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

MOLECULAR BIOLOGY AND rDNA TECHNOLOGY

Paper–2

(Bio-Chemistry)

Time : Three Hours] [Maximum Marks : 50

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

1. Describe the activation of amino acids. 10

OR

Write notes on :

(a) tRNA 2½

(b) Wobble hypothesis 2½

(c) Shine-Dalgarno sequence 2½

(d) Universality of genetic code. 2½

2. Describe the initiation process of translation. 10

OR

Describe the termination process of translation. 10

3. (a) Describe the use of linkers and adaptors in rDNA technology. 5

(b) Describe the use of cosmids as vectors. 5

OR

Describe the different types of restriction enzymes in detail. 10

4. Write notes on :

(a) Primer designing for PCR 5

(b) Southern blotting. 5

OR

(c) How calcium–phosphate precipitation and electroporation help in transfection of rDNA ? 5

(d) Write a note on DNA finger printing. 5

5. Answer any **ten** of the following :

(i) Name any one amino acid coded by six codons. 1

(ii) How many classes of amino acyl synthetases are present in the cell ? 1

(iii) How many codons are present in genetic code ? 1

(iv) What is meant by charged tRNA ? 1

(v) Name two proteins involved in elongation process of translation. 1

(vi) Name the subunits of 70S ribosomes. 1

(vii) What is meant by "Ti" in Ti-plasmid ? 1

(viii) Name the selectable marker in pUC 18. 1

(ix) What the letter B and R stand for in pBR 322 ? 1

(x) Give one use of rDNA technology in medicine. 1

(xi) Mention one application of PCR. 1

(xii) What does 'Bt' stand for in Bt cotton ? 1