Introduction To Algorithms
CS430

Spring 2014
HomeWork 5
Due 17th, 24th March

Problems 1,2,3 are due 17th March.

1. **Problem 1:** Problem 13-4 (Pg 333) CLRS(3rd Edition).

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2. **Problem 2:** Suppose the hash function $[h_1(k) + ih_2(k)] \mod m, i = 0, 1, ..$ repeats a location at the jth step, $j < m$. Will the hashing function generate m different locations.

   (20)

3. **Problem 3:** Problem 11-3 (CLRS)

   (20)

4. **Problem 4:** Problem 16-2 (CLRS)

   (20)

5. **Problem 5:** Problem 16-4 (CLRS)

   (20)

6. **Problem 6:** (a) When all edges have distinct weight, show that the minimum spanning tree is unique.

   (b) When all edge need not have unique weight, show that there can be multiple spanning trees. Given a minimum spanning tree,T, is there any condition that allows the use of Kruskal's algorithm to determine it. (30)

7. **Problem 7:** Suppose you have 4 denominations of coins (unlimited number of each) available, $25c$,$10c$,$5c$ and $1c$. Design an algorithm to determine how to generate change for a value v using minimum number of coins.

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