

D 111923

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Name.....

Reg. No.....

**THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2024**

B.C.A.

BCA 3B 04—DATA STRUCTURES USING C

(2019—2023 Admissions)

Time : Two Hours

Maximum : 60 Marks

**Section A (Short Answer Type)***All questions can be answered.**Each question carries 2 marks.**(Ceiling 20 marks)*

1. What is data structure ?
2. Define time complexity.
3. Explain String.
4. Differentiate between queue and stack.
5. Explain how a linked list is represented in memory.
6. What are the operations on arrays.
7. Write a note on binary tree.
8. Explain circular linked list.
9. Explain the term traversal in the context of array.
10. What are weighted graphs.
11. Explain sequential searching ?
12. What is polish notation ?

**Turn over**

**Section B (Paragraph / Problem Type)**

*All questions can be answered.*

*Each question carries 5 marks.*

*(Ceiling 30 marks)*

13. Explain the classification of Data Structures
14. Write a C program to implement insertion sort.
15. How linked list is different from array.
16. Explain the operations of queue.
17. Explain how binary search tree is represented in memory.
18. Discuss how recursion works with the help of an example.
19. Describe the applications of stack.

**Section C (Essay Type)**

*Answer any **one** of the following questions.*

*The question carries 10 marks.*

20. Explain the basic operations of doubly (two way) linked list (creation, insertion, deletion).
21. Explain the different tree traversal techniques.

(1 × 10 = 10 marks)