Subject: Data Structures and Algorithms (CS1104) A.Y. 2021-22 Sem-II

Practical Exam Program List

Date: 5th July to 8th July 2022

Max Marks: 25

Time Duration: 1hr 30 Mins.

Problem Statement: **Write a Program to create Heap from the given List** Input: 56,78,98,67,33,23,66
Problem Statement: **Write a program to implement stack using Array. Perform Push and pop** **Operations on stack.** Input: push(23),push(45),push(67),push(34),pop(),pop().Display stack for each operation.
Problem Statement: **Write a program to implement Queue using Array. Perform Enqueue and Dequeue** **Operations on Queue.** Input: enqueue (53), enqueue(21),enqueue(66),dequeue(),enqueue(88).Display queue for each operation.
Problem Statement: **Write a program to check stack is full or empty. Stack can store maximum 3 elements.**
Problem Statement: **Write a program to create Binary Search Tree.** Input: list= {76, 45, 34,77,88,22, 81}
Problem Statement: **Write a program to create Binary Search Tree and show prorder, postorder and inorder Traversal.** Input: list= {76, 45, 34,77,88,22, 81}
Problem Statement: **Write a program to implement stack application (Print word in reverse order).**

Input: “RSCOE”
Problem Statement: **Write a program to implement Queue application (Bus Queue).** Input: Persons are waiting for bus: ‘A’,’B’, ‘H’,’C’,’I’ Person ‘A’ will enter first in the bus and ‘H’ will be the last person.
Problem Statement: **Write a program to search an element in an array using the Binary search technique** Input: array={‘A’,’B’,’C’,’D’’E’,’F’} Search element: ’D’ in array Search element: ’X’ in array
Problem Statement: **Write a program to search an element in an array using the linear search technique** Input: array={10, 23, 40, 1, 2, 0, 14, 13, 50, 9};} Search element: 14 in array Search element: 65 in array
Problem Statement: **Write a program to search an element in an array using the linear search technique** Input: array={10, 23, 40, 1, 2, 0, 14, 13, 50, 9};} Search element: 14 in array Search element: 65 in array
Problem Statement: **Write a program to create linked list for storing three characters.** Input: Characters: ‘G’,’B’,’T’
Problem Statement: **Write a program to create linked list. Perform following operations.** **1) Insert node at the beginning** **2) Insert node at the end**
Problem Statement: **Write a program to perform operations on array** **1) Insert element 2) Delete element 3) Display Array**
Problem Statement: **Write a program to perform operations on array** **1) Insert element 2) Delete element 3) Display Array**
Problem Statement: **Write a C Program for Towers of Hanoi using user defined stacks**.

Input: No.of Disks:3
Problem Statement: **Write a C Program for Reading, writing, and addition of polynomials.** Input: First Polynomial: $3x^2+5$ Second Polynomial:$4x^2+2$
Problem Statement: **Write a C Program for Line editors with line count, word count showing on the screen.**
Problem Statement: **Write a C Program to Sort the marks of students in ascending/descending order and find the topper of the class.**
Problem Statement:**Write a C Program using Breadth First Traversal for a user defined Graph**.
Problem Statement:**Write a C Program using Depth First Traversal for a user defined Graph**.
Problem Statement:**Write a C Program to sort the given list using Selection Sort Technique . Show the result of each iteration.** Input: list={12,45,76,42,66,27}
Problem Statement:**Write a C Program to sort the given list using Insertion Sort Technique . Show the result of each iteration.** Input: list={12,45,76,42,66,27}
Problem Statement:**Write a C Program to sort the given list using Quick Sort Technique . Show the result of each iteration.** Input: list={12,45,76,42,66,27}
Problem Statement:**Write a C Program to sort the given list using Selection Sort Technique . Show the result of each iteration.** Input: list={‘X’,’B’,’D’,’H’,’K’}
Problem Statement: **Write a C Program to save, read a tree or graph data structure in a file.**