Code No. D-2205/M/BL/AICTE

FACULTY OF ENGINEERING

B.E. (CSE) VI – Semester (AICTE) (Main & Backlog) Examination,
September/ October – 2022

Subject: Design and Analysis of Algorithms

Time: 3 Hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define time complexity.
2. What is the collapsing find rule?
3. Write the control abstraction of Divide and Conquer.
4. What is a minimum cost spanning tree?
5. What do you understand by reliability design?
6. What is Exhaustive search?
7. Define a Hamiltonian cycle.
8. State the 8-Queens Problem.
9. What is NP Completeness?
10. Write the time complexity of Quick sort algorithm.

PART – B

Note: Answer any five questions **(5 x 10 = 50 Marks)**

11. a) Write short notes on Performance analysis of algorithm.
    b) Explain the Recursive algorithms with an example.

12. a) Write a control abstraction for Greedy Method.
    b) Consider the following instance of knapsack problem where n=7, m= 15, (p1, p2, p3, p4, p5, p6, p7) = (10, 5, 15, 7, 6, 18, 3) and (w1, w2, w3, w4, w5, w6, w7) = (2, 3, 5, 7, 1, 4, 1).Solve by using Greedy approach.

13. a) Explain briefly about branch and bound theory.
    b) For the identifier set (a1,a2,a3,a4)=(end, goto , print, stop) with (p1,p2 ,p3,p4)=(3,3,1,1) and (q0,q1,q2,q3,q4)=(2,3,1,1,1). Construct an OBST.

14. a) Explain about DFS with an example?
    b) Explain briefly about "Compressed Tries "with an example.

15. a) Write a Non-deterministic algorithm for sorting.
    b) Define Node Covering Problem with example.

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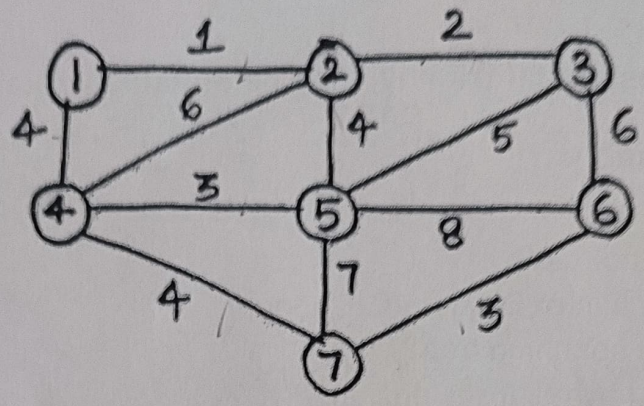
16. a) Explain Kruskal's algorithm for finding MST of the following graph given below:



b) Explain briefly the Brute force String Matching problem with example.

17. Write short notes on:

a) Travelling Salesperson problem

b) Job sequencing with deadlines

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