

C 41203

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Name.....

Reg. No.....

**FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2023**

Computer Science

CSC 4C 04—DATA STRUCTURE USING C PROGRAMMING

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answer Type Questions)*Answer all questions, each correct answer carries a maximum of 2 marks.**Ceiling 20 marks.*

1. What are the various primitive and non-primitive data types ?
2. Explain user defined data structures with suitable example.
3. How to measure the space complexity of an algorithm ?
4. What are the dimensionality concepts of an array ?
5. What are the steps required to insert an element in a static one dimensional array ?
6. Explain the basic concept of a linked list.
7. What are the advantages of doubly linked list over a singly linked list ?
8. What are the advantages of LIFO architecture ? Example.
9. Develop the procedure to delete an element from the top of the stack.
10. What is Deque ? Explain.
11. What are the complexity measures of algorithms ?
12. What is the basic concept of a bubble sort ?

Section B (Short Essay Type Questions)*Answer all questions, each correct answer carries a maximum of 5 marks.**Ceiling 30 marks.*

13. What is an Algorithm ? Explain the characteristics of a good algorithm.
14. Explain the representation of a three dimensional array in memory.

Turn over

15. Develop an algorithm to delete a node from a singly linked list.
16. Explain the implementation of a stack in linear array.
17. Explain various applications of a queue.
18. What is linear search ? Explain the procedure with example.
19. Discuss the selection sort algorithm and its efficiency.

Section C (Essay Type Questions)

*Answer any **one** question, correct answer carries 10 marks.*

20. Explain the implementation of a queue in memory using linked list. Illustrate with proper algorithmic support.
21. What are search procedures ? Explain the binary search procedure with example.

(1 × 10 = 10 marks)