B.Tech. SEM -VI Info. Tech. 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: DESIGN & ANALYSIS OF ALGORITHMS

Day: Monday
Date: 27/05/2019

S-2019-2750

Time: 02.30 PM TO 05.30 PM
Max Marks.: 60

N.B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data, if necessary.
4) Draw neat and labeled diagrams wherever necessary.

Q.1 What are linear data structures? How are they further classified? Explain with suitable example. **(10)**

OR

Q.1 State and explain in detail the asymptotic notations used for mathematical analysis of algorithms. **(10)**

Q.2 What are the procedures to be implemented when applying brute force search? State and analyze any algorithm which uses brute force technique. **(10)**

OR

Q.2 Which are the searching methods for graphs? Explain any one which uses exhaustive search technique. **(10)**

Q.3 What is a convex-hull problem? How to solve it using a divide and conquer algorithm? Compare the performance of this algorithm with that when solved using brute-force technique. **(10)**

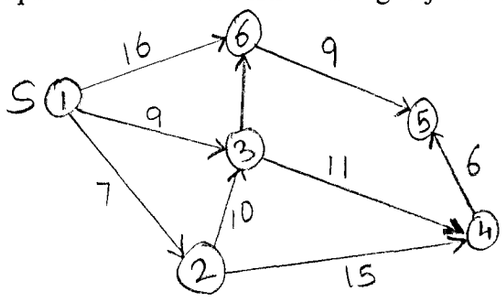
OR

Q.3 State, explain and analyze the algorithm for Strassen's matrix multiplication. **(10)**

Q.4 Explain how 0/1 knapsack problem can be solved using dynamic programming technique. **(10)**

OR

Q.4 Find the shortest path from S to all vertices using Dijkstra's Algorithm. **(10)**



Q.5 Explain Backtracking method of problem solving. How N queens problem can be solved using Backtracking. **(10)**

OR

Q.5 What is branch and bound algorithm design method? Solve 0/1 knapsack problem using branch and bound. **(10)**

Q.6 Write and explain an algorithm for deadlock detection and deadlock avoidance. **(10)**

OR

Q.6 What is resource allocation graph algorithm? Explain with suitable example. **(10)**

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