

3/12/13 (E)

Exam.Code:0911  
Sub. Code: 6723

1129

**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:-
- What is elicitation?
  - Define conditioned medium.
  - What is a meristemoid.
  - What are symmetric hybrids.
  - Give a well labelled diagram of pollen.
  - Give function of Vir A protein.
  - Define dehiscence.
  - Define habituation.
  - Name one technique for production of double haploids from haploids.
  - What is a suspensor? (10x1)

**UNIT - I**

- II. a) Beginning with single cell, explain various stages of somatic embryogenesis.  
b) What are the various inorganic components of plant tissue culture medium? Explain function of each one of them. (2x5)
- III. a) Explain techniques for protoplast isolation and heterokaryon selection.  
b) Elucidate anther/pollen culture mediated production of haploid plants. (2x5)
- IV. Write short note on the following:-  
a) Initiation and maintenance of suspension culture  
b) Molecular mechanisms controlling plant totipotency (2x5)

**UNIT - II**

- V. Elucidate various incompatibility barriers in plant and circumvention of these barriers by in vitro pollination and fertilization techniques. (10)

P.T.O.

(2)

- VI. Describe direct and indirect methods in genetic engineering for improving quality and productivity of crops. (10)
- VII. a) Explain any three strategies that can be used to stimulate the production of secondary metabolites in culture and obtain efficient yields.
- b) Explain techniques for preconditioning of plant cell for long term storage. (2x5)

x-x-x