

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech II Year II Semester Regular & Supplementary Examinations August-2023**

**DESIGN AND ANALYSIS OF ALGORITHMS**  
(CSE with Specialization in Cloud Computing)

**Time: 3 Hours**

**Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Define disjoint set. Explain any four types of disjoint sets operations with Examples. CO1 L2 6M  
b Explain the weighted union algorithm for union algorithm with example. CO1 L2 6M

OR

- 2 a Explain the collapsing rule for Find algorithm with example. CO1 L2 6M  
b Determine steps of Union and Find algorithms with example. CO1 L5 6M

**UNIT-II**

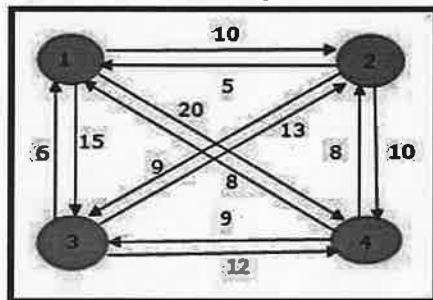
- 3 Explain techniques of binary trees with suitable example CO2 L2 12M

OR

- 4 Explain the Strassen's algorithm for matrix multiplication and analyze time complexity. CO2 L2 12M

**UNIT-III**

- 5 Analyze the minimum cost tour for given problem in travelling sales person Concepts by using dynamic programming. CO3 L4 12M



OR

- 6 Explain in detail about general method of greedy method with algorithm and list the few applications of greedy method. CO3 L2 12M

**UNIT-IV**

- 7 Explain the Hamiltonian cycle algorithm with step by step operation with example. CO4 L2 12M

OR

- 8 Implement any one branch and bound application with an example. CO4 L3 12M

**UNIT-V**

- 9 Illustrate the satisfiability problem and write the algorithm. CO5 L2 12M

OR

- 10 How to make reduction for 3-sat to clique problem? and Explain CO5 L3 12M

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