Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2710201 **Date: 13-01-2015**

Subject Name: Computer Algorithm

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain analysis of Insertion sort algorithm.	**07**
	(b)	Explain Strassenôs algorithm for matrix multiplication.	**07**
Q.2	**(a)**	Explain Rabin Karp String matching algorithm.	**07**
	(b)	Explain 0-1 knapsack problem. Solve n=4, W=5 and values of (weight, benefit) are (2, 3), (3,4), (4,5), (5,6).	**07**
		OR	
	(b)	Difference between Greedy and Dynamic programming. Explain making change problem using both techniques.	**07**
Q.3	**(a)**	Explain performance ratios for approximation algorithm.	**07**
	(b)	What is NP completeness & the class P, NP? The TSP is NP complete? Justify.	**07**
		OR	
Q.3	**(a)**	Prove: ñThe clique problem is NP completeò.	**07**
	(b)	Explain the recursion tree method with example.	**07**
Q.4	**(a)**	Explain Bellman-Ford Algorithm in reference to Single Source Shortest Path.	**07**
	(b)	What is amortized analysis? Explain Aggregate analysis.	**07**
		OR	
Q.4	**(a)**	Explain Dijkstraôs Algorithm.	**07**
	(b)	Explain potential method.	**07**
Q.5	**(a)**	Explain asymptotic notations.	**07**
	(b)	Explain Naïve String matching algorithm.	**07**
		OR	
Q.5	**(a)**	Explain divide and conquer approach for Merge sort.	**07**
	(b)	Explain GCD recursion theorem with Euclid algorithm.	**07**

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