

**T. Y. B. Sc. (Biotechnology) SEM – V (CBCS - 2015 COURSE) :  
WINTER - 2018**

**Subject: Recombinant DNA Technology**

Day: Friday  
Date: 26/10/2018

**W-2018-1184**

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

**N.B.:**

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in SEPARATE answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

**SECTION - 01**

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is contour-clamped homogeneous electrical-field (CHEF) electrophoresis?
- b) What is the difference in PCR and Real Time PCR?
- c) How separation of DNA occurs in the gel electrophoresis?
- d) Mention the ideal characteristics of primer to be used in PCR
- e) What is the role of enzyme Polynucleotide kinase?
- f) What is action of enzyme Exonuclease III and Bal31?

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) Draw a labeled diagram representing Sanger's method DNA sequencing
- b) What is Pulsed-field gel electrophoresis (PFGE)?

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) Explain the Principle of Southern blotting technique
- b) pUC 18 as cloning vector

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) DNA Microarray
- b) BACs

**SECTION - 02**

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) Mention the recognition sequence of *HindIII* and *Eco RI*
- b) Mention the characteristics of the different types of restriction endonuclease
- c) What is insertional inactivation?
- d) What is RFLP?
- e) What is the role of  $\delta$ -endotoxin in BT plants?
- f) What is blue white screening?

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) Genetic map of plasmid pBR322
- b) DNA Markers

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) Cloning in a cosmid vector
- b) Explain how oligonucleotide primers for a PCR are designed?

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) cDNA libraries
- b) Synthesis of human growth hormones in *E. coli*

\*\*\*\*\*