

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

SUMMER - 2019

Subject: Recombinant DNA Technology

Day: Friday
Date: 05/04/2019

S-2019-1386

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 **SAME** 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 are the factors affecting the PCR technique?
- b) Write applications of gel electrophoresis
- c) State two differences between Gel electrophoresis and Pulsed field gel electrophoresis.
- d) What is the role of polynucleotide kinase in gene manipulation?
- e) What is the action of enzyme S1 nuclease and DNase?
- f) What are Recognition sequences?

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

- a) Draw a labeled diagram representing the steps involved in Southern blotting
- b) Explain procedure of Agarose gel electrophoresis. Mention its application.

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

- a) Explain the Nested PCR and Multiplex PCR. Give its significance
- b) Explain the different types polymerases used in gene manipulation

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

- a) Northern blotting
- b) Yeast artificial chromosomes (cloning by pYAC3)

SECTION - 02

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

- a) What is maximum DNA insert size possible with different cloning vectors? i.e. (λ phage and BACs)
- b) How joining of DNA is carried out without ligase?
- c) What is transfection?
- d) What is antisense RNA?
- e) What is the importance of Full-length cDNA cloning?
- f) How insertional inactivation of the λ cl gene is detected?

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

- a) Plasmid pUC 18 as vector
- b) Explain the process of introduction of plasmid DNA into bacterial cells

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

- a) Genomic Libraries
- b) Explain the Selection of recombinant by using the Spi phenotype

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

- a) Immunological screening
- b) Cosmids as a vector
