

**JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

Programme: B.C.A

Semester: II

DATA STRUCTURES – LAB

Course Code: 18BCAIP2

No. of Hours: 60

COURSE OBJECTIVES:

- To practically evaluate how the choice of data structures and the algorithm impacts the performance of programs.
- To pick the appropriate data structure and algorithm design method for a given application.
- To understand the different operations acting on data structures such as arrays, stacks, queues, linked lists and binary search trees with the help of appropriate programs. Also in the process, understand a few of the applications pertaining to these data structures.

LEARNING OUTCOMES:

- To get hands on expertise in implementing different techniques related to sorting, searching.
- To create data structures and to manipulate data within it using operations like insertion, deletion and traversal.

PART A

1. Write a C program to insert and delete a particular item in an ARRAY
2. Write a C program to perform Linear Search
3. Write a C program to perform Binary Search
4. Write a C program to arrange n numbers in ascending order using INSERTION SORT
5. Write a C program to arrange n numbers in ascending order using MERGE SORT
6. Write a C program to arrange n numbers in ascending order using QUICK SORT
7. Write a C program to solve the Towers of Hanoi problem using recursion

PART B

1. Write a C program to implement the Linked List operations:
INSERTION,
DELETION,
DISPLAY THE CONTENTS
2. Write a C program using Pointers to implement the Stack Operations
PUSH,
POP,
DISPLAY CONTENT
3. Write a C program to convert the given INFIX Expression to POSTFIX expressing using Stack.
4. Write a C program to evaluate a POSTFIX Expression using Pointers.
5. Write a C program using Pointers to implement the Queue Operations
INSERTION,
DELETION,
DISPLAY CONTENTS

6. Write a C program using Pointers to perform Binary Tree Traversals
INORDER
PREORDER
POST ORDER