JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-III Semester (BT/BI)

COURSE CODE (CREDITS):**25B11BT313 (4)** 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	CO	Marks
Q1.	Define the fate of Pyruvate in aerobic and anaerobic conditions in humans. Explain the structure of molecules generated during these two phases.	**III**	**3**
Q2.	Differentiate between the following. a) Saturated and unsaturated fatty acid b) Glucokinase and Hexokinase	**II**	**3**
Q3.	Explain the role of following enzymes in glucose catabolism and explain the substrate and product generated due to use of the following enzyme in glycolysis. a) Pyruvate kinase b) Phosphofructokinase	**III**	**4**
Q4.	Although Cholesterol is generally considered as harmful molecule, however it has beneficial roles in human body. Explain the beneficial and harmful effects of cholesterol with respect to humans.	**II**	**5**
Q5.	If you want to purify the following protein which is the best design strategy for purification? Also you need to explain the principle of chromatography employed for purification. a) Protein with antigenic properties b) Cationic proteins	**II**	**5**
Q6.	**a)** Explain the relation of catalytic efficiency and maximum Velocity (Vmax) in an enzymatic reaction. **b)** You are supplied with two enzymes 'A' and 'B' which have Kcat of $24X10^3\ s^{-1}$ and $16X10^3\ s^{-1}$, respectively. If both enzymes have same Km value of 4 M. Which enzyme show best catalytic efficiency?	**III**	**5**