

MCKV Institute of Engineering
243 G. T. Road (N), Liluah, Howrah – 711204

Subject: **Design and Analysis of Algorithm Laboratory**

Code: **PC-CS-493**

Stream: **CSE-1**

Credit: 2

Year and Semester: 2nd Year 2nd Semester

1. Using Divide and Conquer Technique write a C program to *implement* Binary Search. Mention the Compiler used in your program. *Analyze* the complexity of Binary Search.
2. Using Divide and Conquer Technique write a C program to *implement* Merge Sort. Mention the Compiler used in your program. *Analyze* the complexity of the implemented Sorting Algorithm.
3. Using Divide and Conquer Technique write a C program to *implement* Quick Sort. Mention the Compiler used in your program. *Analyze* the complexity of the implemented Sorting Algorithm.
4. Using Divide and Conquer Technique write a C program to *implement* Max-Min Problem. Mention the Compiler used in your program. *Analyze* the complexity value of your program.
5. *Implement* Fractional Knapsack Problem using appropriate algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
6. *Implement* Job sequencing with deadlines problem using appropriate algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
7. *Implement* Matrix Chain problem to find the minimum number of scalar multiplication needed using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
8. *Implement* MST Problem using appropriate algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
9. *Implement* MST Problem using Kruskal's algorithm. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
10. *Implement* Single Source Shortest Path problem using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
11. *Implement* Single Source Shortest Path problem, allowing negative edge weights, using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
12. *Implement* All Pair of Shortest Path problem using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
13. *Implement* TSP problem using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.

14. *Implement* N-Queens problem using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
15. *Implement* Graph Coloring problem using proper algorithm design technique. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
16. *Implement* Hamiltonian problem. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
17. *Implement* 15-Puzzle problem. Mention the Compiler used in your program. *Analyze* the complexity value of your algorithm.
18. Suppose you have an Undirected Graph and your assignment is to traverse all vertices. *Apply* suitable algorithm for this traversal. Mention the Data Structure and Compiler used in your program. *Analyze the complexity* of your program in *terms of time and memory usage*.

.....
Signatures of the Faculty Members

.....
Signature of HOD (CSE)