

Exam. Code: 0910  
Sub. Code: 6714

1019  
B.E. (Biotechnology) Sixth Semester  
BIO-611: Recombinant DNA Technologies

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

I. Write a short note on following:-

- a) Role of calf alkaline phosphatase
- b) Isoschizomers
- c) Features of recombinant vaccine
- d) Importance of cDNA
- e) Application of nested PCR
- f) Role of CTAB in DNA isolation
- g) Important features of cloning vector
- h) Principle of Maxam Gilbert method
- i) Application of siRNA technology
- j) Features of S<sub>1</sub> nuclease

(10x1)

UNIT – I

- II. a) Define vector. Give a detailed account of bacterial vectors and their applications.  
b) Describe in detail applications and advantages of PCR over traditional method of cloning. Also give an account on different steps involved in PCR, briefly describing the importance of each step. (5,5)
- III. a) Describe in detail method of isolation of plant DNA. What manipulations are required in the DNA isolation procedure if starting material is bacterial culture?  
b) Write a note on characteristics features and application of cosmid vector. How cosmid differ from phagmids. (5,5)
- IV. a) Give a detailed account of different types of polymerases. Elaborate on functional details of important polymerases employed in recombinant DNA technology.  
b) Describe in detail different vectors available to transform plant tissues. (4,6)

P.T.O.

(2)

UNIT – II

- V. a) Elaborate on features and application of cDNA library. How homologous probing method differs from abundant probing, when hunting for a gene in a genome.
- b) Describe in detail methodology and application of DNA as I foot printing. Also give its advantages over method of gel retardation. (5,5)
- VI. a) Differentiate between automated and next generation methods of sequencing. Describe in detail methodology of one method of next generation sequencing.
- b) Elaborate on advantages and disadvantages of bacterial expression host over other expression systems. (5,5)
- VII. a) What are the applications of RDT in the field of forensic science. What are general ethical concerns related to GMOs?
- b) Write a note on:-
- i) Yeast two hybrid
  - ii) *In-vitro* mutagenesis
- (6,4)

x-x-x .