Bachelor of Science (B.Sc.) Semester—VI Examination

MOLECULAR BIOLOGY AND rDNA TECHNOLOGY

Optional Paper—2

(Bio-Chemistry)

Time : 3 Hours] [Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw diagrams wherever necessary.

1. Explain the features of genetic code in detail. 10

OR

Discuss the importance of aminoacyl synthetases. Add a note on error correction in aminoacylation. 10

2. Describe in detail the mechanism of Translation initiation in Prokaryotes. 10

OR

Describe in detail the mechanism of translation termination in prokaryotes. 10

3. Write a detailed account of joining two different DNA fragments. 10

OR

Describe pBR 322 as a cloning vector. 10

4. Explain any two selection methods employed for the selection of transformants. 10

OR

Describe the technique of PCR and add a note on its applications. 10

5. Answer any **TEN** of the following :—

(i) Which end of t-RNA readily accepts the amino acid ? 1

(ii) What is the role of 16S rRNA ? 1

(iii) What do you understand by leu-tRNA^{leu} ? 1

(iv) Which Ribosome subunit bears the peptidyl transferase activity ? 1

(v) Name the antibiotic that resembles tRNA in its structure. 1

(vi) Name any two proteins involved in elongation. 1

(vii) What do you understand by ECORI ? 1

(viii) Which of the two restriction enzymes, a 6-base or a 4-base cutter will yield more number of DNA fragments from a 20 kb DNA ? 1

(ix) What is meant by pUC18 ? 1

(x) Presence of which gene is responsible for blue-white screening ? 1

(xi) Name the DNA polymetase routinely used in PCR reactions ? 1

(xii) Which enzyme is responsible for production of cDNA ? 1