QP CODE: 24045685

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, DECEMBER 2024

First Semester

M.Sc COMPUTER SCIENCE (DATA ANALYTICS)

CORE - CA030104 - DATA STRUCTURE USING C

2020 ADMISSION ONWARDS

C9742424

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Write a program to find factorial of a number using recursion.
2. Explain asymptotic notation and types.
3. Write a note on push operation.
4. Write a note on Priority Queue.
5. Differentiate between doubly and circular linked list.
6. What is boundary tag system?
7. What is binary tree? Mention the types of binary tree.
8. How can we delete a node from a binary tree?
9. What is the purpose of Dijikstra's algorithm? Explain the algorithm.
10. List out the different types of hashing functions.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What is Variable? How to Declare and initialize variables? Give examples.
12. Explain in brief about & and * operators. Explain how to access the value of a variable using pointer. Explain how to access the address of a variable.
13. Write the algorithm and a C program to insert an element into an array.

14. Write an algorithm to search an element in an array using Linear search.

15. Write the algorithms to delete the first and last node in a doubly linked list.

16. How can you implement queue using linked list?

17. What is threaded binary tree? Mention its advantages and disadvantages.

18. Which is better BFS or DFS? Justify your result.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain the applications of stacks and queues.

20. Explain about singly linked list. Write the program to insert and delete a node at the fist and last position.

21. Define binary search tree. Write the algorithm to insert and delete a node with suitable example.

22. Discuss the Algorithm to find Minimum Spanning Tree .

(2×5=10 weightage)