

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-V Semester (BI)

COURSE CODE(CREDITS): 18B1WBI531 (3)

MAX. MARKS: 15

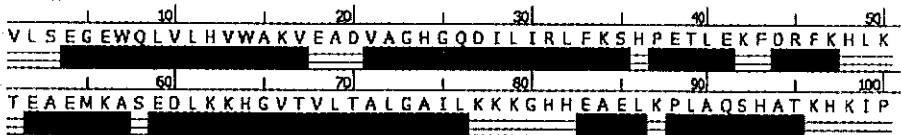
COURSE NAME: Structural Bioinformatics

COURSE INSTRUCTORS: Dr. Raj Kumar

MAX. TIME: 1 Hour

**Note:** (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	How has the evolution of structural determination methods (e.g., Cryo-EM, NMR, X-ray crystallography) influenced the content and growth of the PDB?	CO-1	2
Q2	In a DNA molecule, %C = 18%. What is the % of A?	CO-2	2
Q3	What criteria does SCOP use to classify proteins into folds, superfamilies, and families, and how does this hierarchy aid in understanding protein evolution?	CO-1	2
Q4	DNA and RNA are the two main types of nucleic acids. Explain few key chemical difference between the components of DNA and RNA.	CO-1	3
Q5	The specific sequence of nitrogenous bases in a nucleic acid is crucial for its function. Explain the concept of complementary base pairing and how it plays a role in DNA structure and function.	CO-2	3
Q6	Calculate the statistical propensities of leucine (L) in the highlighted helix conformation of the following sequence. 	CO-2	3