JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

M.Tech. - Ist Semester (BT)

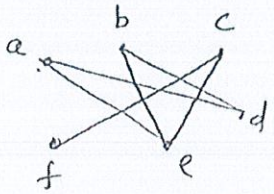
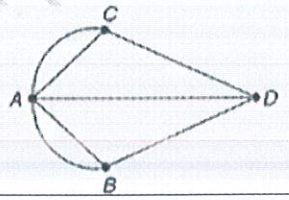
COURSE CODE(CREDITS): 18M1WBT133 (3) MAX. MARKS: 15

COURSE NAME: Advances in Computational System 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	Marks
Q1	Compare and contrast reductionist and systems approaches in biological research. What are the advantages and limitations of each?	2
Q2	Consider a disease such as cancer or diabetes. How can systems biology help in understanding and treating the disease?	2
Q3	Discuss some characteristics of a gene regulatory network and a protein-protein interaction network.	2
Q4	Determine whether the given shape is traversable and provide a possible solution to this problem. 	2
Q5	If you are allowed to make changes to the given graph, demonstrate how you will solve the famous Königsberg bridge problem? 	3
Q6	You are tasked with constructing a genetic oscillator. Outline the design steps and explain how oscillatory behavior is achieved.	4