JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-VIII Semester (CSE)

COURSE CODE (CREDITS): 18B1WCI847 (2) MAX. MARKS: 25

COURSE NAME: Social and Information Network Analysis

COURSE INSTRUCTORS: Seema Rani 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	Discuss the steps in importing a dataset and exporting a graph in Gephi.	CO-4	5
Q2	Write down the algorithm for Eigen vector centrality along with time complexity.	CO-3	4
Q3	What is Eccentricity in a graph? How does it relate to the concept of network diameter? Explain with example.	CO-2 ,3	5
Q4	Consider the undirected network with 6 nodes A, B, C, D, E, and F. The edges are as follows: ▪ A is connected to B and C, ▪ B is connected to A, C, and D ▪ C is connected to A, B, and E ▪ D is connected to B and E ▪ E is connected to C, D, and F ▪ F is connected only to E Compute the degree centrality of each node. Identify the node with the highest closeness centrality and justify Compute the betweenness centrality of node C.	CO-6	[1+2+2]
Q5	Given the following 3×3 adjacency matrix A, representing an undirected network of 3 nodes. Calculate the eigenvector centrality for each node, showing all steps in detail. $A = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \\ 1 & 1 & 2 \end{bmatrix}$	CO-6	6