

Hall Ticket No:

Question Paper Code: 20MCAP108

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

MCA I Year II Semester (R20) Supplementary End Semester Examinations, August - 2023

DATA STRUCTURES AND ALGORITHMS

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

In Q.no 1 to 5 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	What is meant by asymptotic notations? Explain the asymptotic notations in details	12	1	2
OR				
Q.1(B)	Compare stack and queue. Write the merits and demerits of it.	12	1	2
Q.2(A)	a) Demonstrate the merge sort results for the following initial array of elements. 25 15 12 8 34 9 18 21 10	6	2	2
	b) Demonstrate the Fibonacci search for the following initial array of elements. 36 89 11 14 16 19 32 38 40 45 49 Search 16 and 35	6		
OR				
Q.2(B)	What is Heap? Explain min heap and max heap with all its operations.	12	2	2
Q.3(A)	Construct a graph on your own and find minimum spanning using Prim's algorithm.	12	3	3
OR				
Q.3(B)	What is AVL? Explain the three types of rotations in AVL with example trees.	12	3	2
Q.4(A)	What are graph traversals? Explain any one graph traversal method with Example.	12	4	2
OR				
Q.4(B)	Explain the collision resolution techniques available for hashing in detail.	12	4	2
Q.5(A)	Explain in detail about N-queen problem using backtracking method.	12	5	2
OR				
Q.5(B)	List the advantages of dynamic programming. Discuss about knapsack problem in detail.	12	5	2

*** END***