

**NRT/KS/19/2182**

**Bachelor of Science (B.Sc.) Semester–VI Examination**  
**MOLECULAR BIOLOGY AND rDNA TECHNOLOGY**

**Optional Paper–2**  
**(Bio-Chemistry)**

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw diagrams wherever necessary.

1. Describe in detail how the genetic code was deciphered. 10

**OR**

Write notes on :

- (a) Wobble Hypothesis. 5  
(b) Attachment of amino acids to t-RNA. 5

2. Describe the prokaryotic elongation process of protein bio synthesis. 10

**OR**

Write notes on :

- (a) Role of IF-3 in protein biosynthesis. 2½  
(b) Structure of ribosome. 2½  
(c) f-met tRNA. 2½  
(d) Role of RF 1 and RF 2 in protein synthesis. 2½

3. Describe pBR322 as cloning vector. Add a note on method of screening when pBR322 is used as a vector. 10

**OR**

Describe the various methods used for joining sticky and blunt end DNA fragments. 10

4. Describe the technique of PCR in detail. 10

**OR**

Write notes on :

- (a) Application of recombinant DNA technology in medicine. 5  
(b) Southern blotting. 5

5. Solve any **ten** :

- (i) Name one amino acid other than methionine having single codon in genetic code table. 1  
(ii) Name any one stop codon. 1  
(iii) Name one unusual nucleotide in tRNA. 1  
(iv) What does 's' stand for in 70S ribosome in initiation complex ? 1  
(v) Name the site on ribosome where the initiator tRNA binds during initiation. 1  
(vi) What is meant by charged tRNA ? 1  
(vii) What is meant by 'shuttle vector' ? 1  
(viii) What is meant by rDNA ? 1  
(ix) Give one major difference between linker and adaptor. 1  
(x) Name the enzyme involved in Blue-White screening. 1  
(xi) Give one advantage of cDNA library over genomic library. 1  
(xii) What is meant by Electroporation ? 1