Exam.Code:0035
Sub. Code: 0975

2012
B.Sc. (Hons.) Biotechnology
Third Semester
BIOT-304-T: Plant Tissue Culture

Time allowed: 3 Hours Max. Marks: 67

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

x-x-x

I. Attempt the following:

i) Role of Auxins and cytokinins in tissue culture

ii) Gametoclonal variation

iii) Endosperm culture

iv) Redifferentiation

v) Role of cryoprotectants **(5x3)**

UNIT I

II. a) Discuss sterilization of media and glassware in PTC setup. Give examples of the agents used for surface sterilization of the explant.

b) Discuss the plant regeneration through organogenesis.Write about the role of growth regulators in the process. **(13)**

III. a) Discuss applications and limitations of micropropagation.

b) What is callus and how it can be induced. Explain differentiation in plants? (13)

UNIT II

IV. a) How somaclonal variations contributes towards crop improvement? Explain with the help of examples.

b) Discuss selection procedure used for disease resistant and virus-free plants. (13)

P.T.O.

V. a) Discuss ovary culture in detail. Write its advantages and limitations?

b) Describe the triploid production. What is chromosome elimination technique? (13)

UNIT III

VI. a) Describe methods used for protoplast isolation and its culturing?

b) Discuss identification and verification of somatic hybrids. (13)

VII. a) Discuss process of somatic hybridization? Write about its applications.

b) What are various fusogens used for protoplast fusion? Discuss the methodology. (13)

UNIT IV

VIII. a) Describe the commercial applications of secondary metabolites using suitable examples.

b) Discuss strategies used for the production of secondary metabolites? (13)

IX. a) What are methods used for long term conservation of plant genetic resources?

b) Give a detailed overview of *ex-situ* conservation of plants resources. (13)

x-x-x