

(i) Printed Pages : 2

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(ii) Questions : 9

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Exam. Code : 

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B.A./B.Sc.(General) 5<sup>th</sup> Semester  
(2124)

### BIOTECHNOLOGY

Paper : Plant & Animal Biotechnology (BIOT-Elect-Sem-V-T)

Time Allowed : Three Hours] [Maximum Marks : 75

Note :— Attempt *five* questions in all by selecting two questions each from Sections—A and B. Section C is compulsory.

#### SECTION—A

1. (a) Define micropropagation and describe the various stages of micropropagation from initiation to transfer in fields. 8
- (b) How are haploid cultures established and maintained ? What is the significance and application of this culture ? 7
2. (a) Describe the methods of protoplast isolation and how is their viability tested ? 8
- (b) Mention the significance of endosperm and embryo culture and how are they carried out ? 7
3. (a) Discuss the detailed mechanism of T-DNA transfer in plants ? 8
- (b) Describe particle bombardment method of gene transfer in plants. 7
4. Give an account of developing genetically manipulated plants with the help of example and the mechanism for :  
(a) Fungi resistant. 7½  
(b) Herbicide Tolerant. 7½

## SECTION—B

5. (a) Give an account of the various components of animal cell culture media and their role in the growth of cells in vitro. 8
- (b) What do you understand by anchorage dependence and contact inhibition in animal cell cultures ? 7
6. (a) Write the principle and process of cryopreservation. Give its importance. 8
- (b) What are gene banks and why are they established ? 7
7. (a) Explain why and how large scale production of animal cells in culture is carried out. Give its advantages and disadvantages. 9
- (b) What is cytodifferentiation ? In which type of cell cultures do the cells retain their properties and why ? 6
8. (a) Describe the SV40-based vectors. These vectors are specifically designed for transformation of which organisms ? 8
- (b) Give an account of applications of transgenic animals ? 7

## SECTION—C

9. Explain briefly :—
- (i) What are somatic embryos and its importance ?
- (ii) Difference between somatic hybrids and cybrids ?
- (iii) Co-integrate vector.
- (iv) Differentiation, Dedifferentiation and Redifferentiation.
- (v) Totipotency, Pleuropotency & Multipotency.  $5 \times 3 = 15$