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OR

(p) Transposon tagging. 5

(q) Ethical values associated with gene therapy. 5

(r) Molecular markers in sickel cell anemia. 5

(s) Methods for detection of GMOS. 5

AQ – 1052

Third Semester M. Sc. Examination

BIOTECHNOLOGY

Paper – X (3 BTB 2)/BT – 302

(Genetic Engineering)

P. Pages : 4

Time : Three Hours] [Max. Marks : 100

Note : (1) All questions are compulsory and carry equal marks.
(2) Draw labelled diagrams wherever necessary.

1. Describe :—

(a) Lmagarose and its application. 5

(b) Role of IBSC in experimentation on genetic engineering. 5

(c) T_4 DNA ligase. 5

(d) Terminal transferase. 5

OR

(p) Role of GEAC in release of genetically modified products. 5

(q) Klneow fragment and its application. 5

(r) Taq polymerase and its properties. 5

(h) Out line the principle of chemical synthesis of DNA. 5

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2. What do you mean by fusion vector Plasmid ? Describe the construct of fusion plasmid along with its properties. Explain the application and advantages of cloning in fusion plasmids.

OR

You have a nuclelic acid sequence of a gene. The target is to design a polymerase chain reaction using gene specific primers. Explain the steps for gene specific detection by PCR and the calibration of different steps. 20

3. What is principle of Sanger's method of sequencing ? Explain the cycle sequencing method. Describe the two chemistry used in automated sequencing technique. Discuss advantages and disadvantages of ABI and L.I–COR sequences.

OR

Explain the DNA profiling using RFLP and PCR STR method. Explain the advantages and disadvantages of each method. A child in a hospital is claimed by two women to his biological mother. Which technique will be used to find the biological mother ? 20

4. Explain :—

(a) Various membranes used in southern and Northern blotting techniques. 5

(b) GFP as a reporter molecule. 5

(c) Chemilluminescent detection system for blots. 5

(d) Phage display. 5

OR

(p) In Vitro translation. 5

(q) Use of reporter assay in genetic transformations. 5

(r) Advantages of using S^{35} Radioactive label over P^{32} label. 5

(s) Limitations of non Radioactive methods in detection of blots. 5

5. Explain :—

(a) Oligonucleotide directed metagenesis. 5

(b) Functions of T DNA. 5

(c) Viral mediated gene therapy. 5

(d) Advantages of recombinant insulin. 5

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