Q.P. Code: 16CS521 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Regular & Supplementary Examinations Nov/Dec 2019

DESIGN AND ANALYSIS OF ALGORITHMS

(CSE & CSIT)

Time: 3 hours Max. Marks: 60

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

UNIT-I

1	**a**	Briefly explain the time complexity and space complexity estimation with example.	**6 M**
	b	Briefly explain Graph traversals with examples.	**6 M**
		OR	
2	**a**	Define Disjoint sets? Explain different types of disjoint sets operations with examples.	**6 M**
	b	Briefly explain the connected components and Spanning trees with example.	**6 M**

UNIT-II

3	**a**	Explain in detail about the Stressen's matrix multiplication with time complexity.	**6 M**
	b	Explain Knapsack problem by using Greedy approach with Example.	**6 M**
		OR	
4	**a**	Explain the general divide-and-conquer method with an algorithm.	**6 M**
	b	What is spanning tree? Explain the Prim's algorithm with an example.	**6 M**

UNIT-III

5	**a**	Explain 0/1 knapsack problem by using backtracking with an examples.	**6 M**
	b	Describe in detail graph coloring using back tracking.	**6 M**
		OR	
6		Explain any one application back tracking with example.	**12 M**

UNIT-IV

7	**a**	Explain the principles of FIFO branch and bound.	**6 M**
	b	Explain control abstraction of LC-branch and bound.	**6 M**
		OR	
8	**a**	Briefly explain the FIFO branch and bound solution with example.	**6 M**
	b	State 0/1 knapsack problem and design an algorithm of LC Branch and Bound and find the solution for the knapsack instance with any example?	**6 M**

UNIT-V

9	**a**	Briefly explain the non-deterministic algorithms with example.	**6 M**
	b	State and explain cook's theorem.	**6 M**
		OR	
10		Briefly explain the classes NP-hard and NP-complete.	**12 M**

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