



24803738

QP CODE: 24803738

Reg No :

Name :

INTEGRATED MSC DEGREE EXAMINATION, JUNE 2024

Second Semester

CORE - ICSC2CR3 - DATA STRUCTURES USING C++

INTEGRATED MSC COMPUTER SCIENCE-ARTIFICIAL INTELLIGENCE AND MACHINE
LEARNING & INTEGRATED MSC COMPUTER SCIENCE- DATA SCIENCE

2020 Admission Onwards

B093022B

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What do you mean by interface and implementation of a Data structure ?
2. Define Recursion. How do you prevent infinite recursion?
3. Define array. Write the syntax of declaring an array.
4. How indexing work in a 2D array?
5. Why do we call binary search as 'binary'?
6. Define stack and operations on stack.
7. How is a double ended queue represented?
8. Mention various operations performed on a singly linked list.
9. Define doubly linked list.
10. Discuss circular linked list.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Explain how is dynamic memory allocation done in C++.
12. Explain the user defined datatype Class. Write a C++ program that demonstrates defining a class and creating object to use the functions in class.





13. Write the algorithm for deleting elements in a linear array and explain with example.
14. Explain linear search and its efficiency.
15. Write algorithm for deleting an element from circular queue explain it using an example.
16. What is a priority queue? Explain an application.
17. Explain algorithms for doubly linked list a) Deletion from beginning. b) Deletion from the end.
18. Explain algorithms to create and display a circular linked list.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain the classification of Data structures in detail.
20. Compare the working of sorting techniques- bubble sort, selection sort and merge sort with the example array: 20, 12, 10, 15, 2.
21. Write algorithm for converting expression to postfix using stack and convert the following expression to postfix $A+(B*C+D)/E$
22. Discuss linked list, its representation, advantages and disadvantages.

(2×5=10 weightage)

