

5556063

Seat No. _____

M. Sc. (Part - II) Examination

April / May – 2003

Biotechnology : Paper - V
(*Genetic Engineering*)

Time : 3 Hours]

[Total Marks : 75

Instruction : All questions carry equal Marks.

1. Compare the methodologies of purification of plasmid and bacterial genomic DNA preparations and give the reasons for the differences.

OR

What are the differences in the preparations of genomic DNA and mRNA from mammalian tissues? Give the reasons for the differences.

2. Explain random primer method of labeling DNA. Why is this method preferred over nick translation?

OR

What is the importance of thermostable DNA Polymerase in PCR? Can we replace it with large klenow fragment of DNA Polymerase I of *E. coli*?

3. Explain any THREE of the following enzymes along with their uses in R-DNA methods.

- (i) Isoschizomers
- (ii) Type I restriction endonucleases
- (iii) Intron encoded site-specific endonucleases
- (iv) Bal31 exonuclease
- (v) Terminal deoxynucleotidyl transferase
- (vi) Alkaline phosphatase

4. Explain the steps involved in the generation of cosmid genomic DNA library.

OR

What are expression libraries? How can they be generated?

5. Explain the steps involved in the trans acting factors responsible for the transcriptional regulation of a gene.

OR

Explain the steps involved in the cloning of cDNA for a protein which has been purified.