(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 9 7 5

Exam. Code : 0 0 3 5

B.Sc. (Hons.) Biotechnology 3rd Semester

(2122)

PLANT TISSUE CULTURE

Paper : BIOT-304-T

Time Allowed : Three Hours] **[Maximum Marks : 67**

Note :— Attempt **five** questions in all by selecting **one** question from each Unit. Question No. 1 is compulsory.

(Compulsory Question)

1. Write in brief :

   (a) Role of growth regulators in PTC medium

   (b) Cybrids and their significance

   (c) Virus indexing and Importance

   (d) Haploid cultures

   (e) Alkaloids 5×3

UNIT—I

2. (a) Discuss the various methods of sterilization in plant tissue culture technique. 7

   (b) What is cellular totipotency and what is the molecular basis of totipotency ? 6

3. (a) Define micropropagation. Discuss the stages of micropropagation with diagram. 7

(b) How is aseptic condition maintained in plant tissue culture room and growth chamber and mention its importance ? 6

UNIT—II

4. (a) What is somaclonal variation ? What is the genetic basis of somaclonal propagation and how can this be applied for crop improvement ? 7

(b) How do callus cultures help in developing disease resistant plants ? 6

5. (a) How are haploid cultures established and what is its significance in crop improvement ? 7

(b) How are pathogen free plants developed ? Explain in context of virus free plants. 6

UNIT—III

6. (a) Describe the methods of protoplast isolation and any two methods of regeneration of plants from them. 7

(b) Discuss the methods to identify the protoplast fusion products. 6

7. (a) Discuss in detail the method of electroporation for protoplast fusion. 7

(b) What are the applications of Protoplast hybridization technology ? 6

UNIT—IV

8. (a) How are secondary metabolites production enhanced in plant cell cultures ? 7

   (b) Write short notes on :

   (i) Biotransformation

   (ii) Ellicitors 3×2=6

9. (a) Define Ex-situ conservation of plants. Discuss the various methods of ex-situ conservation of plants. 7

   (b) How are short and long term conservation of plant genetic resources maintained ? 6