

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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