AMHE10 DATA STRUCTURE

UNIT-1 INTRODUCTION TO DATA STRUCTURES

1.1 Arrays & sparse matrices,
1.2 Representation,
1.3 Searching, linear, binary,
1.4 Fibonacci
1.5 Sorting, selection, bubble, insertion,
1.6 Quick, merge, heap,
1.7 Introduction to external sorting, Hash tables,
1.8 Hashing functions

UNIT-2 LINKED LISTS

2.1 Singly, doubly and circular lists,
2.2 Application of linked lists, olynomial manipulation,
2.3 Stacks, Implementation of stacks using arrays and lists,
2.4 Typical problems,
2.5 Conversion of infix to postfix,
2.6 Evaluation of postfix expression.
2.7 Queues & Deques,
2.8 Implementation. priority queues

UNIT-3 TREES, DEFINITION AND MATHEMATICAL PROPERTIES.

3.1 Representation, sequential, lists, Binary trees,
3.2 Binary tree traversals, pre-order, in-order & post-order,
3.3 Expression trees.
3.4 Threaded binary trees. Binary Search trees. AVL trees

UNIT-4 GRAPHS

4.1 Graph representation using adjacency matrices and lists,
4.2 Graph traversals, DFS, BFS, shortest path,
4.3 Dijkstra's algorithm, Minimum spanning tree
4.4 Kruskal Algorithm, prims algorithm
4.5 Binary search, B trees and B+ trees.

References Books:

1. Robert Lafore, "Data Structures and Algorithms in Java" , 2/e, Pearson
2. Adam drozdek," Data Structures and Algorithms in Java", Thomson Publications, 2nd Edition.
3. Sartaj Sahni, 'Data Structures, Algorithms, and Applications in Java", McGraw-Hill
4. Aaron M.Tanenbaum, Moshe J.Augenstein, Yedidyah Langsam "Data Structures using Java", Pearson Education.