Introduction To Algorithms
CS430

Spring 2013
HomeWork 4
Due 18th February

1. **Problem 1:** Problem 4-6 (Pg 110) CLRS(3rd Edition).

2. **Problem 2:** Give an example where quicksort requires $O(n^2)$ steps.

3. **Problem 3:** Suppose the Quicksort procedure is modified so that intead of partitioning into two parts, the array is partitioned into 5 parts using 4 distinct partition elements from the array. The procedure then recurses with the parts. Design an algorithm to partition the array into 5 parts after picking 4 elements from the array.

   What are the best possible partition sizes? What is the time complexity if this partition size always occurs at every partitioning step during the recursion.