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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(BT) (2012 to 2017) (Sem.-5)

GENETIC ENGINEERING

Subject Code : BTBT-503

M.Code : 70504

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Answer briefly :**

- a) Differentiate between *Bam*HI and *Bam*HI Methyltransferase.
- b) Distinguish between *E. coli* DNA Polymerase I and Klenow fragment.
- c) Differentiate between plasmid and cosmid vector.
- d) "*E. coli* is a preferred host in molecular cloning". Justify the statement.
- e) Elucidate the principle of Southern blot analysis.
- f) State briefly the biological importance of DNA-protein interactions.
- g) What are the ingredients required to set up a PCR?
- h) What is DNA microarray technique?
- i) How do you demonstrate the expression of a recombinant protein in *E. coli*?
- j) Write a brief note on *in vitro* transcription.

SECTION-B

2. State the attributes and applications of Kinases and Ligases with examples.
3. How do you construct a mouse liver cDNA library?
4. What do mean by gene-specific probes? How do you radiolabel them?
5. Write briefly **any four** applications of PCR.
6. Write the principle and applications of site-directed mutagenesis.

SECTION-C

7. Illustrate the genetic features of the yeast and mammalian expression vectors.
8. Write in detail the principle and steps of oligonucleotide synthesis.
9. Write precise notes on the following :
YAC vector, Western blot analysis.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.