10/02/26

(1)

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-VI Semester (CSE-AIML)

COURSE CODE (CREDITS): 25B1WCI641 (3) MAX. MARKS: 15

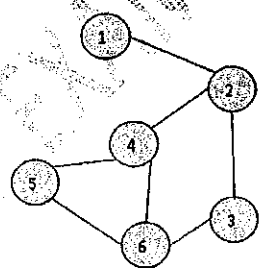
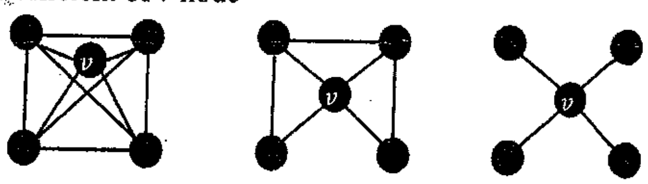
COURSE NAME: GRAPH NEURAL NETWORKS

COURSE INSTRUCTOR: Prof. Vivek Kumar Sehgal MAX. TIME: 1 Hour

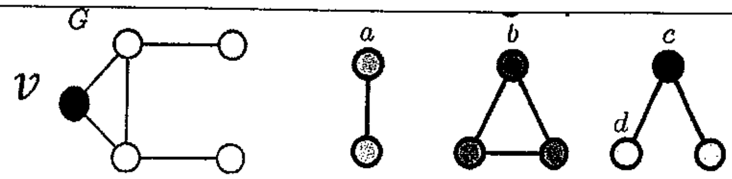
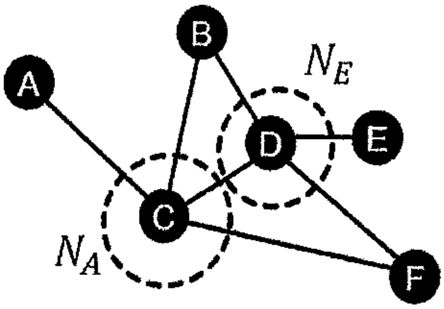
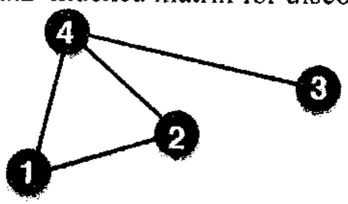
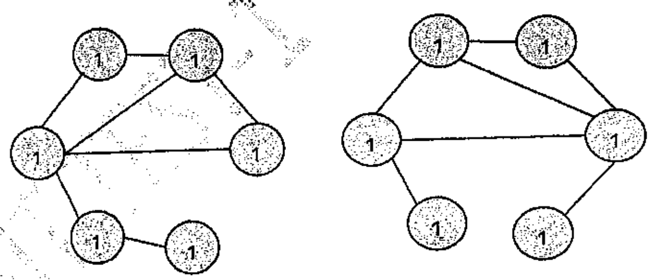
Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculators is allowed

Q.No	Question	CO	Marks
Q1	How will you define a graph? Distinguish the graph as a network and as a representation with examples. Explain the following classic graph machine learning task i. Node classification ii. Link prediction iii. Graph classification	CO-1	3
Q2	List the features which structure and position of a node in the network. What is Eigenvector centrality? Calculate Eigenvector centrality for the following graph 	CO-1	3
Q3	i. What is node clustering coefficient? Calculate the cluster coefficient of v node  ii. Draw the graphlets for 2 nodes, 3 nodes, and 4 nodes iii. Calculate the Graphlet Degree Vector (GDV) for following graph	CO-1	3

(10)

			
Q4	(a)For the following local neighborhood, calculate the: i. Jaccard's coefficient ii. Adamic-Adar index  (b) Calculate the Katz indexed matrix for discount factor of 0.4 	CO-1,2	3
Q5	(a)Name the two graph kernels to measure the similarities between two graphs (b) Calculate the Weisfeiler-Lehman kernel value for following two graphs 	CO-1,2	3