PRN:		Course Code :	UCA301

Second Year **S.Y.B.C.A.** End Semester Examination Winter 2023

.Design & Analysis of Algorithms

Day and Date: Tuesday, 28/11/2023 Max Marks: **100**

Time : 2.00 to 5.00 PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Mark	Bloom Level	COs
Q.1		**Attempt the following**			
	a)	Explain in detail Algorithm with example.	08	L2	CO1
	b)	State any five characteristic of algorithm.	08	L1	CO1
		OR			
	b)	Solve with example Three Types of Algorithm.	08	L1	CO3
Q.2		**Attempt the following**			
	a)	Show the types of complexity with example.	08	L6	CO4
	b)	Calculate time complexity for factorial of n natural numbers.	08	L6	CO4
		OR			
	b)	Elaborate Asymptotic Big-Omega Notations with proper example.	08	L1	CO3
Q.3		**Attempt any two from the following**			
	a)	Define the term Data structure with neat labeled diagram.	08	L6	CO4
	b)	Design Algorithm to calculate area of triangle.	08	L6	CO4
	c)	State static Data structure Array with example.	08	L2	CO2
Q.4		**Attempt any two from the following**			
	a)	Elaborate in detail Recursion with example.	08	L6	CO4
	b)	Tell difference between Recursion and Iteration. .	08	L1	CO1
	c)	Explain Tower of Hanoi problem using Recursion with neat diagram and calculate time complexity.	08	L2	CO2
Q.5		**Attempt any Two of the following**			
	a)	Show any searching Technique with comparative analysis.	09	L2	CO2
	b)	State Greedy technique, using problem like file merging.	09	L2	CO3
	c)	Write Brute force method with example .	09	L2	CO4
Q.6		**Attempt any Two of the following**			
	a)	Show Divide-n-conquer with merge sort.	09	L2	CO4
	b)	Define N-queen problem with Backtracking with its time complexity.	09	L4	CO4
	c)	Illustrate Dynamic programming with example.	09	L2	CO3

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