

U.G. 3rd Semester Examination - 2021**COMPUTER SCIENCE****[HONOURS]****Course Code : COM.SC-H-CC-P-306****(Design and Analysis of Algorithms Lab)****[PRACTICAL]**

Full Marks : 75

Time : 6 Hours

*The figures in the right-hand margin indicate marks.***Marks Distribution :****Experiment : 60 Marks****Viva : 10 Marks****Lab Notebook : 05 Marks**Answer any **two** questions to be allotted on lottery basis.

Each question carries 30 marks.

30×2=60

1. Write a program to implement Radix Sort.
2. Write a program to implement Randomized Quick sort.
3. Write a program to implement Merge Sort
4. Write a program to implement Insertion Sort.
5. Write a program to find shortest paths from a given vertex to other vertices using Dijkstra's algorithm.

6. Write a program to determine the LCS of two given sequences.
7. Write a program to implement Depth-First Search in a graph.
8. Write a program to implement Heap Sort.
9. Write a program to print all the nodes reachable from a given starting node in a digraph using BFS method.
10. Write a program to perform Linear Search.
11. Write a program to find Minimum Cost Spanning Tree of a given undirected graph using Kruskal's algorithm.
12. Write a program to perform DFS traversal and mark visited vertices.
13. Write a program to check whether a given graph is connected or not using DFS method.
14. Write a program to implement All-Pair Shortest paths problem using Floyd's algorithm.
15. Write a program to find the maximum and minimum in a given list of n elements using divide and conquer.
16. Write a program to find all Hamiltonian Cycles in a connected undirected graph.
17. Write a program to determine the minimum spanning tree of a graph.

[Turn over]

18. Write a program to implement 0/1 Knapsack problem using Dynamic Programming.
19. Write a program to implement N Queen's problem using Back Tracking.
20. Write a program to print all the nodes reachable from a given starting node in a digraph using BFS method.
