

(i) Printed Pages : 3

Roll No.

(ii) Questions : 9

Sub. Code :

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Exam. Code :

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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