

(i) Printed Pages : 3]

Roll No. ....

(ii) Questions : 9]

Sub. Code : 

0	9	5	8
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Exam. Code : 

0	0	3	6
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## **B.Sc. (Hons.) 4th Semester Examination**

# **1047**

### **BIOTECHNOLOGY**

#### **(Plant Biotechnology)**

#### **Paper : BIOT-Sem-IV-III-T**

**Time : 3 Hours]**

**[Max. Marks : 67**

*Note :- Attempt five questions in all by selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks except question No. 1.*

### **Compulsory Question**

- I. (a) What is selectable marker ?
- (b) What is the source of 35s promoter and its role ?

- (c) Role of right and left borders in Ti plasmid ?
- (d) What is double selection of transformants ?
- (e) What is gene gun method of gene delivery ?
- (f) Name two industrial enzymes which can be produced in plants ?
- (g) Round up Maize ? 2,2,2,2,2,3

### Unit-I

- 2. (a) What are Promoters ? Discuss the various types of promoters used for gene expression in plant ?
- (b) Give a detail account of various viral vectors used for plant transformation. 6,7
- 3. (a) How are chloroplast and mitochondrial DNA structurally vary ?
- (b) Describe, how are Binary and Co-integrate vectors designed ? 6,7

### Unit-II

- 4. (a) Discuss the direct gene delivery systems used to transform monocot plants.
- (b) Discuss the role of *vir* genes in transfer of *t*-DNA in plants. 8,5

5. (a) How is gene silencing technique applied to develop better quality transgenic crops ?  
(b) Mention the PCR based methods for selection of transformants ? 8,5

### **Unit-III**

6. (a) How are herbicide resistant plants developed ? Explain with the help of Glufosinate resistant plants.  
(b) Give an account of developing transgenic golden rice and the genes involved in the same. 7,6
7. (a) Give a detailed account of how is Bt cotton crops developed.  
(b) How is plant genetically modified to improve its protein composition ? 7,6

### **Unit-IV**

8. How can we enhance production of secondary metabolites using plant cells as biological factories ? Explain with various examples. 13
9. What kind of manipulation is required in the metabolic pathways of terpenoids to enhance their production ? 13