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

**B.Tech III Year I Semester Supplementary Examinations December-2021**

**DESIGN AND ANALYSIS OF ALGORITHMS**

(Common to CSE & CSIT)

Time: 3 hours

Max. Marks: 60

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

**UNIT-I**

- 1 a What is Asymptotic notation? Explain different types of notations with examples? 6M  
b Briefly explain the time complexity and space complexity estimation with example? 6M

OR

- 2 a Briefly explain Graph traversals with examples? 6M  
b Write about Union and Find algorithms with Example and find Time complexity? 6M

**UNIT-II**

- 3 Write about Binary Search algorithm with Example and find Time complexity? 12M

OR

- 4 a Explain the general Greedy method with an algorithm? 6M  
b Explain the general divide-and-conquer method with an algorithm? 6M

**UNIT-III**

- 5 Explain travelling sales man problem with an example by using dynamic programming? 12M

OR

- 6 Explain any one application back tracking with example? 12M

**UNIT-IV**

- 7 Describe in detail graph coloring using back tracking? 12M

OR

- 8 Explain the satisfiability problem and write the algorithm? 12M

**UNIT-V**

- 9 a Briefly explain the non-deterministic algorithms with example? 6M  
b Explain the class of P and NP with example? 6M

OR

- 10 Briefly explain the classes NP-hard and NP-complete? 12M

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