JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-VII Semester (BT)

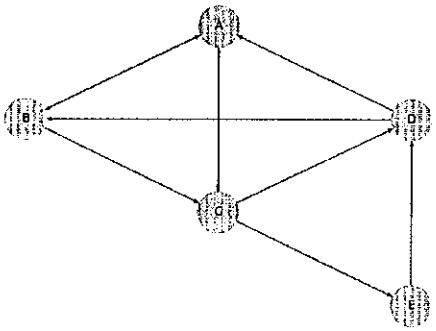
COURSE CODE(CREDITS): 18B1WBI731(3) MAX. MARKS: 15

COURSE NAME: Computational Systems Biology

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	Describe the role of computational modeling in systems biology.	CO-1	2
Q2	Discuss the central dogma of molecular biology in the context of systems biology. How has the systems perspective changed our understanding of this concept?	CO-1	2
Q3	How do directed and undirected networks differ in biological systems?	CO-1	2
Q4	What is the significance of hubs in biological networks?	CO-1	2
Q5	Describe the design and function of a bistable toggle switch in synthetic genetic circuits. Provide an example of its application.	CO-2	2
Q6	Determine whether the given shape is traversable and provide a possible solution to this problem. 	CO-2	2
Q7	Short notes in context to biological networks: a) Emergent properties b) Modularity c) Feedback mechanism	CO-1,2	1 × 3 = 3