

UNIT 1 – INTRODUCTION

1. Define algorithm and explain characteristics of a good algorithm.
2. Explain time and space complexity with examples.
3. Explain sparse matrix representation methods.
4. Stack ADT – operations and applications.
5. Queue ADT – types and operations.
6. Infix to Postfix conversion algorithm.
7. Evaluation of postfix expression.

UNIT 2 – LINKED LIST

1. Singly linked list operations (insert, delete, traverse).
2. Polynomial addition using linked list.
3. Doubly linked list operations.
4. Dynamic storage management.
5. Garbage collection techniques.
6. Memory compaction.

UNIT 3 – TREES & GRAPHS

1. Tree terminology.
2. Binary tree representations (array & linked).
3. Binary tree traversals (inorder, preorder, postorder).
4. Graph terminology.
5. Graph representations (adjacency matrix & list).
6. Graph traversal (BFS & DFS).
7. Shortest path algorithms (Dijkstra).

UNIT 4 – SYMBOL TABLE & HASHING

1. Symbol table definition and applications.
2. Static tree tables.
3. Dynamic tree tables.
4. Hashing functions.
5. Collision handling techniques (chaining, probing).

UNIT 5 – INTERNAL SORTING

1. Insertion sort – algorithm & analysis.
2. Quick sort – partitioning method.
3. Merge sort – 2-way merge.

4. Heap sort – heap construction & sorting.