(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

(2123)

PLANT TISSUE CULTURE

Paper—BIOT-304-T

Time Allowed : Three Hours] [Maximum Marks : 67

Note :— (1) Attempt **FIVE** questions in all.

(2) Select **ONE** Question compulsorily from each unit.

(3) Q.No. 1 is compulsory.

(Compulsory Question)

1. Comment briefly on the following :

(i) Totipotency

(ii) Virus Indexing

(iii) Acclimatization

(iv) Somaclones

(v) Artificial seeds

(vi) Hyperhydration

(vii) Cybrids

(viii) DNA Banks

(ix) Phytohormones

(x) Dihaplopids. $10 \times 1.5 = 15$

UNIT–I

2. (a) Differentiate between De-differentiation and Re-differentiation.

(b) Describe the various stages of Micropropagation.

(c) Discuss the various media required for Plant Tissue Culture. 3,5,5

3. Give a brief account of the following :

(a) Sterilization of Media.

(b) Basic facilities in a Plant Tissue Culture laboratory.

(c) Principle and working of an Autoclave. 3,5,5

UNIT–II

4. (a) Discuss briefly the production of haploids through ovary culture.

(b) Give a brief account of selection of herbicide tolerant crop plants.

(c) What is Somatic Embryogenesis ? Discuss the factors influencing Somatic Embryogenesis. 3,5,5

5. Give a brief account of the following :

(a) Embryo rescue.

(b) Somaclonal variations.

(c) Clonal propagation. 3,5,5

UNIT–III

6. (a) Describe the various techniques of protoplast fusion.

(b) Applications of Protoplast hybridization technology. 6.5×2

7. Give a brief account of the following :

(a) Process of isolation of protoplasts.

(b) Selection and sorting of Somatic hybrids. 6.5×2

UNIT–IV

8. (a) Describe the mechanism of production of secondary metabolites *in vitro*.

(b) What is Cryopreservation ? Discuss its process briefly. 6.5×2

9. Give difference between :

(a) Primary and secondary metabolites.

(b) Short term and long term conservation of plant genetic resources. 6.5×2