

# CBCS Scheme

USN

--	--	--	--	--	--	--	--	--	--

15BT45

Fourth Semester B.E. Degree Examination, June/July 2018

## Structural Biology

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

### Module-1

- 1 a. Discuss the importance of water in Molecular Organization. (08 Marks)  
b. Give a brief account on hormones with example. (08 Marks)

OR

- 2 a. Explain in detail Covalent and Non Covalent interactions in stabilizing protein structure. (08 Marks)  
b. Discuss the relationship between Primary, Secondary and Tertiary structure of proteins. (08 Marks)

### Module-2

- 3 a. Write a note on base pairing in DNA. (08 Marks)  
b. Discuss the interaction of small ions and small molecules with DNA. (08 Marks)

OR

- 4 a. Explain in detail tertiary structure of t RNA, with the help of diagram. (08 Marks)  
b. Write a note on Signal transduction and Molecular reception. (08 Marks)

### Module-3

- 5 a. Explain in detail SEM (Scanning Electron Microscope). (08 Marks)  
b. Elaborate the principle and application of Ultracentrifuge. (08 Marks)

OR

- 6 a. Write a note on luminescence and its applications. (08 Marks)  
b. Formulate the principle and use of MALDITOF (Matrix Assisted Laser Desorption / Ionization. Time of Flight Analyzer). (08 Marks)

### Module-4

- 7 a. Discuss the applications of NMR (Nuclear Magnetic Resonance) spectroscopy in determining the structure and conformation of molecules. (08 Marks)  
b. Write a short note on Instrumentation and Applications of Raman Spectroscopy. (08 Marks)

OR

- 8 a. Write a note on Sample preparation steps for Single Crystal diffraction technique. (08 Marks)  
b. Explain the importance of X-ray diffraction method to determine 3D structure. (08 Marks)

### Module-5

- 9 a. Write a note on Protein - Nucleic acid interaction with example. (08 Marks)  
b. Discuss the association of macro molecules in living system. (08 Marks)

OR

- 10 a. Explain the importance of lipids in membrane protein interactions. (08 Marks)  
b. Write a note on Molecular mechanics. (08 Marks)

\* \* \* \* \*

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.