KNT/KW/16/5195

Bachelor of Science (B.Sc.) Semester—V (C.B.S.) Examination

BIO-TECHNOLOGY

(Molecular Biology and rDNA Technology)

Paper—2

Time : Three Hours] [Maximum Marks : 50

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

(2) Draw diagrams wherever necessary.

1. (a) Explain the importance of Shene and Dalgarno sequence in prokaryotic translation. 5

(b) Write a note on degeneracy of genetic code. 5

OR

Write short notes on :—

(c) Amino acyl tRNA synthetases 5

(d) Wobble hypothesis. 5

2. Describe the initiation stage of prokaryotic translation in detail. 10

OR

(a) Explain termination process of protein synthesis. 5

(b) Write a note on antibiotics affecting translation. 5

3. Write short notes on :—

(a) Type II Restriction endonucleases. 2½

(b) $p^{BR\ 322}$ 2½

(c) YAC 2½

(d) Cohesive end ligation. 2½

OR

(e) Screening methods for selection of transformed cells. 5

(f) $p^{UC\ 19}$. 5

4. (a) Distinguish between cDNA library and genomic DNA library. 5

(b) Explain the various applications of recombinant DNA technology. 5

OR

(c) Write a note on PCR. 5

(d) Explain the general features of an expression vector. 5

5. Answer any **TEN** questions :—

(i) Name the stop codons. 1

(ii) Which molecule serves as an adaptor molecule during protein synthesis ? 1

(iii) Name any one amino acid coded by single codon. 1

(iv) How many amino acids will be encoded by 5' GAU GGU UGA UGU 3' sequence ? 1

(v) Name any two proteins used in elongation process of protein translation. 1

(vi) From which end does protein synthesis begin ? 1

(vii) In which vectors are elements of lac operon used as selectable markers ? 1

(viii) Which enzyme is more efficient in blunt end ligation ? 1

(ix) Which enzyme is used to create cohesive sites in homopolymer tail joining ? 1

(x) Name any one medicinal product manufactured using rDNA technology. 1

(xi) Name the scientist who invented PCR. 1

(xii) Name any two recombinant vaccines. 1