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GSM/M-20 **1641**

BIOTECHNOLOGY
(RECOMBINANT DNA TECHNOLOGY)

Paper–VIII

Time Allowed : 3 Hours] [Maximum Marks : 40

Note : Attempt **five** questions in all, selecting at least **two** questions from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. Define following terms :

   (a) Wound inducible promoter.

   (b) Primer.

   (c) Marker genes.

   (d) OriR 4

   Write the full name of the following abbreviations :

   (a) pBR322

   (b) YAC

   (c) pUC

   (d) BAC. 4

UNIT–I

2. (a) What is restriction endonuclease? How many type of these enzymes are? Elaborate only one restriction endonuclease which is playing the major role in the recombinant DNA technology.

   (b) Write the role of ligases, polymerase and alkaline phasphatases in recombinant DNA technology. 5,3

3. (a) What are the essential features of a vector? Elaborate about M13 vectors.

   (b) Differentiate between Expression and shuttle vectors. 5,3

4. (a) What do you understand by selection and screening of the recombinants in recombinant DNA technology? What is the purpose of these steps? Explain with diagrammatic representation.

   (b) What is the cDNA library? What is the purpose to construct this type of the library? 5,3

UNIT–II

5. (a) Write the name of various DNA sequencing techniques. Elaborate any one of these in detail with diagrammatic representation.

   (b) Write in brief about "Kary Mullis" the inventor of PCR. 5,3

6. (a) Write a detail note on Microarray.

(b) Differentiate between dot blot and slot blot. 5,3

7. (a) What is the expression vector? Explain how these vectors are helpful in the production of recombinant proteins by giving one example. Explain with diagrammatic representation.

(b) What is promoter? How strong and weak promoter are different as far as their role in gene expression is concerned? 5,3