

T. Y. B. SC. (BIOTECHNOLOGY) SEM – V (2010 COURSE) :

WINTER - 2017

SUBJECT: RECOMBINANT DNA TECHNOLOGY (RDT)

Day: **Wednesday**

Time: **2.00 PM TO 05.00 PM**

Date: **08/11/2017**

**W-2017-0959**

Max Marks: 80

N.B:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

**SECTION-I**

- Q.1** A) Answer **ANY ONE** of the following: (06)
- a) Explain the significance of single stranded cloning vector. Add a note on M13 as cloning vector.
  - b) Discuss in brief about type II restriction endonucleases.
- B) Answer **ANY TWO** of the following: (10)
- a) Give an account on YAC as a cloning vector.
  - b) Explain the process of *invitro* packaging of Lambda DNA
  - c) How homopolymer tailing is used as a tool of joining DNA molecules.
- Q.2** Write short notes on **ANY FOUR** of the following: (16)
- a) Role of Linkers
  - b) Insertional and replacement vectors
  - c) Ideal characteristics of plasmids as cloning vector
  - d) DNA modifying enzymes
  - e) Host range of plasmids

**SECTION-II**

- Q.3** A) Answer **ANY ONE** of the following: (06)
- a) Explain in brief Southern blotting technique and its applications.
  - b) Discuss CAPture method of full length cDNA cloning.
- B) Answer **ANY TWO** of the following: (10)
- a) Explain the synthesis of human growth hormone using *E. coli*
  - b) Discuss the plaque lift technique for library screening
  - c) What is blue-white screening? Give its applications.
- Q.4** Answer **ANY FOUR** of the following: (16)
- a) Discuss in brief about PCR technique
  - b) Differentiate between Genomic and cDNA libraries.
  - c) How recombinant phages are identified?
  - d) What are competent cells? How they are prepared?
  - e) Why *E. coli* is popular model for recombinant DNA technology?
- Q.5** Write short notes on **ANY FOUR** of the following: (16)
- a) Gene therapy
  - b) Automated DNA sequencing
  - c) Immunological screening
  - d) Northern blotting
  - e) Transgenic plants