

(i) Printed Pages : 3

Roll No. ....

(ii) Questions : 9

Sub. Code :

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Exam. Code :

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**B.Sc. (Hons.) Biotechnology 4<sup>th</sup> Semester**  
**(2054)**

**PLANT BIOTECHNOLOGY .**

**Paper : BIOT-403-T**

**Time Allowed : Three Hours]**

**[Maximum Marks : 67**

**Note :—** Attempt *five* questions in all by selecting *one* question from each unit . Section A is compulsory. All questions carry equal marks except question no. 1.

**SECTION—A**

1. Compulsory Question :—

- (1) What are reporter genes ? Give examples.
- (2) What are opines and mention their function ?
- (3) What are microprojectiles and what are they made of
- (4) What are *Cry* proteins ?
- (5) What are PHAs ? 5×3=15

**UNIT—I**

2. (a) Discuss the structure and functions of chloroplast DNA.

6

(b) Describe how is binary vector designed and mention its uses.

7

3. (a) What are promoters. Discuss their role in gene expression. Discuss the various types of promoters used in plants ? 6
- (b) How are viral vectors designed ? Give their advantages and disadvantages. 7

## UNIT—II

4. (a) Describe the electroporation and microinjection method of gene delivery in plants with diagram. 6
- (b) Discuss in detail the role of *vir* genes in transfer of T-DNA into the plants. 7
5. (a) Describe the molecular events involved during *Agrobacterium* mediated transformation in plants. 7
- (b) Discuss the structure of Ti plasmids and the functions of genes in the plasmid. 6

## UNIT—III

6. (a) Discuss with an example how plants are genetically modified to develop herbicide resistance. 7
- (b) Discuss the technology used to develop delayed ripening in tomatoes. 6
7. (a) Explain how Bt cotton is developed as pesticide resistant plant. 7
- (b) Write a note on Golden Rice and its applications. 6

## UNIT—IV

8. (a) Discuss with any two examples how plant cells are used as factories to produce industrial enzymes. 7
- (b) Discuss the pathway and modifications made to develop biodegradable plastics. 6
9. (a) What are edible vaccines, how are they developed and mention their advantages and disadvantages ? 7
- (b) How is metabolic pathway manipulated to produce industrial oils ? 6