Total No. of Questions : 11

M.Sc (BT) (Sem.-3) GENETIC ENGINEERING Subject Code : MBT301 M.Code : 76728 Date of Examination: 12-12-2022

Time: 3 Hrs.

Max. Marks : 70

Total No. of Pages : 02

INSTRUCTIONS TO CANDIDATES :

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

SECTION-A

- 1. Write briefly :
 - a. Representative diagram of M13mp vector.
 - b. What are Linkers and their uses?
 - c. What is a Biolistic Gun?
 - d. Write salient features of primers used for PCR.
 - e. What are characteristics of Golden Rice?
 - f. What is His-Tag and its utility in protein purification?
 - g. What are thermostable polymerase?
 - h. Explain the term Gene Therapy.
 - i. Methodology of Southern Blotting.
 - j. What is Phage display?

SECTION-B

2. Describe the activity and applications of following tools of genetic engineering :

a) Alkaline phosphatase

b) Polynucleotidyl Kinase.

- 3. Discuss the utility of Restriction Enzymes as tools in genetic engineering.
- 4. Describe Plasmid Vectors for cloning in *E.coli*.
- 5. Briefly describe two methods of transforming yeast cells.
- 6. Write preparation of radioactively labelled probes for hybridization.
- 7. What are the risk factors involved in working with recombinant microbes.
- 8. Describe two animal virus derived vectors.

SECTION-C

- 9. Describe the construction of Genomic library. How can gene of interest be isolated from such a library?
- 10. Describe the technique of PCR. What are various types of the PCR methodologies and their uses in genetic engineering?
- 11. a) What are the strategies adopted to maximize gene expression in a genetic engineering protocol?
 - b) Write the principle and applications of gene silencing using siRNA.

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.