

**Section D****No. of Printed Pages : 04****Roll No. ....**

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|------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 7. Describe in detail the major strategies for gene delivery in plant cells.                                                       | <b>15</b> |
| 8. (a) What is gene therapy ? Differentiate between augmented gene therapy and targeted gene therapy.                              | 7         |
| (b) What is recombinant DNA technology ? Write down the application of recombinant DNA technology in generation of novel proteins. | 8         |

**E-61****B. Tech. EXAMINATION, Dec. 2018**

(Fifth Semester)

(B. Scheme) (Main &amp; Re-appear)

(BT)

BT301B

**RECOMBINANT DNA TECHNOLOGY***Time : 3 Hours]**[Maximum Marks : 75*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Section. All questions carry equal marks.

**Section A**

1. (a) What are restriction enzymes ? Explain various types of restriction enzymes. 5  
(b) Discuss adapters vis-à-vis linkers. Write down their applications in recombinant DNA technology. 5  
(c) What is genetic engineering ? Write down its application in crop improvement. 5
2. Describe the principle involved in polymerase chain reaction and its applications in gene cloning. Also discuss the various variant of PCR. 15

**Section B**

3. Give a brief definition of a gene library. What is the essential difference between a genomic library and a cDNA library ? Write down the major advantages/limitations on the use of each. Discuss the strategies for preparing cDNA library. 15

4. (a) What do you mean by DNA chip technology ? What are advantages of DNA chips in biotechnology ? 10  
(b) What is molecular probes ? Describe various types of probes. 5

**Section C**

5. (a) What is gene expression ? Describe in detail the various steps for gene cloning and expression in mammalian cell. 10  
(b) What are the criterion for selecting suitable vector and host system in gene expression studies ? 5
6. (a) What do you mean by gene modification ? Describe various gene modification methods used in DNA recombinant technology. 7  
(b) Discuss the advantages and disadvantages of cloning a gene in bacteria. 8