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

Paper ID : 154501/154511 Roll No. | | | | | | | | | | |

B.Tech

(SEM. V) THEORY EXAMINATION, 2015-16

GENETIC ENGINEERING

[Time:3 hours] **[Total Marks:100]**

SECTION-A

Note : Attempt **all** parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

1. (a) What is the difference between northern blot and southern blot.

   (b) Differentiate between isoschizomers and neoschizomers with examples.

   (c) What is star activity? Is star activity useful is gene cloning?

   (d) Differentiate between E.coli encoded and phage T4 encoded DNA ligase.

(e) What are restriction endonucleases? Which class of restriction endonuclease can be used in recombinant DNA technology?

(f) List various physical DNA delivery methods in a cell.

(g) Describe the mechanism of signalling by nitric oxide (NO).

(h) Differentiate between cDNA library and genomic library.

(i) What are the ion-channel linked receptors?

(j) How do different cells respond differently to same extracellular signal molecule?

SECTION-B

Attempt **any five** questions from this section. (10×5=50)

2. Describe the features that distinguish cosmid, phasmid, phagemid, BAC and YAC cloning vectors.

3. Describe the various steps of polymerase chain reaction. What is the advantage of using RT-PCR?

4. What are different types of receptors present in cells. What is the difference between G-protein-linked receptors and Enzyme-linked receptors?

5. Describe paracrine, endocrine and synaptic signalling.

6. What are the different classes of cell-surface receptor protein? Describe in detail about any two of them.

7. What is site specific recombination? Describe the different steps involved in site specific recombination.

8. Describe various DNA delivery methods.

9. How foreign genes are introduced into a plant using Ti plasmid of *Agrobacterium*?

SECTION-C

Attempt **any two** questions from this section. (15×2=30)

10. What are restriction endonucleases? Describe four types of restriction and modification system. Which one of it can be used in recombinant DNA technology?

11. Describe chemical induction and electroporation.

12. What are transposons? Differentiate between transposable elements in prokaryotes and eukaryotes.

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