JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-Nov-2025

M.Sc.-Ist Semester (B.T. and Microbiology)

COURSE CODE (CREDITS): **20MS1BT111 (3)** MAX. MARKS: **25**

COURSE NAME: **Biochemistry**

COURSE INSTRUCTORS: **Jitendraa Vashistt** MAX. TIME: **1 Hour 30 Min**

Note: *(a) All questions are compulsory. (b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.*

Q. No.	Question	Marks
Q1	Define the following factors in reference to the biological activity of an enzyme. a) pH b) Temperature c) Substrate concentration d) competitive Inhibitor	5
Q2.	Explain the following in brief: a) Endo-symbiotic theory and its proof b) Arrange the biomolecules according to their sequential origin i.e. which came first: DNA, RNA and Protein. Justify your answer.	2X2.5= 5
Q3.	How do you define structural complexity of a protein with reference to the primary, secondary and tertiary structures? Also explain the different bonds associated with these structures.	5
Q4.	What is the relation of Km and Velocity of the reaction in an enzyme kinetic reaction? Explain the mathematical equation for the estimation of the velocity of the enzyme based biological reaction.	5
Q5.	If you need to purify four proteins: A, B,C and D having the molecular weight of 120kDa, 80 KDa, 45KDa and 18KDa, respectively from a mixture of proteins. How do you design a purification strategy with suitable matrix for isolation of above mentioned proteins?	5

29