



**K22U 3617**

Reg. No. : .....

Name : .....

**Third Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/  
Improvement) Examination, November 2022  
(2019 Admission Onwards)  
CORE COURSE IN COMPUTER SCIENCE  
3B04 CSC : Data Structures**

Time : 3 Hours

Max. Marks : 40

**PART – A  
(Short Answer)**

Answer **all** questions : **(6×1=6)**

1. What is Data Structure ?
2. Which notations are used in evaluation of arithmetic expressions using prefix and postfix forms ?
3. Which data structure is used in BFS algorithm ? Explain that data structure.
4. What is a binary tree ?
5. Define linear data structure. Give two examples of linear data structure.
6. What are the two traversal methods in graph ?

**PART – B  
(Short Essay)**

Answer **any 6** questions : **(6×2=12)**

7. List any four areas of applications of Data Structure.
8. Write the steps involved in the insertion and deletion of an element in the stack.
9. What are the differences between array and linked list ?

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10. What are the asymptotic notation and its types ?
11. Write about LIFO and FIFO data structure.
12. What do you mean by priority queue ? Explain it with suitable example.
13. Find the postfix form of the expression  $(A + B) * (C * D - E) * F / G$ .
14. Differentiate between algorithms and pseudo code. Explain it with example.

**PART – C**

**(Essay)**

Answer **any 4** questions :

**(4×3=12)**

15. How are the elements of a 2D array are stored in the memory ?
16. Define the graph data structure. Explain it with example.
17. Define circular queue. What are the steps to insert an element into the circular queue ?
18. Compare singly and doubly linked list.
19. Explain selection sort with suitable example.
20. Explain various operations on graph.

**PART – D**

**(Long Essay)**

Answer **any 2** questions :

**(2×5=10)**

21. What are the various operations that can be performed on linked list ?
  22. Explain the algorithm of binary search with the help of your own example.
  23. What do you mean by graph traversal ? Describe the two graph traversal algorithms.
  24. Write short notes on a) adjacency matrix, b) Binary search tree.
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