

B.Sc. CBCS Pattern Semester-V
011A - Biotechnology Paper-I (Genetic Engineering)

P. Pages : 2

Time : Three Hours



GUG/S/24/13126

Max. Marks : 50

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw diagram wherever necessary.

1. Describe in detail the role of any two DNA manipulation enzymes in genetic engineering. **10**

OR

- a) Explain Fundamental basics of genetic engineering. **2½**
- b) Add a note on a PCR. **2½**
- c) Describe the role of genomic DNA library. **2½**
- d) Add a note on purification of DNA. **2½**

2. Discuss in detail the role of BAC and YAC as cloning vectors. **10**

OR

- a) Draw a well labelled diagram of PBR322. **2½**
- b) What are linkers and adapters? **2½**
- c) Add a note on applications of phagemid vector. **2½**
- d) Write the characteristics of Lambda phage as a cloning vector. **2½**

3. Describe in detail Blue white selection method for selection of recombinants. **10**

OR

- a) Explain in brief the process of transformation. **2½**
- b) Add a note on Lipofection. **2½**
- c) Describe in short dextran mediated transfection. **2½**
- d) Write a note on particle gun method of DNA transfection. **2½**

4. Describe in detail the interferon production by rDNA technology. **10**

OR

- a) Write advantages of DNA fingerprinting. **2½**
- b) Add a note on genetic counselling. **2½**

c) Explain the role of antenatal diagnosis as a disease diagnosis tool. **2½**

d) Give clinical application of hybridoma technology. **2½**

5. Solve any ten (1 mark each)

a) Give the function of polymerase I enzyme. **1**

b) Which chemical is used to lyse the cells? **1**

c) What is cDNA? **1**

d) Give the full form PVC? **1**

e) What are expression vectors? **1**

f) What are shuttle vectors? **1**

g) What is meant by particle gun? **1**

h) Define calcium phosphate coprecipitation? **1**

i) Whether transformation is direct or indirect transfer of DNA? **1**

j) Define gene therapy? **1**

k) Give application of somatic gene therapy. **1**

l) Give the uses of monoclonal antibodies. **1**
