Exam.Code:0910
Sub. Code: 33375

2055

B.E. (Biotechnology) Sixth Semester

BIO-611: Recombinant DNA Technology

Time allowed: 3 Hours Max. Marks: 50

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

x-x-x

1. Attempt the following:-

a) What is the importance of cos sites in lambda phages.

b) What is the difference between a defined and undefined medium. Give examples of each?

c) Why do you use enzyme Reverse transcriptase during Recombinant DNA Technology process?

d) What are shuttle vectors, give atleast one example?

e) How is blue and white colony selection used during screening process?

f) What is a probe and why is it used?

g) What is the importance of magnesium & primers during PCR amplification?

h) What are phagemids, how are these made?

i) What is southern blotting?

j) Give atleast two examples of recombinant DNA Technology products. **(10x1)**

Section-A

2 **a)** Discuss in detail the methodology for isolation and purification of genomic DNA from Bacterial cell.

b) Discuss what is Ti plasmid, discuss different types of Ti plasmids commonly used in plant recombinant DNA Technology. **(5+5)**

3 **a)** What are plasmids, based on the characteristics of naturally occurring plasmids discuss different classes of plasmids. Also add a note on the basic features of plasmids.

b) Discuss different Types of restriction endonuclease, also add a note on which is the most commonly used Type of the restriction endonuclease in recombinant DNA technology and why. **(5+5)**

P.T.O.

4 a) Discuss in detail the process of PCR amplification along with its application.

b) What is a YAC vector, discussing its features also add a note on why is it used during recombinant DNA technology. **(6+4)**

Section-B

5 Discuss different methods used for clone identification including immunological Screening. **(10)**

6 Write short on any **two** of the following:-

a) Yeast two hybrid system

b) *in vitro* mutagenesis

c) Chain termination sequencing. **(5+5)**

7 **a)** Discuss applications of Recombinant DNA Technology in Forensic Sciences.

b) What are expression vectors, discuss most frequently used expression vectors for regulating cloned genes in *E.coli*. **(5+5)**

x-x-x