QP CODE: 2242202944

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Reg No : .....

Name : .....

M.C.A DEGREE EXAMINATION, NOVEMBER 2022

Second Semester

MASTER OF COMPUTER APPLICATION

CORE - MCACT202 - DATA STRUCTURES AND ALGORITHM ANALYSIS

2020 Admission Onwards

9824692A

Time: 3 Hours Maximum: 75 Marks

Part A

*Answer any **ten** questions*

*Each question carries **3** marks*

1. List the various operations that can be performed on different Data Structures.
2. Explain how the performance measurment of an algorithm is done with example.
3. Explain the usage of stack in recursive algorithm implementation.
4. Write an algorithm to delete the first node from a linked list.
5. Explain the preorder traversal with example.
6. Differenciate Digraph and weighted graph.
7. Compare linear and binary search methods.
8. What is radix sort?
9. Describe the Divide and conquer method of algorithm design.
10. Explain Quick sort.
11. List the features of dynamic programming.
12. Explain the principle of FIFO branch and bound.

(10×3=30 marks)

Part B

*Answer **all** questions*

*Each question carries **9** marks*

13. a) Write an algorithm to perform polynomial addition using arrays.

OR

b) Describe the operations that can be performed on Stack with algorithm and example.

14. a) Explain the delete operation in doubly linked list.

OR

b) Describe DFS with suitable exmple and algorithm.

15. a) Explain selection sort procedure with suitable example.

OR

b) Compare open hashing and closed hashing methods.

16. a) Explain the general strtegy of Divide and Conquer method with its control abstraction.

OR

b) Explain Prim's algorithm with an example.

17. a) Explain how the multi-stage graph problem can be solved using forward approach with example.

OR

b) Construct the comparison trees for ordered searching and sorting.

(5×9=45 marks)