

3BCA3-DATA STRUCTURES

UNIT-I

The concept of data structure, Abstract data type, Concept of list & array Introduction to stack, Stack as an abstract data type, primitive operation on stack, Stacks application: Infix, post fix, Prefix and Recursion, Multiple Stack.

Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, Dequeue, Priority queue, Applications of queue

UNIT-II

Introduction to the Linked List , Basic operations on linked list, Stacks and queues linked list, Header nodes, Doubly Linked List, Circular Linked List, Stacks & Queues as a Circular Linked List, Application of Linked List.

UNIT-III

TREES - Basic Terminology, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Application of Binary tree, Threaded binary tree, B-tree & Height balanced tree, Binary tree representation of trees.

UNIT-IV

Analysis of algorithm, complexity using big 'O' notation. Searching: linear search, Binary search, their comparison.

Sorting :Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods.

Hash Table, Collision resolution Techniques.

UNIT-V

Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs, Graph Traversal-Depth first & Breadth first search. Spanning Trees, minimum spanning Tree, Shortest path algorithm.

7205

Syllabus For BCA Course For Batch (2007-2010)-effective From July 2007

Text & Reference Books :

- **Fundamentals Of Data Structure, By S. Sawhney & E. Horowitz**
- **Data Structure : By Trembley & Sorrenson**
- **Data Structure : By lipschuists (Schaum's Outline Series Mcgraw Hill Publication)**
- **Fundamentals Of Computer Algorithm: By Ellis Horowitz and Sartaj Sawhney**