Seat No. : _____

LD-109

April-2014

B.Sc. Sem.-VI

Microbiology : (CC-307)

(Genetic Engineering & Biotechnology)

Time : 3 Hours] **[Max. Marks : 70**

1. Answer the following : (any **two**) **14**
   (a) What are restriction endonucleases ? Discuss their types and nomenclature.
   (b) What is the role of a vector in genetic engineering ? Enlist different vectors and describe cosmid.
   (c) Discuss site directed mutagenesis and give its importance.
   (d) Describe use of Polymerase Chain Reaction as a tool for genetic engineering.

2. Describe the following : (any **two**) **14**
   (a) Preparation of cDNA.
   (b) Techniques for joining of vector and DNA.
   (c) Use of nucleic acid probes as a method for screening of cloned cells.
   (d) Methods for cell transformation in eukaryotic host cells.

3. Discuss principles and applications of following techniques : (any **two**) **14**
   (a) Plant tissue culture
   (b) Electrophoresis
   (c) DNA Microarray
   (d) RIA and RAST

4. Describe the following : (any **two**) **14**
   (a) Analytical uses of enzymes
   (b) Traits of genetically modified plants.
   (c) Role of microorganisms in bioleaching.
   (d) Biopesticides

5. Answer the following very briefly : **14**

(a) Give function of polynucleotide kinase.

(b) Name the λ phage vectors.

(c) Give two limitations of plasmid as vector.

(d) Name the recognition site of EcoR I and its products.

(e) What are marker genes ?

(f) What is genomic library ?

(g) Name the biomolecules separated during Southern, Northern and Western blotting techniques.

(h) What is the X gal dye ?

(i) Give examples of enzymes used for therapeutic purposes.

(j) Give advantages of using serum as media ingredient for animal cell culture.

(k) What is Rf value ?

(l) What is IPR ?

(m) Name the microorganism used for MEOR.

(n) Enlist the marketed bio-fuels.

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