ADANI INSTITUTE OF INFRSTRUCTURE ENGINEERING

INFORMATION AND COMMUNICATION TECHNOLOGY

Subject: 3130702: Data Structure

Fundamental Experiments

1. Write a C program to do basic calculations using functions and pointers.

2. Write a C program to insert an element at a given index number of an array.

3. Introduction to Dynamic Memory Allocation. DMA functions malloc(), calloc(), free() etc.

4. Find the time complexity of following algorithms

    a) Addition of all natural numbers till N.

    b) Addition of all N odd numbers.

    c) Addition of all the digits in a given number.

5. Write a C program to push, pop and peep operations on the stack.

6. Write a C program to apply stack operations to convert infix expression to postfix expression.

7. Write a C program for Towers of Hanoi using Recursion.

8. Write a C program to implement basic operation such as insert and delete on Queue.

9. Write a C program to implement basic operation such as insert and delete on circular Queue.

10. Write a menu driven program to implement following operations on the singly linked list.

    a) Insert a node at the front of the linked list.

    b) Insert a node at the end of the linked list.

    c) Insert a node such that linked list is in ascending order.(according to info. Field)

    d) Delete a first node of the linked list.

    e) Delete a node before specified position.

    f) Delete a node after specified position.

11. Write a program to implement following operations on the doubly linked list.

a) Insert a node at the front of the linked list.

b) Insert a node at the end of the linked list.

    c) Delete a last node of the linked list.

d) Delete a node before specified position.

12. Write a C program to implement insertion and deletion on circular linked list.
13. Write a C program to implement stack using Linked list representation.
14. Write a C program to implement queue using Linked List representation.
15. Write a C program to traverse a Binary tree in preorder, post-order and in-order.
16. Write a program to implement BFS and DFS in binary tree.
17. Write a program to search an element using hashing technique.
18. Write a C program to implement Prim's Algorithm.
19. Write a C program to implement Kruskal's Algorithm.
20. Write a C program to implement Bubble sort algorithm.
21. Write a C program to implement Quick sort algorithm.
22. Write a C program to implement Merge Sort algorithm
23. Write a C program to implement Sequential search.
24. Write a C program to implement binary search.