



QP CODE: 25050798



25050798

Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M Sc Computer Science (Data Analytics)

Core Courses - CA030104 - DATA STRUCTURE USING C

2020 Admission Onwards

1A14F320

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Differentiate between recursion and nonrecursion.
2. How can we analyse the performance of an algorithm?
3. What are the postfix and prefix forms of the expression? $A+B*(C-D)/(P-R)$
4. Which are the different applications of queue?
5. Write a program to insert a node at the end of the single linked list.
6. How do we know when dynamically allocated Memory can be fixed?
7. Draw a binary tree T. The inorder and preorder traversals yield the following sequence of nodes: Inorder : E A C K F H D B G Preorder: F A E K C D H G B
8. How can we search a particular node in a binary search tree?
9. Write the concept of Kruskal's Algorithm.
10. Write down the steps in DFS.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. List the differences between while loop and do-while loop. write a C program to find sum of Natural numbers from 1 to N using for loop.
12. Write a C program that defines a structure employee containing the details such as empno, empname, department name and salary. The structure has to store 20 employees in an organization. Use the appropriate method to define the above details and define a function that will display the contents?





13. How insertion and deletion operations can be performed on Stack? Explain with example.
14. Differentiate between Linear search and Binary search.
15. Write the programs to insert a first and last node in a circular linked list.
16. Write the algorithms to insert a first and last node in a doubly linked list.
17. What is tree? Describe the terminologies used in tree?
18. Which is the best shortest path algorithm. Explain.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. What is an array? Explain how an array is represented in memory? Write a C program to insert an item into a given position in an array?
20. How can you implement stack and queue using Linked list.
21. What is binary tree? Write an algorithm for insertion and deletion of nodes in binary tree?
22. Define hash function and need of hash table. Explain how overflow handling is performed.

(2×5=10 weightage)

