

- (b) Discuss the applications of rDNA technology in agriculture? (7.5)
5. (a) What is the Ti plasmid? Explain its use as a plant transformation vector and discuss its role genetic engineering technology. (7.5)
- (b) Explain the principle and applications of polymerase chain reaction in genetic engineering. (7.5)
6. (a) What are plasmids? With the help of diagrams and examples differentiate between prokaryotic and eukaryotic plasmids. (7.5)
- (b) Explain any three areas where genetic engineering has influenced human lives. What are advantages and limitations of recombinant insulin? (7.5)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3311

I

Unique Paper Code : 2164003008

Name of the Paper : Genetic Engineering
Technologies and Applications

Name of the Course : **Botany (GE)**

Semester : V

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. Attempt any **four** questions in all including Question no. 1, which is compulsory.
3. Attempt **All** parts of a question together.
4. Draw diagrams where ever necessary.

3311

2

1. (a) Match the following : (1×5=5)

- | | |
|--------------------------------------|-------------------------------------|
| (i) Paul Berg | a. Father of genetic engineering |
| (ii) Stanley Cohen and Herbert Boyer | b. Discovery of restriction enzymes |
| (iii) Arber, Smith, and Nathans | c. Polygalactouranase |
| (iv) Eli Lilly | d. Antibiotic resistance gene |
| (v) FLAVR SAVR Tomato | e. Humulin |

(b) Define the following (any five) (5×2=10)

- (a) Cosmid
- (b) Ligases
- (c) Marker genes
- (d) Recombinant Insulin
- (e) Artificial Chromosome vector
- (f) Clone

3311

3

2. Give a brief account on the following (any three) (3×5=15)

- (a) α -complementation
- (b) PEG mediated gene transfer method
- (c) Interferons
- (d) Protein Expression vector
- (e) Southern blotting

3. Differentiate between the following (any three) : (3×5=15)

- (a) YAC and BAC
- (b) Exonucleases and Endonucleases
- (c) pBR322 and pUC18
- (d) Electroporation and Microinjection
- (e) cDNA and Genomic DNA library

4. (a) Describe in detail the process that led to the development of Bt cotton. What are its advantages and limitations? (7.5)

P.T.O.