

Seat No. : \_\_\_\_\_

**AC-114**

**April-2015**

**B.Sc., Sem.-VI**

**MI-307 : Genetic Engineering & Biotechnology**

**Time : 3 Hours]**

**[Max. Marks : 70**

- Instructions :** (1) All questions carry equal marks.  
(2) Write neatly with correct question Nos.  
(3) Draw figures if required.

1. Describe the following : (any **two**) **14**  
(a) Reverse transcriptase and its importance as genetic engineering tool.  
(b)  $\lambda$  phage as vector.  
(c) Genetic probes  
(d) Polymerase chain reaction.
2. Answer the following : (any **two**) **14**  
(a) Write a detailed note on outlines of gene cloning.  
(b) Enlist the methods for host cell transformation and describe the methods used for eukaryotic host.  
(c) Describe the use of marker genes to screen the transformed cells.  
(d) Describe blotting techniques.
3. Discuss principle and applications of following techniques : (any **two**) **14**  
(a) Animal tissue culture  
(b) Chromatography  
(c) Spectroscopy  
(d) ELISA
4. Describe the following : (any **two**) **14**  
(a) Bioinsecticides  
(b) Therapeutic applications of enzymes  
(c) Role of microbes in hydrocarbon bioremediation  
(d) IPR in Biotechnology

5. Answer in **one** to **two** lines only.

**14**

- (a) Give function of terminal transferase.
  - (b) What is cosmid ?
  - (c) What is the use of shuttle vector ?
  - (d) Name the restriction endonucleases which generate blunt ended sequences.
  - (e) What is cDNA ?
  - (f) Give chemical name of X gal dye.
  - (g) What is a linker ?
  - (h) Expand RIA and RAST.
  - (i) Enlist types of electrophoresis.
  - (j) Give use(s) of DNA microarray.
  - (k) Name the microbes used in oil recovery.
  - (l) Name the bacteria used in leaching.
  - (m) What is a callus culture ?
  - (n) Give two industrial uses proteases.
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