



K21U 1817

Reg. No. :

Name :

**III Semester B.Sc. Degree CBCSS (OBE) Reg./Sup./Imp. Examination,
November 2021**

(2019 – 2020 Admission)

CORE COURSE IN COMPUTER SCIENCE

3B04CSC : Data Structures

Time : 3 Hours

Max. Marks : 40

**PART – A
(Short Answer)**

Answer **all** questions.

(6×1=6)

1. Define Linear Data Structure.
2. What is a Null pointer ?
3. What is time complexity ?
4. Define recursion.
5. What are the pointers of a Queue ?
6. What is a POLISH notation ?

**PART – B
(Short Essay)**

Answer **any 6** questions.

(6×2=12)

7. Write down the algorithm for array insertion.
8. What are the operations of a data structure ?
9. Define a graph.
10. Explain Merge Sort.

P.T.O.



11. Define preorder tree traversal.
12. Explain polynomial representation with arrays.
13. What is a circular Queue ?
14. Briefly explain asymptotic analysis of an algorithm.

**PART – C
(Essay)**

Answer **any 4** questions.

(4×3=12)

15. Convert the following expression to postfix and prefix : $A + B - (C * D/E) * F$.
16. Write down the algorithm for post order traversal of a tree.
17. Explain stack operation with algorithm.
18. Compare Breadth First Search and Depth First Search.
19. Evaluate the following expression using algorithm : $5 + 4 * 6 - 8 + 9/3$.
20. Explain Binary Search algorithm.

**PART – D
(Long Essay)**

Answer **any 2** questions.

(2×5=10)

21. Explain infix to postfix expression algorithm with example.
 22. Explain headed linked list, circular linked list and doubly linked list.
 23. What are the traversals of a tree ? Explain.
 24. Compare Quick sort and Merge sort with algorithm and example.
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