**1**

Consider a student database of SEIT class (at least 15 records). Database contains different fields of every student like Roll No, Name and SGPA.(array of structure)

1. Arrange list of students alphabetically. (Use Insertion sort)
2. Search students according to SGPA. If more than one student having same SGPA, then print list of all students having same SGPA.
3. Search a particular student according to name using binary search without recursion. (all the student records having the presence of search key should be displayed)

**OR**

Represent a graph of your college campus using adjacency list /adjacency matrix. Nodes should represent the various departments/institutes and links should represent the distance between them. Find minimum spanning tree A) Using Kruskal’s algorithm.

**2**

Consider a student database of SEIT class (at least 15 records). Database contains different fields of every student like Roll No, Name and SGPA.(array of structure)

1. Design a roll call list, arrange list of students according to roll numbers in ascending order (Use Bubble Sort)
2. Arrange list of students to find out first ten toppers from a class. (Use Quick sort)
3. Search a particular student according to name using binary search without recursion. (all the student records having the presence of search key should be displayed)

**OR**

Construct an Expression Tree from postfix expression. Perform non- recursive In-order and post-order traversals

**3**

Implement stack as an abstract data type using singly linked list and use this ADT for conversion of infix expression to postfix and evaluation of postfix expression.

**OR**

Implement binary search tree and perform following operations:

1. Insert (Handle insertion of duplicate entry)
2. Delete
3. Display tree (Traversal)

**4**

Implement stack as an abstract data type using singly linked list and use this ADT for conversion of infix expression to prefix and evaluation of prefix expression.

**OR**

Implement binary search tree and perform following operations:

1. Insert (Handle insertion of duplicate entry)
2. Display tree (Traversal)
3. Create a copy
4. Display all parent nodes with their child nodes

**5**

Implement Heap sort to sort given set of values using min heap.

**OR**

Represent a graph of city using adjacency matrix /adjacency list. Nodes should represent the various landmarks and links should represent the distance between them. Find the shortest path using Dijkstra's algorithm from single source to all destination.

**6**

Implement Heap sort to sort given set of values using max heap.

**OR**

Implement binary search tree and perform following operations:

1. Insert (Handle insertion of duplicate entry)
2. Search
3. Display tree (Traversal)
4. Display - Depth of tree
5. Display - Mirror image

**7**

Implement binary search tree and perform following operations:

1. Insert (Handle insertion of duplicate entry)
2. Display tree (Traversal)
3. Display leaf nodes
4. Display tree level wise

**OR**

Represent a graph of your college campus using adjacency list /adjacency matrix. Nodes should represent the various departments/institutes and links should represent the distance between them. Find minimum spanning tree a) Using Prim’s algorithm.

**8**

Implement In-order Threaded Binary Tree and traverse it in In-order and Pre-order.

**OR**

Implement Circular Queue using Array. Perform following operations on it.

1. Insertion (Enqueue)
2. Deletion (Dequeue)
3. Display

**9**

Implement Circular Queue using Array. Perform following operations on it.

1. Insertion (Enqueue)
2. Deletion (Dequeue)
3. Display

**OR**

Construct an Expression Tree from postfix expression. Perform Recursive inorder, preorder, postorder and non- recursive post-order traversals

**10**

Department maintains student’s database. The file contains roll number, name, division and address. Write a program to create a sequential file to store and maintain student data. It should allow the user to add, delete information of student. Display information of particular student. If record of student does not exist an appropriate message is displayed. If student record is found it should display the student details.

**OR**

Implement In-order Threaded Binary Tree and traverse it in In-order and Pre-order.

**11**

Represent a graph of your college campus using adjacency list /adjacency matrix. Nodes should represent the various departments/institutes and links should represent the distance between them. Find minimum spanning tree

1. Using Kruskal’s algorithm.

**OR**

Department maintains student’s database. The file contains roll number, name, division and address. Write a program to create a sequential file to store and maintain student data. It should allow the user to add, delete information of student. Display information of particular student. If record of student does not exist an appropriate message is displayed. If student record is found it should display the student details.

**12**

Represent a graph of your college campus using adjacency list /adjacency matrix. Nodes should represent the various departments/institutes and links should represent the distance between them. Find minimum spanning tree

1. Using Prim’s algorithm.

**OR**

Represent a graph of city using adjacency matrix /adjacency list. Nodes should represent the various landmarks and links should represent the distance between them. Find the shortest path using Dijkstra's algorithm from single source to all destination.

**13**

Implement binary search tree and perform following operations:

1. Insert (Handle insertion of duplicate entry)
2. Search
3. Display tree (Traversal)
4. Display leaf nodes
5. Display tree level wise

**OR**

Consider a student database of SEIT class (at least 15 records). Database contains different fields of every student like Roll No, Name and SGPA.(array of structure)

1. Design a roll call list, arrange list of students according to roll numbers in ascending order (Use Bubble Sort)
2. Arrange list of students alphabetically. (Use Insertion sort)
3. Arrange list of students to find out first ten toppers from a class. (Use Quick sort)

**14**

Consider a student database of SEIT class (at least 15 records). Database contains different fields of every student like Roll No, Name and SGPA.(array of structure)

1. Arrange list of students alphabetically. (Use Insertion sort)
2. Search students according to SGPA. If more than one student having same SGPA, then print list of all students having same SGPA.
3. Search a particular student according to name using binary search without recursion. (all the student records having the presence of search key should be displayed)

**OR**

Implement stack as an abstract data type using singly linked list and use this ADT for conversion of infix expression to postfix, prefix

**15**

Represent a graph of city using adjacency matrix /adjacency list. Nodes should represent the various landmarks and links should represent the distance between them. Find the shortest path using Dijkstra's algorithm from single source to all destination.

**OR**

Department maintains student’s database. The file contains roll number, name, division and address. Write a program to create a sequential file to store and maintain student data. It should allow the user to add, delete information of student. Display information of particular student. If record of student does not exist an appropriate message is displayed. If student record is found it should display the student details.