Exam.Code:0911
Sub. Code: 6325

2074

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 stamen.
   b) Give function of gibberellin.
   c) Explain the role of calcium in plant tissue culture media.
   d) Give function of Vir D protein.
   e) Give composition of plant cell wall .
   f) Define elicitation .
   g) Define pollination.
   h) What is a callus.
   i) Give a well labeled diagram of Ti plasmid.
   j) Define vitrification. 1x10

SECTION A

2a. Explain the mechanism of totipotency in plant cell. Explain the stages through which cell becomes dedifferentiated cell. 5

b. Explain various phases of somatic embryogenesis and production of synthetic seeds. 5

3a. Explain the techniques for the isolation of protoplast and selection of heterokaryon after the fusion process. 5

b. Elucidate various steps in plant regeneration through anther/ pollen culture. 5

4. Write short note 5,5

   a) Organic and inorganic components of plant tissue culture media
   b) Techniques for culturing single cell and its applications

SECTION B

5. Explain the utilization of genetic engineering tools to enhance agricultural productivity. 10

6. Explain in vitro pollination and fertilization techniques used to overcome barriers to hybridization between plant species. 10

7a. Explain various stages for cryopreservation of germplasm. Give advantages over other methods of germplasm storage. 5

b. Explain any three techniques for the production of secondary metabolites using plant tissue culture . 5

x-x-x