Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program that accepts the vertices and edges of a graph and stores it as an adjacency matrix. Display the adjacency matrix.   [15 Marks]

Q 2. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, preorder. Write a menu driven program that performs the above operations.
                                    [15 Marks]

OR

Q 2. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.
                                    [15 Marks]

Q 3) Viva   [5 Marks]

Duration: 3 Hours   **Maximum Marks: 35**

Q1. Write a C program for the implementation of Topological sorting.   [15 Marks]

Q 2. Write a C program that accepts the vertices and edges of a graph and stores it as an adjacency matrix. Display the adjacency matrix.   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Depth First Search (DFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

SLIP 2

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.

[15 Marks]

Q 2. Write a C program that accepts the vertices and edges of a graph and stores it as an adjacency matrix. Display the adjacency matrix.   [15 Marks]

OR

Q 2. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q 3. Viva   [5 Marks]

SLIP 3

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program that accepts the vertices and edges of a graph. Create adjacency list.
                                                                        [15 Marks]

Q 2. Write a program which uses binary search tree library and counts the total nodes and total leaf nodes in the tree.
int countLeaf(T) – returns the total number of leaf nodes from BST.   [15 Marks]

OR

Q 2. Write a C program for the implementation of Topological sorting. [15 Marks]

Q 3.Viva   [5 Marks]

Q 1. Write a C program which uses Binary search tree library and displays nodes at each level, count of node at each level.   [15 Marks]

Q 2. Write a program to sort n randomly generated elements using Heapsort method.
                                                        [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Breadth First Search (BFS) traversal.
                                                        [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.

[15 Marks]

Q 2. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and stores it as an adjacency matrix. Display the adjacency matrix.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q2. Write a program to sort n randomly generated elements using Heap sort method. [15 Marks]

OR

Q 2. Write a C program which uses Binary search tree library and displays nodes at each level, and total levels in the tree.   [15 Marks]

Q 3. Viva   [5 Marks]

Q 1. Write a program to sort n randomly generated elements using Heapsort method. [15 Marks]

Q 2. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.
[15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement functions to print indegree of all vertices of graph.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program that accepts the vertices and edges of a graph. Create adjacency list and display the adjacency list.   [15 Marks]

Q 2. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, postorder. Write a menu driven program that performs the above operations.

[15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Depth First Search (BFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, inorder. Write a menu driven program that performs the above operations.   [15 Marks]

Q 2. Write a C program that accepts the vertices and edges of a graph. Create adjacency list and display the adjacency list.   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Breadth First Search (BFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q 2. Write a C program that accepts the vertices and edges of a graph. Create adjacency list and display the adjacency list.   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Depth First Search (DFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, preorder. Write a menu driven program that performs the above operations.   [15 Marks]

Q 2. Write a C program for the implementation of Topological sorting.   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement functions to print indegree, outdegree and total degree of all vertices of graph.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a menu driven program to implement hash table using array (insert, delete,display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q 2. Write a program which uses binary search tree library and counts the total nodes and total leaf nodes in the tree.
int countLeaf(T) – returns the total number of leaf nodes from BST   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Breadth First Search (BFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, preorder. Write a menu driven program that performs the above operations.

[15 Marks]

Q2. Write a menu driven program to implement hash table using array (insert, search, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.   [15 Marks]

OR

Q 2. Write a C program which uses Binary search tree library and displays nodes at each level, and total levels in the tree.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.

[15 Marks]

Q 2. Write a menu driven program to implement hash table using array (insert, delete,display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency list. Implement function to traverse the graph using Breadth First Search (BFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q2. Write a program to sort n randomly generated elements using Heapsort method. [15 Marks]

OR

Q 2. Write a C program which uses Binary search tree library and displays nodes at each level, and total levels in the tree.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q1. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q2. Write a program to sort n randomly generated elements using Heapsort method. [15 Marks]

OR

Q 2. Write a C program which uses Binary search tree library and displays nodes at each level, and total levels in the tree.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours　　　　　　　　　　　　　　　　**Maximum Marks: 35**

Q 1. Write a C program that accepts the vertices and edges of a graph and stores it as an adjacency matrix. Display the adjacency matrix.　　　　　　　　　[15 Marks]

Q 2. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, inorder. Write a menu driven program that performs the above operations.

　　　　　　　　　　　　　　　　　　　　　　　　　　[15 Marks]

OR

Q 2. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.

　　　　　　　　　　　　　　　　　　　　　　　　　　[15 Marks]

Q 3.　Viva　　　　　　　　　　　　　　　　　　　　[5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, in order. Write a menu driven program that performs the above operations.   [15 Marks]

Q 2. Write a C program that accepts the vertices and edges of a graph. Create adjacency list and display the adjacency list.   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Depth First Search (DFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a menu driven program to implement hash table using array (insert, delete,display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q 2. Write a program which uses binary search tree library and count the total nodes and total leaf nodes in the tree.
int countLeaf(T) – returns the total number of leaf nodes from BST   [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Breadth First Search (BFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

SLIP 20

Q 1. Write a menu driven program to implement hash table using array (insert, delete,display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q 2. Write a program which uses binary search tree library and counts the total nodes and total leaf nodes in the tree.
int count Leaf(T) – returns the total number of leaf nodes from BST   [15 Marks]

OR

Q 2. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.
[15 Marks]

Q 3. Viva   [5 Marks]

SLIP 21

Q 1. Write a C program that accepts the vertices and edges of a graph. Create adjacency list and display the adjacency list.   [15 Marks]

Q 2. Implement a Binary search tree (BST) library (btree.h) with operations – create, insert, postorder. Write a menu driven program that performs the above operations.
[15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement function to traverse the graph using Depth First Search (DFS) traversal.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.

[15 Marks]

Q 2. Write a C program that accepts the vertices and edges of a graph and stores it as an adjacency matrix. Display the adjacency matrix.   [15 Marks]

OR

Q 2. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a program to sort n randomly generated elements using Heap sort method. [15 Marks]

Q 2. Write a C program for the Implementation of Prim's Minimum spanning tree algorithm.
                                                                    [15 Marks]

OR

Q 2. Write a C program that accepts the vertices and edges of a graph and store it as an adjacency matrix. Implement functions to print indegree of all vertices of graph.   [15 Marks]

Q 3. Viva   [5 Marks]

Savitribai Phule Pune University

S.Y.B.Sc.(Computer Science) Practical Examination (2019 Pattern)

Lab Course 243 SEM IV

Data Structure Laboratory

Duration: 3 Hours   **Maximum Marks: 35**

Q 1. Write a menu driven program to implement hash table using array (insert, delete, display). Use any of the above-mentioned hash functions. In case of collision apply linear probing.

[15 Marks]

Q2. Write a program to sort n randomly generated elements using Heapsort method. [15 Marks]

OR

Q 2. Write a C program which uses Binary search tree library and displays nodes at each level, and total levels in the tree.   [15 Marks]

Q 3. Viva   [5 Marks]