10)

x-x-x