

Exam. Code : 206602

Subject Code : 5213

M.Sc. Bioinformatics 2nd Semester

STRUCTURAL BIOLOGY AND BIOINFORMATICS

Paper—BI-525

Time Allowed—3 Hours] [Maximum Marks—75

SECTION—A

1. Explain following in **two** or **three** sentences :

- (a) Rotamers
- (b) Unit cell
- (c) Sugar puckering
- (d) PFAM
- (e) Z-DNA
- (f) CASP
- (g) Threader
- (h) Pymol
- (i) Double dynamic programming
- (j) VAST.

10×1½=15

SECTION—B

2. Discuss principle of mass spectrometry and its application in post translational modification.

OR

What are dihedral angles ? Explain Ramachandran plot and its significance in study of protein structure.

3. What do you understand by protein fold ? Describe how protein structures have been classified in SCOP.

OR

Explain glycosyl rotation. Discuss differences between A and B DNA.

4. What are neural networks ? Explain their application in protein secondary structure prediction.

OR

Discuss differences between Chou Fasman and GOR methods.

5. Discuss methods used for tertiary structure prediction. How do you select any method for 3D structure prediction ?

OR

What are molecular graphics packages ? Explain its significance. Discuss tools for building small molecules.

6. What is graph theory ? Discuss SSAP for structure alignment.

OR

What is a distance matrix ? Discuss its application in protein structure alignment. 12×5=60