

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2126

Roll No.

B. Tech
(SEMESTER-V) THEORY EXAMINATION, 2012-13
GENETIC ENGINEERING

Time : 3 Hours]

[Total Marks : 100

Section – A

1. Attempt **all** the questions : **2 × 10 = 20**
- (a) What are isochizomers ?
 - (b) Differentiate between plasmid and cosmid vectors.
 - (c) What are type III restriction enzymes ? Give examples also.
 - (d) pBR322
 - (e) What are non-antibiotic markers ?
 - (f) What are promoter sequences ?
 - (g) What is Electroporation ?
 - (h) What is site directed mutagenesis ?
 - (i) Write the recognition sequence of EcoRI restriction enzyme.
 - (j) What is a linker DNA ?

Section – B

Note : Attempt any **three** parts from the following : **3 × 10 = 30**

2. (a) What are the steps of cDNA library construction ? How is it different from genomic library ?
- (b) What are the characteristic features of YAC ? Advantages of using YAC as a cloning vector over the plasmid or phage based vectors.

- (c) Write briefly on *Agarobacterium* mediated gene transfer and its application in modern biology.
- (d) Discuss the types of restriction enzymes used in RDT.
- (e) Explain the use of virus as model vectors in Eukaryotes (plants and animals).

Section – C

Note : Attempt any **four** questions :

4 × 12½ = 50

- 3. Discuss the principle of cell signaling. Discuss the different response by different cells to some extracellular signal molecule.
 - 4. Explain Polymerase Chain Reaction. Discuss about the different variants of PCR along with their application in genetic engineering.
 - 5. What is cloning ? Enlist the steps involved and the social and moral ethics associated with human cloning.
 - 6. What are molecular markers ? Discuss the application of markers in agriculture biotechnology.
 - 7. Write short note on any **one** of the following :
 - (a) Nuclear Transfer
 - (b) Gene Targeting
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