MCA DEGREE III SEMESTER EXAMINATION NOVEMBER 2013

CAS 2301 COMPUTER ALGORITHMS
(Regular & Supplementary)

Time: 3 Hours

Maximum Marks: 50

PART A
(Answer *ALL* questions)

$(15 \times 2 = 30)$

I.   (a) Give the properties of Binomial Heaps.
     (b) Explain Hashing function.
     (c) Give the properties of Fibonaci heaps.

II. (a) Mention anyone back tracking algorithm and clearly explain backtracking point.
     (b) Mention dynamic programming principles.
     (c) Write about Huffman code.

III. (a) What is topological sort?
     (b) What is Branch & Bound algorithms?
     (c) Write on Flow Networks.

IV. (a) Write any primality testing algorithm.
     (b) Give different methods to inverting matrices.
     (c) What is integer factorization and mention its practical difficulties?

V.   (a) Write a note on Np-complete problem.
     (b) Find the complexity of quick sort.
     (c) Obtain time complexity of binary search algorithm.

PART B

$(5 \times 4 = 20)$

VI.   A. Explain different operations on disjoint set.
                              OR
      B. What are the different methods for solving recurrence equation?

VII. A. Clearly explain any one problem which can be solved by Greedy approach.
                              OR
      B. Clearly explain any one problem which can be solved by using dynamic programming.

VIII. A. Write an algorithm to find strongly connected component.
                              OR
      B. Write and explain algorithm used for solving maximum flow problem.

IX.   A. Explain different algorithms for matrix multiplication.
                              OR
      B. Compare different primality testing algorithms.

X.   A. Clearly specify anyone Np complete problem and show that it is Np complete.
                              OR
      B. Write about linear time sorting algorithms.

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