

23U346

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Name: .....

Reg.No: .....

**THIRD SEMESTER B.Sc./B.C.A. DEGREE EXAMINATION, NOVEMBER 2024**

(CBCSS - UG)

(Regular/Supplementary/Improvement)

**CC19U BCS3 B04 / CC19U BCA3 B04 - DATA STRUCTURES USING C**

(Computer Science / Computer Application - Core Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

**Part A** (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Expand ADT.
2. List out common operations on data structure.
3. What do you mean by algorithm complexity?
4. What is a string?
5. Differentiate between array and linked list.
6. Draw the structure of a node of a doubly linked list.
7. Translate  $A*(B+D)/E-F*(G+H/K)$  into postfix representation.
8. Explain the enqueue operation on a queue.
9. Give some applications of queue.
10. Define height of a tree.
11. Write the procedure to delete the child of a binary tree.
12. Give some applications of graph.

**(Ceiling: 20 Marks)**

**Part B** (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. Explain the array append operation.
14. Explain the way to represent a sparse matrix using arrays.
15. Define stack. How stack can be implemented using an array and linked list?
16. Explain Inorder, Preorder and Postorder Traversal operation on Binary tree with example.
17. Explain linear and binary search.

18. Explain collision handling technique in hashing.

19. Explain insertion sort with algorithm.

**(Ceiling: 30 Marks)**

**Part C** (Essay questions)

Answer any *one* question. The question carries 10 marks.

20. What is an array data structure? Explain the representation of arrays in memory.

21. What is a linked list? Explain the insert and delete operations using examples.

**(1 × 10 = 10 Marks)**

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