

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5025

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Unique Paper Code : 2164002003

Name of the Paper : Plant Biotechnology

Name of the Course : Botany-GE

Semester : VIII

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Question No. 1 is compulsory.
3. Attempt FOUR questions in all.
4. All parts of a question should be answered together.

Q1.a) Expand the following:

5 marks

i) GUS

ii) GMO

iii) DNA

iv) Bt

v) GFP

b) Match the following:

5 marks

i) Humulin

ii) Microprojectile bombardment

iii) Restriction enzyme

iv) Agrobacterium

v) Golden rice

Vitamin A enriched crop

Natural genetic engineer of plants

Insulin produced by genetic engineering

Cuts DNA at specific sites

Gene gun method

P.T.O.

c) Define the following:

5 marks

i) Micropropagation

ii) Haploids

iii) Reporter gene

iv) Restriction enzymes

v) Edible vaccines

Q2. Write short notes on (any three):

(5 X 3 =15 marks)

i) Artificial seeds

ii) Nutrient media composition

iii) Golden Rice

iv) Current paradigms in plant biotechnology

Q3. Differentiate between (any three):

(5 X 3= 15 marks)

i) Direct and indirect organogenesis

ii) Selectable marker genes and reporter genes

iii) Microinjection and microprojectile bombardment

iv) Haploid and triploid culture

Q4. a) Describe the method by which Bt Cotton was developed.

10marks

b) What are the biosafety concerns regarding transgenic plants?

5 marks

Q5. a) With the help of illustration describe the structure of Ti plasmid. Explain how *Agrobacterium* mediated transformation is achieved.

(5+5 marks)

b) Explain the technique of micropropagation.

5 marks

Q6. a) Describe the development of herbicide-resistant transgenic plants. Explain their mechanism of resistance and agricultural significance.

8 marks

b) Explain the concept and production of cybrids through protoplast fusion. Discuss their significance in plant improvement.

7 marks