

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.

BCA. END SEMESTER EXAMINATIONS APRIL-2022

SEMESTER - III

11UACT3004 & UCA/CT/3004 - Data Structure and Algorithms

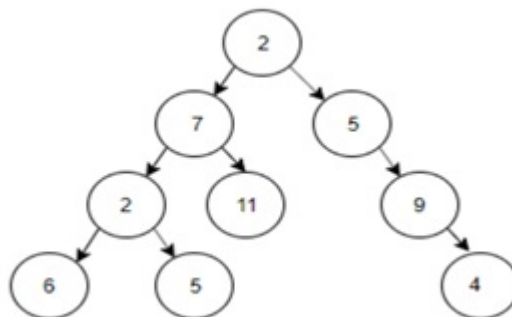
Total Duration : 3 Hrs.

Total Marks : 60

Section A

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

1. What is Data Structure? Classify the various data structures with example.
2. Construct an algorithm to convert the following expression from infix to postfix.
 $K + L - M * N + (O \wedge P) * W / U / V * T + Q$
3. Explain about Maze problem.
4. Compare singly and doubly linked list.
5. Discuss the procedure for the transformation of Forest to Binary tree.
6. Explain binary tree traversal using the given tree.



7. Define algorithm. How you find the efficiency of an algorithm ?
8. Write an algorithm for binary search. Explain with example.

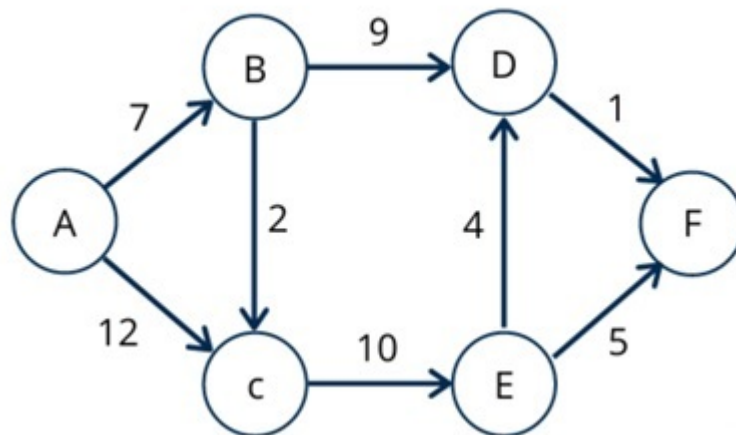
Section B

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

9. Explain asymptotic notation and its types.
10. Compare the different types of queues. Write the algorithm for queue operations using arrays.
11. Build an algorithm for deleting the node at different positions in a singly linked list.

Contd...

12. Write Dijkstra's algorithm and find the shortest path for the given graph starting from node 'A '.



13. Construct an algorithm for merge sort and sort the following elements using the same.

38, 27, 43, 3, 9, 82, 10
