

Question Bank
C3 - Data Structures using C
BCA (ALL) & BSC (CS) – II SEM

UNIT 1
(5 Marks)

1. Explain space complexity
2. Write about time complexity
3. Explain ADT with example
4. Compare between Arrays and Linked Lists in a tabular format

(10 Marks)

1. What is an algorithm and explain its characteristics.
2. What are asymptotic notations and what are their purposes?
3. Define Data Structures and explain types of DS
4. Explain types of Linked Lists

UNIT 2
(5 Marks)

1. Explain Doubly Linked List with a diagram
2. Explain insert into Linked list algorithm
3. Explain delete from Doubly Linked List algorithm
4. Write code for creating a Singly Linked List

(10 Marks)

1. Explain applications of Linked Lists
2. Explain Linked list ADT
3. Write code for insertion into Doubly Linked List
4. Write algorithm and code for traversal of a Singly Linked List

UNIT 3
(5 Marks)

1. Explain Stack and stack ADT
2. Explain push and pop algorithms of stack
3. Application of Queues
4. Write about dequeues.
5. Write about applications of priority queues.

(10 Marks)

1. Explain stack implementation on array and Linked list.
2. Explain stack implementation on linked list with code.
3. Explain applications of stacks.
4. Explain converting infix notation into postfix notation
5. Give an introduction to queues.
6. Explain circular queue with a diagram

UNIT 4
(5 Marks)

1. Explain Hashing

2. Explain Collision Point
3. Write Bubble Sort Code
4. Write Selection Sort Code

(10 Marks)

1. Explain Different Types of searches
2. Explain Selection Sort with Algorithm
3. Explain Bubble Sort with Algorithm
4. Explain Insertion Sort with Algorithm
5. Explain Quick Sort with Algorithm
6. Explain Merge Sort with Algorithm

UNIT 5
(5 Marks)

1. Explain basic terms of trees.
2. What is an Expression Tree.
3. Explain insertion algorithm in a Binary Search Tree
4. Explain basic terms of graphs
5. Write about minimal spanning trees
6. Write about applications of graphs.
- 7.

(10 Marks)

1. Explain different types of Binary Tree Representations.
2. Explain Different types of traversal of a BT with algorithms.
3. Explain deletion algorithm in a Binary Search Tree
4. Explain adjacency list and Matrix representation of a Graph.
5. Explain different traversal of graphs