

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.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022

SEMESTER - III

21UCSCT3004 - Data Structures and Algorithms

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section A

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

1. What is an algorithm? How do you calculate space complexity of an algorithm?
2. Describe a binary trees and its basic operations.
3. Distinguish Stack and Queue.
4. Illustrate Selection sort.
5. Write an algorithm to implement the operations of doubly linked list.
6. What is Tree? Explain the important terms related to Tree.
7. Illustrate BFS algorithm.
8. Criticize the pros and cons of Hash Table.

Section B

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

9. Describe how to solve the factorial of a given number using Recursion.
10. Write an algorithm to insert and delete items in a Singly linked list.
11. Recommend an algorithm to perform Post order traversal.
12. How do you apply DFS to traverse in Graph? Explain.
13. Recommend an algorithm using Merge sort and to sort the following list of elements - 5,2,6,1,9,2,8,3.
