Data Structures

Question Bank

UNIT–I

1. What is data structure? Explain primitive and non primitive data structures?

2. Compare and contrast linear and non linear data structures?

3. Explain the phases of implementation of data structures

4. Define is an array? Explain about types of arrays

5. Build algorithms for insertion and deletion operations of arrays?

6. Construct an algorithm for linear search technique with an example?

7. Construct an algorithm for binary search technique with an example?

8. Develop a c Program for addition of two matrices?

9. Develop a c Program for multiplication of two matrices?

10. How would you use pointer arrays?

UNIT–II

1. Compare different types of linked lists?

2. Distinguish between ayyays and linked lists?

3. What is the relationship between static and dynamic representation of a linked list?

4. Make use of an algorithms to insert a node at front and end positions of a single linked list?

5. How would you solve deletion of a node from a single linked list at any position?

6. Make use of an algorithm to insert a node into a double linked list at any position?

7. How would you solve deletion of a node from a double linked list at front and end positions?

8. How would you show the process need for merging and searching operations of a singly linked list?

9. Choose an algorithm to perform merging operation of a circular single linked list?

10. How would you solve sorting of a list of elements using circular double linked list?

UNIT—III

1. Define Stack? How to represent a stack in memory?

2. Implement the operations of Stack by using Array representation?

3. Implement the operations of Stack by using Linked List representation?

4. Build an algorithm for Conversion of infix expression to postfix expression with example?

5. Build an algorithm for Evaluation of postfix expression with example?

6. Implement the operations of queue by using Array representation?

7. Define queue? Explain Various structures of Queue?

8. Construct an algorithm for insertion and deletion on circular queue?

9. Build an algorithm for insert and remove the item at front end of deque?

10. Build an algorithm for insert and remove the item at rear end of deque?

UNIT—IV

1. Define Tree? Explain the terminologies of tree?

2. Define Binary tree? List the properties of binary tree and how to represent a binary tree?

3. Construct an algorithm for binary tree Traversals with example?

4. Construct a Binary Search Tree by inserting the following sequence of numbers
5.   10, 12, 5, 4, 20, 8, 7, 15 and 13
6. Construct an algorithm for delete a node from Binary Search Tree with example?

7. Implement an algorithm for binary search tree Traversals?

8. Explain AVL Rotations?

9. Explain Rotations on splay tree?

10. Construct Max heap for the following sequence of numbers 15, 19, 10, 7, 17 and 16.

UNIT-V

1. Define graph? Explain the terminologies of graph?

2. Define graph? How to represent a graph?

3. Construct an algorithm for DFS Traversal with example?

4. Construct an algorithm for BFS Traversal with example?

5. Make use of an algorithm for insertion sort with example?

6. Make use of an algorithm for selection sort with example?

7. Implement an algorithm for merge sort with example?

8. Make use of an algorithm for quick sort with example?

9. Build an algorithm for counting sort with example?

10. Build an algorithm for bubble sort with example?

DATA STRUCTURES-2 MARKS QUESTIONS

UNIT-1

1. Compare linear and non-linear data structures.

2. List the applications of arrays.

3. Define data structures. List the different types of data structures.

4. What is pointers. Write its syntax.

5. Write the syntax of 1 dimensional and 2 dimensional arrays.

UNIT-2

1. Compare the different types of linked lists.

2. List the applications of linked lists.

3. Write the advantages of linked lists.

4. Write the node structures of single linked list and double linked lists.

5. What is a circular double linked list.

UNIT-3

1. Define stack. List its applications.

2. List different types of arithmetic expressions. How to represent them.

3. Define queue and its representation in memory.

4. Define various types of queue structures.

5. List out the applications of queues.

UNIT-4

1. Compare binary tree and binary search tree.

2. List the properties of binary trees.

3. Define B-TREE.

4. Define red-black tree.

5. Define B+ tree.

UNIT-5

1. Define graph degree, in-degree and out-degree of a graph.

2. Define graph. List types of graphs.

3. What is sorting? List various types of sorting techniques.

4. Define traversal of a graph. List various types of traversal techniques.

5. What are the differences between DFS and BFS.