

Exam. Code : 206602  
Subject Code: 4711

M.Sc. Bioinformatics 2nd Semester (Batch 2021-23)  
**STRUCTURAL BIOLOGY AND BIOINFORMATICS**  
Paper-BI-525

Time Allowed—3 Hours] [Maximum Marks—75

**Note :-** Attempt FIVE questions in all, selecting at least ONE question from each Section. The fifth question may be attempted from any Section. All questions carry equal marks.

**SECTION—A**

1. (a) Explain the principle of NMR. Discuss its application in protein structure determination.  
(b) What is CD ? Explain its application.
2. Explain principle of mass spectroscopy. Discuss its application in analysis of post translational modification.

**SECTION—B**

3. What is i-motif DNA ? Discuss the differences between triplex and G-quadruplex form of DNA.
4. What are chaperones ? Discuss classification of protein structures in CATH.

### SECTION—C

5. Explain different types of secondary structures of protein. Discuss CHOU-FASMAN and GOR.
6. Explain nearest neighbor method. Discuss its application in protein secondary structure prediction.

### SECTION—D

7. Discuss knowledge based structure prediction methods. Explain their merits and demerits.
8. What do you understand by distance matrices ? Discuss algorithm of CE and SSAP.