B. Tech (3rd Semester, Sec-B) CS232 Data Structure Lab Assignment
(Branch: CSE, Session: MO-2023)

1. Write a Menu driven program that uses functions to perform the following operations on arrays: i) Creation ii) Insert a element iii) Delete an element iv) search for an element v) generate Fibonacci Series vi) traverse an array.
2. Write a program to determine the time complexities of Bubble sort, Insertion sort and Selection Sort.
3. Write a program to create a Sparse matrix and then perform addition of two sparse matrices. Also compare the size of sparse matrix with the original entered matrix.
4. Write a program that implement stack (its operations) using i) Arrays ii) Linked list (Pointers).
5. Write a program that implement Queue (its operations) using i) Arrays ii) Linked list (Pointers).
6. Write a program that uses functions to perform the following operations on singly linked list i) Create a linked list ii) insert an element iii) delete and element iv) Traverse a list.
7. Write a program that uses functions to perform the following operations on doubly linked list i) Create a doubly linked list ii) insert an element iii) delete an element iv) Traverse the list.
8. Write a program that uses functions to perform the following operations on circular linked list i) Create a circular linked list ii) Insert an element iii) Delete an element iv) Traverse the list
9. Write a program that implement Circular Queue using arrays.
10. Write a program to reverse an element of arrays using stack.
11. Write a program that uses both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers: a) Linear search b) Binary search.
12. Write a program that implements the following i) Insertion sort ii) Merge sort iii) Quick sort.
13. Write a program to perform the following operations: a) Insert an element into a binary search tree. b) Delete an element from a binary search tree. c) Search for a key element in a binary search tree.
14. Write a program to implement the tree traversal methods i.e. In-order, pre-order, post-order and level order traversal.

********** ********** **********