

NRT/KS/19/2162

Bachelor of Science (B.Sc.) Semester–V Examination
MOLECULAR BIOLOGY AND rDNA TECHNOLOGY
Optional Paper–2
(Biotechnology)

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw diagrams wherever necessary.

1. Describe in detail the attachment of amino acids to tRNA. 10

OR

Describe in detail how the genetic code was deciphered. 10

2. Describe the initiation process of prokaryotic protein biosynthesis. 10

OR

(a) Describe the role of release factors in prokaryotic translation. 5

(b) Describe the role of antibiotics affecting translation process. 5

3. Describe the technique of transformation and transfection. Add a note on selection of transformed cells. 10

OR

(a) Describe briefly the PUC series of vectors. 5

(b) Describe briefly the restriction endonucleases. 5

4. Describe in detail the applications of rDNA technology in medicine and agriculture. 10

OR

Write short notes on :

(a) Expression vectors 2½

(b) Primer designing 2½

(c) cDNA library 2½

(d) Steps in PCR technique 2½

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

(I) To which end of tRNA, the amino acid is attached ?

(II) Who proposed Wobble hypothesis ?

(III) Give any one role of Shine-Dalgarno sequence.

(IV) Name any one elongation factors used in protein biosynthesis.

(V) Name the factor which separates the large and small subunit of ribosomes

(VI) What is meant by autogenous control ?

(VII) What is meant by P^{BR322} ?

(VIII) What is meant by "EcoRI" ?

(IX) Name the enzyme efficient in blunt-end ligation.

(X) Give any one advantage of cDNA library over genomic library.

(XI) Name any one rDNA product used in the field of medicine.

(XII) Why two primers which are 90% complimentary to each other cannot be used as primers in the PCR technique ? Give any one reason. 1×10=10