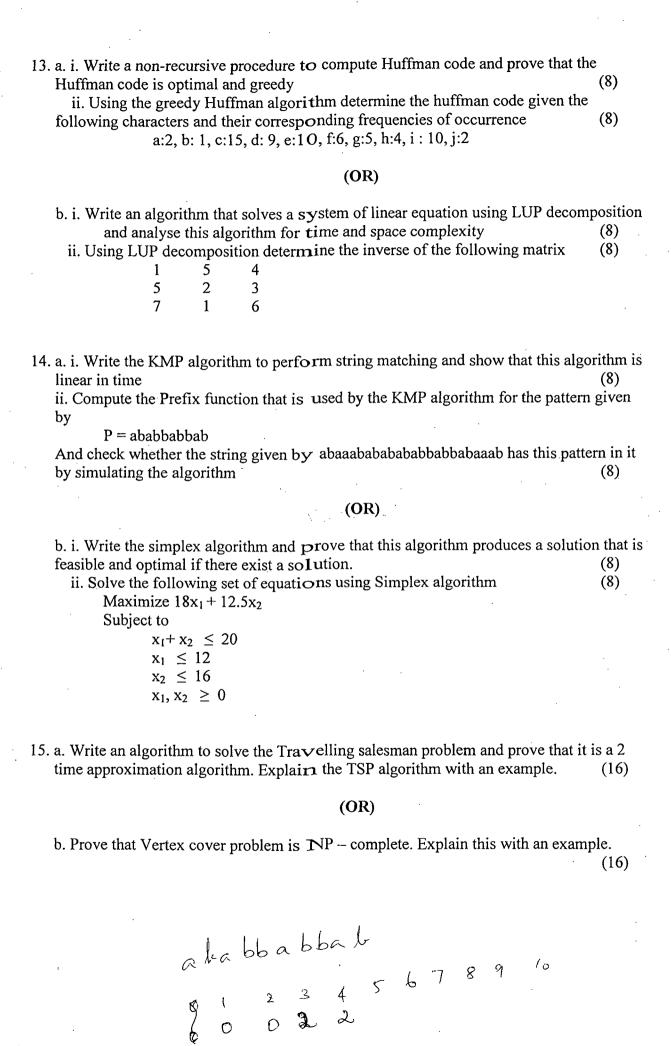
Common to COMPUTER SCIENCE AND ENGINEERING and INFORMATION TECHNOLOGY

THIRD SEMESTER (Regulations 2009)

CS9201 – DESIGN AND ANALYSIS OF ALGORITHMS								
Time: 3 Hrs Max Marks: H	Max Marks: 100							
Answer All Questions								
Part A (10 * $2 = 20$ Marks)								
 Prove that O(g(n) + O (f(n) = O (max (f(n), g(n),)) Obtain the relationship between O (f(n)) and Ω (g(n)) Write an algorithm for performing counting sort. Using the decision tree model prove that any comparison sort algorithm require worst case Ω (n lg n) comparisons. Determine the smallest possible depth of a ledecision tree for a comparison sort. Show that the 0/1 knapsack problem cannot be solved using greedy strategy. Why do we need LUP decomposition instead of LU decomposition to solve equation. Mention some applications that uses linear programming. Write and determine the worst case complexity of simple string matching algorithm. Define NP completeness and NP hard. Prove the polynomial reducible property of NP problems 	eaf in a							
Part B $(5 * 16 = 80 \text{ Marks})$								
11. i. Solve the following recurrence equation								
	(4) (4)							
the input size ii. Write an algorithm to find the minimum and maximum using any strategy and	(4)(4)							
	(16)							
(OR)	,							
ii. Determine the optimal number of multiplications required and a way to mul	(8) ltiply (8)							



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Roll No.					

- b) Explain class templates with an example.
- 15. a) Explain the various forms of inheritance.

(OR

b) Explain how exception handling is achieved in C++?