

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATIONS-2023

COURSE CODE: 18B11BI413

MAX. MARKS: 15

COURSE NAME: Structural Biology

COURSE CREDITS: 3

MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1. Macromolecular structure determination is critical for understanding their functioning in the cell. Justify this statement and list important biochemical techniques used to determine three-dimensional macromolecular structures? (CO-1) [2]
- Q2. Amino acids are classified according the carbon that bears the nitrogen. Discuss which type of amino acids are found in proteins? (CO-2) [2]
- Q3. Gly and Pro are conformationally special amino acids found in proteins. Justify the above statement. (CO-2) [2]
- Q4. Lysine contains nine heavy atoms. Draw its structure and mention their atom names. (CO-1) [2]
- Q5. Transient modification of the amino acid structures may regulate the functioning of several proteins. Write down the type of PTMs observed in proteins. (CO-1) [2]
- Q6. Protein torsion angles play important role in determining its conformation. Discuss how the proteins may observe sterically forbidden conformations? (CO-3) [2]
- Q7. A cellular system employs a number of biological macromolecules for its functioning. List some important macromolecules and their usage in cellular mechanisms. (CO-1) [3]