

Day : Friday  
Date : 05/04/2019

**S-2019-1505**

Time : 10.00 AM TO 01.00 PM  
Max. Marks : 60

**N.B.:**

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.**
- 2) Figures to the right indicate **FULL** marks.
- 3) Attempt **ANY TWO** from Q.2, 3 and 4 from Section – I and **ANY TWO** from Q.6, 7, 8 of Section – II.
- 4) Answers to both the sections should be written in **SAME** answer book.
- 5) Draw neat and labeled diagram **WHEREVER** necessary.

**SECTION – I**

- Q.1** Do as directed **ANY FIVE** of the following: [10]
- a) Give two examples of exonucleases.
  - b) Diagrammatically represent principle of homopolymer tailing.
  - c) State advantages of nonradioactive labeling.
  - d) What are advantages of cosmid vectors over plasmid vectors?
  - e) State the principle of transformation.
  - f) Enlist different techniques for restriction mapping.
- Q.2** Answer the following: [10]
- a) Enlist different techniques to study DNA protein interactions. Explain anyone technique in detail with suitable diagram.
  - b) What are expression vectors? Add a note on the principle of maximizing gene expression.
- Q.3** Answer the following: [10]
- a) Enlist different polymerases used in recombinant DNA technology. Diagrammatically represent the reactions catalyzed by them.
  - b) Describe in detail lambda insertion and replacement vectors with suitable diagrams.
- Q.4** Elaborate: [10]
- a) Different techniques for DNA labelling with suitable diagram.
  - b) Compare and contrast genomic and cDNA library.

**SECTION – II**

- Q.5** State the principle of **ANY FIVE** of the following techniques : [10]
- a) Multiplex PCR
  - b) SSCP
  - c) DGGE
  - d) Micro RNA
  - e) si RNA technology
  - f) ASA
- Q.6** a) Enlist different techniques of DNA fingerprinting. Explain RELP in detail. [05]  
b) Briefly explain applications of : i) knockout mice ii) disease models. [05]
- Q.7** a) Explain the principle of site directed mutagenesis with suitable diagram. Add a note on applications of this technique. [05]  
b) Explain the use of transgenic animals to produce recombinant therapeutic proteins. [05]
- Q.8** a) Compare and contrast enzymatic and chemical sequencing methods. [05]  
b) Explain in detail different strategies for gene therapy. [05]