Roll No. ☐☐☐☐☐☐☐☐☐☐☐   **Total No. of Pages : 02**

Total No. of Questions : 18

B.Tech. (BT) (2012 to 2017)   (Sem.–5)
GENETIC ENGINEERING
Subject Code : BTBT-503
M.Code : 70504

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTIONS 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

Answer briefly :

1. What is the role of T4 DNA ligase in cloning?

2. Explain the technique of Northern blotting.

3. What are BACs?

4. Explain the applications of using PCR.

5. Explain the technique of SI mapping.

6. What are cosmids? Explain how cosmids are used for cloning?

7. What is random site directed mutagenesis?

8. Write a note about agarose gel electrophoresis?

9. What are restriction Maps?

10. Briefly explain DNA microarrays.

SECTION-B

11. Comment on cDNA Library versus Genomic DNA Library.

12. Explain the expression of cloned genes in Bacterial systems using suitable examples.

13. Write a note on restriction enzymes, their source, mode of action and production of cleavage sites.

14. Explain in detail about PCR and RT-PCR.

15. What is Phage Display? Design an experiment for the Selection of mutant peptides by phage display technique.

SECTION-C

16. a) Explain any two plant expression vector.

    b) Explain the screening of recombinant clones.

17. Describe in detail about the physical and chemical methods for transferring DNA into the host cell.

18. a) What are the factors affecting the expression of cloned genes?

    b) Explain the Codon optimization in designing vectors.

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.