

**B.Sc.(CS) Semester III**  
**Paper I**  
**DATA STRUCTURES**

**UNIT - I :**

LINKED LIST : Linked List, Representation of Single, Double, Header, Circular Single and Double Linked list, All possible operations on Single and Double linked List using Dynamic representation, Polynomial Representation and its Manipulation.

**UNIT - II :**

STACKS : Stacks terminology, Representation of Stacks in Memory, Operation on Stacks, Polish Notations, Translation of infix to postfix & prefix expression, Infix to Postfix Conversion, Evaluation of Postfix Expression, Recursion, Problems on Recursion, Quick Sort and Tower of Hanoi Problem.

**UNIT - III :**

QUEUE : Representation of Queues in Memory, Circular Queue. Dequeue and Priority Queue. Operations of above Structure using Array and Linked Representation.  
SORTING AND SEARCHING: Selection Sort, Insertion Sort, Merge Sort, Efficiency of Sorting Methods, Big-O Notations. Hash Tables, Hashing Technique, Collision Resolution Technique.

**UNIT - IV :**

TREES : Basic Terminologies, Representation of Binary Trees in Memory, Traversing of Binary tree, Binary Search Tree, Operation on Binary Search Tree, Heap Tree, Operation on Heap Tree, Heap Sort Method  
GRAPHS : Basic Terminologies, Definition and Representation of Graphs in Memory: Linked List and Matrix Representation. Traversing graphs : BFS, DFS Method.