No. of Printed Pages : **2**

21BCA5C13DAL

B.C.A. V Semester Degree Examination, April/May - 2024

COMPUTER SCIENCE

DSC13 : Design and Analysis of Algorithm Lab

(NEP)

Time : 2 Hours Maximum Marks : 60

SECTION - A

Answer **all** the following sub-questions. Each sub-question carries **one** mark. **10x1=10**

1. (a) Define an algorithm.

(b) What is time Complexity ?

(c) Give the meaning of recursive algorithm.

(d) What is basic operation in an algorithm ?

(e) Give the worst-case time Complexity of Selection Sort.

(f) What is Knapsack problem ?

(g) Define Topological Sorting.

(h) Mention the various binary Tree Traversals.

(i) What is Greedy Technique ?

(j) Define P-Problem.

SECTION - B

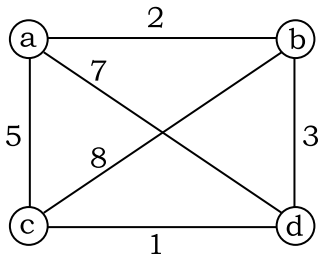
Answer **any four** of the following questions. Each question carries **five** marks. **4x5=20**

2. Briefly explain the worst, best and average case efficiency with one example.

3. Give General plan of mathematical analysis of non-recursive algorithm with an example.

4. Write Bubble sort algorithm with an example.

5. Apply brute force exhaustive search approach to solve Travelling Salesman Problem (TSP)



6. Write an algorithm for Inorder, Post order Binary Tree Traversals.

7. Explain decision tree with an example.

SECTION - C

Answer **any three** of the following questions. Each question carries **ten** marks. **3x10=30**

8. Explain the fundamentals of algorithmic problem solving.

9. Write and Explain DFS algorithm with an example.

10. Explain the Asymptotic Notations.

11. Write and Explain binary search algorithm with an example.

12. Explain prim's algorithm.

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