Exam.Code:0911
Sub. Code: 33385

2124

B.E. (Bio-Technology) Seventh Semester

BIO-713: Plant Tissue Culture

Time allowed: 3 Hours **Max. Marks: 50**

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

x-x-x

1. Answer briefly:
   a) Give a well labelled diagram of a stamen and carpel.
   b) Name the hormone that breaks seed dormancy.
   c) The cambial cells divide and give rise to _____ and _____ .
   d) What are symmetric hybrids.
   e) Define vitrification.
   f) Differentiate between primary and secondary cell wall.
   g) Give function of Vir E protein .
   h) Explain habituation of callus
   i) Explain the term- cybrid.
   j) Define dielectrophoresis. 1x10

SECTION A

2. List the components of plant tissue culture media. Explain the role of each component . 10

3a. Explain the mechanism by which differentiated somatic cells acquires embryogenic competence. Describe various phases of somatic embryogenesis . 5

b. Elucidate the techniques employed for culturing single cell. 5

4. Write short note 5,5
   a) Mechanism of cell reprogramming and role of growth factors during the dedifferentiation process.
   b) Production of double haploids from anther culture and factors affecting the process.

SECTION B

5. Explain the techniques for genetic manipulation of crops to obtain high-yielding, nutritionally-balanced and stress tolerant varieties . 10

6. Explain different in vitro strategies to boost secondary metabolite production from plants. 10

7a Elucidate in vitro pollination techniques to overcome barriers to hybridization between plant species. 5

b Explain various steps in the long-term storage of germplasm. Give significance of each step. 5

x-x-x