

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