NKT/KS/17/5215

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

MOLECULAR BIOLOGY AND DNA TECHNOLOGY

Paper–2

(Bio-Chemistry)

Time : Three Hours] [Maximum Marks : 50

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

1. How the genetic code was deciphered ? 10

OR

(a) Write a note on Wobble Hypothesis. 5

(b) Discuss the nature and significance of Shine-Dalgarno sequences. 5

2. Discuss the events in prokaryotic elongation of a polypeptide chain. 10

OR

(a) Write a note on termination of translation. 5

(b) Write a note on activation of amino acids. 5

3. Give a detailed account of restriction endonucleases used in rDNA technology. 10

OR

Discuss in detail the structure and working of pBR322. 10

4. Describe in detail cDNA libraries. 10

OR

Write notes on :

(a) Describe applications of rDNA technology in Medicine. 5

(b) Southern Blotting. 5

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

(i) Name the amino acid which has only one codon and one amino acid which has six codons.

(ii) What do you understand by the term 'charged tRNA' ?

(iii) During initiation of protein synthesis, the fMet-tRNA binds to which site of the ribosome.

(iv) Do the initiation factors play a role in formation of 70s ribosome ?

(v) What was the contribution of Hargobind Khurana in elucidation of the genetic code ?

(vi) Ochre, amber and opal are the alternate names of initiation factors or termination codons.

(vii) Which types of Restriction Enzymes do not cut within the sequence of recognition ?

(viii) Which of the DNA ligases used in rDNA technology employs ATP as a high energy compound ?

(ix) Which two types of vectors can be generated from a lambda (λ) phage ?

(x) Name the scientist who invented PCR.

(xi) Name two medically important molecules produced through recombinant DNA technology.

(xii) Western blotting technique is used for which type of macromolecules ? $1 \times 10 = 10$