



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.													
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Make-up Examinations – December 2025

Date: 27 – 12- 2025

Time: 01:00pm – 04:00pm

School: SOIS	Program: B.Tech/BCA	
Course Code: CSA2005	Course Name: / Analysis of Algorithms	
Semester: MK	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	14	14	24	24	24

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	List the characteristics of an algorithm.	2 Marks	L1	C01
2.	How is a time complexity different from space complexity. Give an example.	2 Marks	L2	C01
3.	With an example, explain, what is string matching?	2 Marks	L1	C02
4.	In terms of space and time complexity, compare bubble sort and selection sort.	2 Marks	L1	C02
5.	Give the general strategy of divide and conquer method.	2 Marks	L1	C03
6.	Sort the following number using insertion sort method. [27, 5, 13, 42, 9, 31, 18, 3]	2 Marks	L2	C03
7.	What is transitive closure?	2 Marks	L1	C04
8.	Differentiate dynamic programming and greedy technique.	2 Marks	L2	C04
9.	Define state space tree.	2 Marks	L1	C05
10.	What is backtracking?	2 Marks	L1	C05

Part B

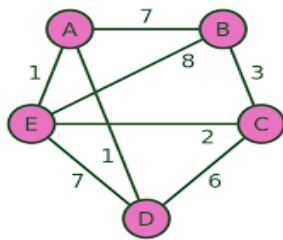
Answer the Questions.

Total Marks 80M

11.	a.	Explain how analysis of linear search is done with suitable illustration.	10 Marks	L2	C01
	b.	Solve the following instance of Knapsack problem by using exhaustive search. Item={A,B,C,D,E,F}, Weight={2,3,5,7,1,4}, Values={10,5,15,7,6,18} and Knapsack Capacity = 15.	10 Marks	L3	C02

Or

12.	a.	Explain in detail about various asymptotic notations.	10 Marks	L2	C01
	b.	Define travelling salesman problem. Explain how exhaustive method is used to solve the travelling salesman problem in the given graph.	10 Marks	L2	C02

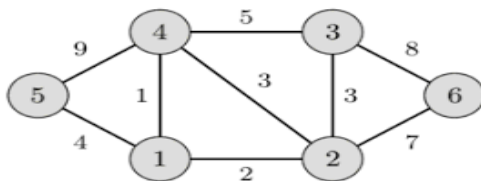


13.	a.	State and explain the quick sort algorithm. Give the recurrence relation and efficiency. Sort the following numbers using quick sort algorithm. [37, 12, 89, 25, 44, 10, 73, 56, 3, 68, 91, 21]	20 Marks	L2	C03
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Or

14.	a.	Write an algorithm to perform binary search following sorted list of elements and key is 68. Analyze the algorithm for best case, average case and worst case. [3, 10, 12, 21, 25, 44, 56, 68, 73, 89]	20 Marks	L2	C03
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15.	a.	Write the kruskal's algorithm apply it to find minimum spanning tree for the following graph.	20 Marks	L2	C04
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Or

16.	a.	Explain in detail about floyd's algorithm with suitable example.	20 Marks	L2	CO4
17.	a.	State the subset-sum problem and compute the state-space tree of backtracking applied to the instance $A=\{5,10,12,13,15,18\}$ and $d=30$ of subset-sum problem	20 Marks	L2	CO5
Or					
18.	a.	Explain how does backtracking work on N-Queen problem with suitable state-space tree.	20 Marks	L2	CO5