

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

: SUMMER - 2018

SUBJECT: RECOMBINANT DNA TECHNOLOGY (RDT)

Day: **Tuesday**
Date: **03/04/2018**

S-2018-1074

Time: **10.00 am to 01.00 pm**
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) Give an outline of Lambda phage as a cloning vector.
 - b) What are the various types of plasmids? Explain regulation of plasmid copy number.
- B) Answer **ANY TWO** of the following: **(10)**
- a) What are cosmids? Discuss cosmid as cloning vector.
 - b) Explain the role of polymerases in genetic engineering techniques.
 - c) Explain the methods of plasmid purification.
- Q.2** Write short notes on **ANY FOUR** of the following: **(16)**
- a) Selection of transformants using pBR322
 - b) Homopolymer tailing
 - c) Recognition sequences
 - d) Role of T4 DNA ligase in *invitro* joining
 - e) Endo and Exonucleases

SECTION-II

- Q.3** A) Answer **ANY ONE** of the following: **(06)**
- a) How cDNA libraries are constructed?
 - b) Explain the technique of Agarose gel electrophoresis with its applications.
- B) Answer **ANY TWO** of the following: **(10)**
- a) Discuss Sanger's method of DNA sequencing in brief.
 - b) Write the applications of transgenic plants.
 - c) Explain the screening of libraries by nucleic acid hybridization technique.
- Q.4** Answer **ANY FOUR** of the following: **(16)**
- a) What is blue white screening? Give its significance.
 - b) What is gene therapy? Write its applications.
 - c) Explain the process of DNA transformation in bacteria.
 - d) How recombinant phages are identified?
 - e) What are genomic libraries?
- Q.5** Write short notes on **ANY FOUR** of the following: **(16)**
- a) Long accurate PCR
 - b) Oligocapping
 - c) Recombinant Vaccines
 - d) PCR based screening
 - e) Selection using *spi* phenotype

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