

- NB: (1) Question No.1 is compulsory
 (2) Attempt any three questions out of remaining five questions
 (3) Each question carries equal marks
 (4) Illustrate answers with sketches wherever required

1. Write Short Notes on: (20)
 - a) SNPs
 - b) EMBL
 - c) Local Alignment
 - d) RASMOL
 - e) Hidden Markov Models
2. a) Perform Smith-Waterman Algorithm for the given nucleotide sequence (15)

Seq 1: ACTGACA
 Seq 2: ACTGAGG

Match = +2; Mismatch = -2; Gap = -2

b) Write a note on Application of Neural Networks in Bioinformatics. (05)
3. a) Enlist any five DNA Sequencing Methods. Explain any two of them in detail. (12)
- b) Explain the following: (08)
 - i) FASTA
 - ii) Chao-Fasman Algorithm
4. a) Define Sequence Alignment. Explain in detail different types of Sequence Alignment. (10)
- b) Explain Homology modelling with an example. (10)
5. a) Enlist any five 3D Visualization tools and explain any three of them. (10)
- b) Classify and explain different types of storage techniques. (10)
6. Explain the following in detail (20)
 - a) PAM
 - b) Application of Bioinformatics
 - c) Entrez
 - d) Swiss PDB