NKT/KS/17/5195

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

BIOTECHNOLOGY

(Molecular Biology and DNA Technology)

Paper—2

Time : Three Hours] [Maximum Marks : 50

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

(2) Draw diagram wherever necessary.

1. Describe various characteristic properties of genetic code. 10

OR

Write short notes on :–

(a) Draw the structure of t-RNA. 2½

(b) Shine-Dalgarno sequence. 2½

(c) Wobble-hypothesis. 2½

(d) Role of 16S rRNA in selection of initiation codon. 2½

2. Explain in detail about initiation of protein synthesis. 10

OR

Explain in brief :

(i) Translation Elongation. 2½

(ii) Antibiotics affecting translation. 2½

(iii) Autogenous control of r-protein. 2½

(iv) P^{32} translation regulation. 2½

3. Write short notes on –

(a) Restriction endonucleases. 2½

(b) Lambda replacement vectors. 2½

(c) Selection of transformed cells. 2½

(d) Cosmid. 2½

OR

Describe DNA manipulating enzymes. 10

4. Explain in detail polymerase chain reaction. 10

OR

Write short notes on –

(a) Advantages and disadvantages of cDNA library over genomic DNA library. 2½

(b) Designing of primer. 2½

(c) Applications of rDNA Technology. 2½

(d) Expression vector. 2½

5. Solve **any Ten** :–

(i) Give the initiation codon present in prokaryotes. 1

(ii) Who proposed Wobble hypothesis ? 1

(iii) Name the first codon deciphered. 1

(iv) Name the proteins involved in termination of protein synthesis. 1

(v) Puromycin blocks which site in the ribosome ? 1

(vi) Name the enzyme which attaches an amino acid to the tRNA. 1

(vii) Name the types of restriction endonucleases. 1

(viii) What is meant by PUC ? 1

(ix) Name the popular enzyme used in ligation of two DNA. 1

(x) Who invented PCR ? 1

(xi) What is the role of reverse transcriptase in cDNA library ? 1

(xii) Name any one rDNA product having application in medicine. 1