

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

B.C.A. - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - II

**24UACT2002 - Data Structures**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

### **Section B**

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Explain various operations on linear arrays with suitable examples.
2. Implement the stack push and pop operations using an array.
3. Analyze the applications of recursion with an example.
4. Compare different types of queues with suitable examples.
5. Describe the process of inserting and deleting elements in a circular queue.
6. Explain linked list operations such as insertion and deletion in a singly linked list.
7. Apply binary search on a sorted array with an example program.
8. Evaluate the concept of AVL trees and their rotations.

### **Section C**

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. Explain the different types of arrays and their operations with examples.
10. Describe stack applications such as expression evaluation and conversion.
11. Justify the importance of priority queues and their applications.
12. Compare and contrast different sorting algorithms such as Bubble Sort, Selection Sort, and Insertion Sort.
13. Analyze the different tree traversal techniques with suitable examples.

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