Introduction To Algorithms
CS430

Spring 2013
HomeWork 9
Due 15th April

1. **Problem 1:** Given a single machine, all the jobs in the set $\{j_1, j_2 \dots j_n\}$ are required to be scheduled. Let F_i be the time at which job i finishes.

   Design an algorithm to minimize $\sum_i w_i F_i$ where w_i is the importance of the customer.

   (20)

2. **Problem 2:** Given a string s decide whther it forms a subsequence in another string A in time $O(|s| + |A|)$ (20)

3. **Problem 3:** 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.

4. **Problem 4:** (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. (20)