

## BCA-3-02P: Data Structures Lab

**Total Marks: 50**  
**External Marks: 15**  
**Internal Marks: 35**  
**Credits: 2**  
**Pass Percentage: 40**

<b>Course: Data Structures Lab</b>	
<b>Course Code: BCA-3-02P</b>	
<b>Course Outcomes (COs)</b>	
After the completion of this course, the students will be able to:	
CO1	Implement basic data structures such as arrays and linked list.
CO2	Develop programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths.
CO3	Implement various searching and sorting algorithms.
CO4	Develop programs to demonstrate the implementation of various operations on stack
CO5	Develop programs to demonstrate the implementation of various operations on queue

### Detailed List of Programs:

Program No.	Name of Program
P1	WAP to demonstrate the concept of one dimensional array finding the sum of array elements.
P2	WAP to insert an element in an array
P3	WAP to delete an element from an array.
P4	WAP to insert an element at the beginning of a linked list
P5	WAP to insert an element at the end of a linked list
P6	WAP to insert an element within the linked list
P7	WAP to demonstrate PUSH and POP operations of stack using array
P8	WAP to demonstrate the implementation of queue using linked list
P9	WAP to search an element from an linear array using linear search.
P10	WAP to Search an element using binary search.
P11	WAP to arrange the list of numbers in ascending order using Bubble Sort.
P12	WAP to arrange the list of numbers in ascending order using Insertion Sort.
P13	WAP to arrange the list of numbers in ascending order using Selection Sort.
P14	WAP to arrange the list of numbers in ascending order using Heap Sort.

P15	WAP to arrange the list of numbers in ascending order using Quicksort Sort.
P16	WAP to arrange the list of numbers in ascending order using Merge sort.
P17	WAP to demonstrate the operation of Pre order Traversing technique of Tree
P18	WAP to demonstrate the operation of Post order Traversing technique of Tree
P19	WAP to implement a simple Depth-First Search (DFS) traversal in Graph .
P20	WAP to implement a simple Breadth-First Search (BFS) traversal in Graph.