QP CODE: 220200944

220200944

Reg No : .....

Name : .....

M.C.A. DEGREE EXAMINATION, MARCH 2022

Second Semester

Core - MCACT202 - DATA STRUCTURES AND ALGORITHM ANALYSIS

2020 Admission Onwards

75C662E0

Time: 3 Hours Maximum: 75 Marks

Part A

*Answer any **ten** questions*

*Each question carries **3** marks*

1. Write down the definition of Data Structures.
2. Write an algorithm to find the sum of n numbers and calculate its time complexity.
3. Write a note on Deque.
4. What do you mean by the degree of a tree?
5. How will you find the balanced factor of a node in an AVL tree?
6. What is adjacency matrix?
7. How can we perform insertion sort?
8. Define linear probing method of collision resolution.
9. Differentiate between Divide and conquer method and Greedy method.
10. Define a spanning tree. Give Example.
11. Why the LC search is called as intelligent search technique?
12. What do you mean by ordered searching?explain.

(10×3=30 marks)

Part B

*Answer **all** questions*

*Each question carries **9** marks*

13. a) Explain Space complexity of an Algorithm with suitable examples.

OR

b) Explain Time complexity evaluation of an Algorithm with suitable examples

14. a) Explain the linked list insertion with algorithm/psuedocode.

OR

b) Explain linked list deletion with algorithm/psuedocode

15. a) Explain radix sort with its time complexity.

OR

b) How the closed hashing is used to resolve collisions?

16. a) Explain Kruskal's algorithm for finding the minimum-cost spanning tree with an example.

OR

b) Explain the Greedy method of algorithm design with its control abstraction.

17. a) Explain all pairs shortest paths algorithm with an example.

OR

b) Explain 8-Queens problem with algorithm.

(5×9=45 marks)