O.P.Code: 20CS0523	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. III Year II Semester Regular & Supplementary Examinations June-2025
DESIGN AND ANALYSIS OF ALGORITHMS
(Common to CIC, CSM, CSE, CSIT & CAD)

Time: 3 Hours **Max. Marks: 60**

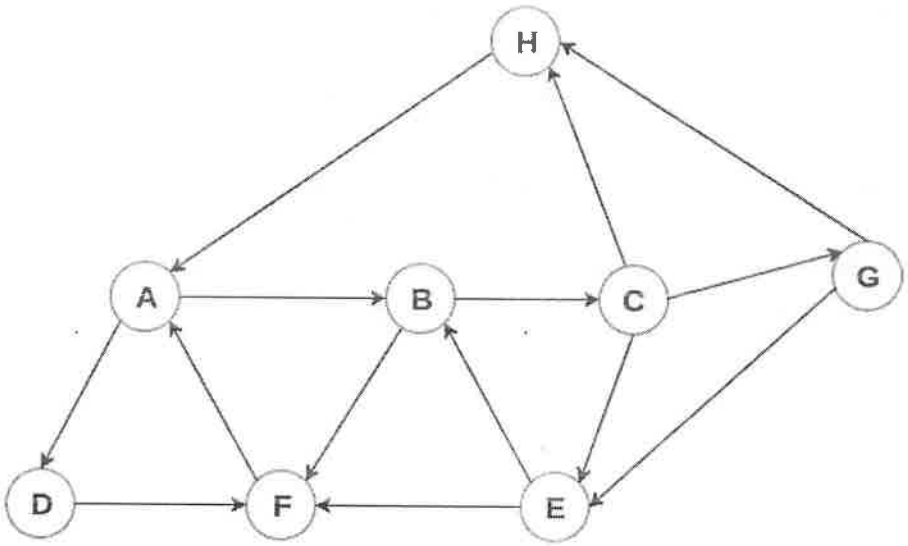
(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		What is asymptotic notation? Explain different types of notations with examples.	CO1	L2	12M
		OR			
2	a	Explain two types of recurrences in detail with suitable exampie.	CO1	L2	8M
	b	Solve the given function If $f(n)= 5n_2 + 6n+ 4$ then prove that f(n) is $0(n_2)$.	CO1	L3	4M

UNIT-II

3		Explain DFS algorithm and trace out minimum path for DFS for the following example.	CO2	L5	12M



OR

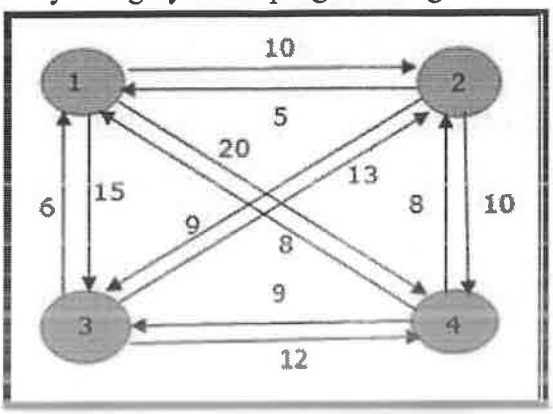
4		Summarize an algorithm for quick sort. Provide a complete analysis of quick sort for given set of numbers 12, 33, 23, 43, 44, 55, 64, 77and 76.	CO2	L2	12M

UNIT-III

5		Construct an optimal solution for Knapsack problem, where n=7,M=15 and (p1,p2,p3,p4,p5,p6,p7) = (10,5,15,7,6,18,3) and (w1,w2,w3,w4,w5,w6,w7) = (2,3,5,7,1,4,1) by using Greedy strategy.	CO3	L3	12M

OR

6	Analyze the minimum cost tour for given problem in travelling sales person Concepts by using dynamic programming.	CO3	L4	12M



UNIT-IV

7	Construct the LC branch and bound search. Consider knapsack instance n=4 with capacity M=15 such that pi={10,10,12,18}, wi={2,4,6,9}apply FIFO branch and bound technique.	CO4	L5	12M

OR

8	Distinguish in detail 8-queens problem using back tracking with state space tree.	CO4	L4	12M

UNIT-V

9	Determine the classes NP-hard and NP-complete problem with example.	CO5	L5	12M

OR

10	How to make reduction for 3-sat to clique problem? and Explain.	CO5	L3	12M

***** END *****