

3. Differentiate between **any three** of the following:
(5×3=15)
- (i) Marker and Reporter genes
 - (ii) Triploids and Cybrids
 - (iii) Electroporation and Microprojectile Bombardment
 - (iv) Direct and indirect methods of transformation
4. (a) Define Biotechnology. Comment on its scope in promoting human welfare and its commercial importance. (8)
- (b) Explain the procedure of bacterial transformation and selection of transformants. (7)
5. (a) Describe the technique of micropropagation. Mention the applications of the technique. (8)
- (b) How was Roundup Ready soyabean developed? What are its advantages? (7)
6. (i) Illustrate the process of *Agrobacterium*-mediated gene transfer in plants and its role in the production of golden rice. (9)
- (ii) What is Superbug? How was it developed? Explain its use in bioremediation. (6)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3001

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Unique Paper Code : 2164002003

Name of the Paper : Plant Biotechnology

Name of the Course : **Common Prog. Group**

Semester : III

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 and attempt any other **three** questions from the remaining.
3. Attempt **four** questions in total.
4. **All** questions carry equal marks.
5. Attempt all parts of a question together.

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1. (a) Expand **any five** of the following : (1×5=5)

- (i) CSIR
- (ii) NBPGR
- (iii) IARI
- (iv) FA
- (v) CCMB
- (vi) CIMAP

(b) Match the following (**any five**) : (5)

- | | |
|--------------------------|-------------------------------|
| (i) Luciferase | (a) Ca^{2+} alginate |
| (ii) Microinjection | (b) anther culture |
| (iii) Auxin | (c) bacteria |
| (iv) Guha and Maheshwari | (d) rooting hormone |
| (v) Restriction enzymes | (e) transgenic animals |
| (vi) Artificial seeds | (f) firefly |

(c) Fill in the blanks (**attempt any five**) : (1×5=5)

- (i) _____ are used to cleave double stranded DNA at precise locations.

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(ii) Genes from _____ were obtained to develop *Bt* cotton.

(iii) _____ technique is used to study transient gene expression in plants.

(iv) _____ culture technique is used for production of triploid plants.

(v) During *Agrobacterium*-mediated transformation _____ region of Ti plasmid is transferred from bacterium to higher plants.

(vi) DNA is coated over _____ particles and bombarded into plant tissues using gene gun for transformation.

2. Write short notes on **any three** of the following : (5×3=15)

- (i) Micropropagation
- (ii) *Bt* Brinjal
- (iii) Somatic embryogenesis
- (iv) T-DNA
- (v) Edible vaccine

P.T.O.