PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 07-10-2025   **Time:** 11.45am to 01.15pm

School: SOIS	**Program:** BCA/BCA-DS/BCA-AIML	
Course Code : CSA2505	**Course Name:** Analysis of Algorithms	
Semester: III	**Max Marks**: 50	**Weightage**: 25%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	24	26	-	-	-

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.   5Q x 2M=10M

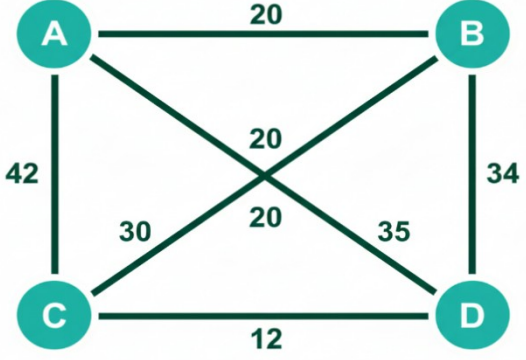| 1	List any two important properties of an algorithm	2 Marks	L1	CO1
2	Draw the flowchart for algorithm design and analysis process.	2 Marks	L2	CO1
3	Define brute force technique in algorithm design.	2 Marks	L1	CO2
4	Create an Algorithm for Bubble sort.	2 Marks	L3	CO2
5	Differentiate between feasible solution and optimal solution.	2 Marks	L2	CO2

Part B

6.	a.	Give the general plan for analyzing the time efficiency of recursive algorithms and use recurrence to find factorial of given number.	10 Marks	L2	CO1
		Or			
7.	a.	Explain Asymptotic Notations and its types in detail.	10 Marks	L2	CO1

8.	a.	Explain Mathematical Analysis of non-recursive algorithm. Give the algorithm to find largest number of given array and find the worst case complexity of same.	10 Marks	L2	CO1
		Or			
9.	a.	Write an Algorithm for linear search and explain Best Case, Worst Case and Average Case complexity in detail.	10 Marks	L2	CO1

10.	a.	Explain the Selection Sort algorithm and apply it to sort the given set of numbers: [64, 25, 12, 22, 11, 43, 34].	10 Marks	L3	CO2
		Or			
11.	a.	Explain the Traveling Salesman Problem (TSP) and Find the shortest tour for given graph.	10 Marks	L3	CO2

12.	a.	Find the optimal solution for the given assignment problem.	10 Marks	L3	CO2

	Job 1	Job 2	Job 3
A	8	6	10
B	9	12	7
C	7	5	11

Or

13.	a.	Explain the Knapsack problem and find the optimal solution for the given instance : Knapsack capacity w= 15.	10 Marks	L3	CO2

Item	Weight	Value
1	4	10
2	3	4
3	7	12
4	5	8
5	2	5