## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

## Make-up Examination-Nov-2025

## Ph.D.-I Semester (BT/BI)

COURSE CODE (CREDITS): 24 P1WBT231 (2)

MAX. MARKS: 25

**COURSE NAME: Biochemical Calculations** 

COURSE INSTRUCTORS: Dr. Poonam Sharma

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  Explain the role of different type of interactions for solubility of and solute.  Q2(a) Discuss hypertonic and hypotonic solutions  (b) How the spontaneity of a reaction depends upon Gibbs Fiee Energy?  Q3(a). The conduction of heat from a hot body to a cold body is reversible or irreversible process. Explain  (b). For exothermic reactions, K decreases with indreasing temperature while for endothermic reactions K increases with indreasing temperature. Justify the statement  Q4(a). Discuss the variation Michaelis-Menten kinetics for high substrate and low substrate concentrations.  (b). An enzyme with a Km value of a man with the maximum reaction rate that this enzyme can achieve when it is saturated with substrate?  Q5. Aspergillus niger is tised to produce gluconic acid. Product synthesis is monitored in a fermenter, gluconic acid concentration is measured as a function of time for the first 39 h of culture.  Acid concentration (g1-1)  Acid concentration (g1-1)  Acid concentration (g1-1)  Acid concentration (g1-1)	T
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(a) Determine the rate constant	