

B.Sc. (CBCS Pattern) Semester-V  
**011B - Biotechnology Paper-II - Plant Biotechnology**

P. Pages : 2

Time : Three Hours



**GUG/W/24/13127**

Max. Marks : 50

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**1.** Explain the initiation and maintenance of callus cultures. **10**

**OR**

a) What is the role of auxin? **2½**

b) What are single cell clones? **2½**

c) What are suspension cultures? **2½**

d) Give the composition and preparation of plant tissue culture media? **2½**

**2.** Explain the protoplast isolation, culture and fusion. **10**

**OR**

a) Explain haploid plant generation. **2½**

b) What is cybrid? **2½**

c) What is short tip culture? **2½**

d) How are virus free plants produced? **2½**

**3.** Give in detail the transformation of chloroplast. **10**

**OR**

a) Explain the mechanism of DNA transfer in hairy root formation. **2½**

b) Give the general features of Ri plasmid. **2½**

c) Give any two biological transformation methods. **2½**

d) Explain the role of Ti and Ri plasmids as Vectors. **2½**

**4.** Explain insect resistance with respect to Bt genes. **10**

**OR**

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|---|----|
| a) Write a note on herbicide resistance.      | 2½ |
| b) Write is virus resistance?                 | 2½ |
| c) What are male sterile lines?               | 2½ |
| d) Describe in short about fungal resistance. | 2½ |

**5. Attempt **any ten** 1 marks each.**

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|--|---|
| a) Who is the father of plant tissue culture?    | 1 |
| b) What is meant by callus?                      | 1 |
| c) What is totipotency?                          | 1 |
| d) Which chemical is used for protoplast fusion? | 1 |
| e) What is protoplast?                           | 1 |
| f) What is embryo rescue?                        | 1 |
| g) Which bacteria is used for the Ri plasmid.    | 1 |
| h) What is meant by Ti?                          | 1 |
| i) Name any two transformation methods.          | 1 |
| j) What does Bt stands for?                      | 1 |
| k) What is nucleocapsid?                         | 1 |
| l) Which enzyme is inhibited by glyphosate.      | 1 |

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