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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS- 2026

B.Tech-IV Semester (CSE/IT) Backlog

COURSE CODE (CREDITS): 18B11CI412 (3) MAX MARKS: 25

COURSE NAME: Design and Analysis of Algorithms

COURSE INSTRUCTOR: Amol Vasudeva 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
(c) Use of calculator is not allowed

Q No	Question	CO	Marks
Q1	Use Bellman-Ford algorithm to find the shortest paths from the source node S to all the other nodes in the graph (shown in Fig 1).	CO3	5
Q2	Use Welsh-Powell Algorithm to fill the nodes in the graph (shown in Fig. 2) with the minimum number of colors.	CO3	5
Q3	Find the minimal spanning tree of the graph shown in Fig. 3 using Kruskal's Algorithm.	CO3	5
Q4	Use Depth First Search algorithm to traverse the graph shown in Fig. 4, starting from node *u*.		5
Q5	For the given set of items and the knapsack capacity of 10 kg, find the subset of the items to be added in the knapsack such that the profit is the maximum.	CO2	5

Items	1	2	3	4	5
Weights (in kg)	3	3	2	5	1
Profits	10	15	10	12	8

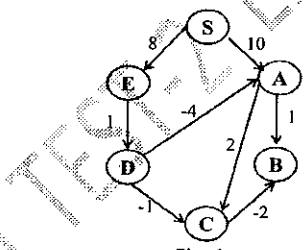

Fig. 1

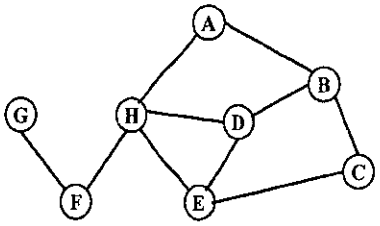

Fig. 2

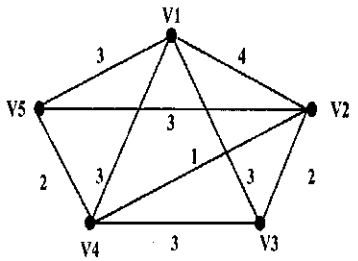

Fig. 3

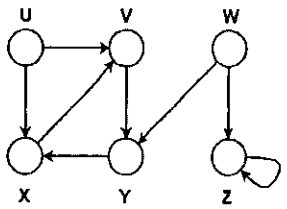

Fig. 4