CSI 4105 Design and Analysis of Algorithms II   Winter 2010
Computer Science   University of Ottawa

Homework Assignment #3 (100 points, weight 5%)
Due: Wednesday March 31, at 11:30 p.m. (in lecture)

1. (34 points) Chapter 10-Exercise 2 pages 594-596. (Solving 3-SAT in $O(p(n)1.74^n)$ time.

2. (34 points) Chapter 11-Exercise 3 pages 652-653. (Approximation algorithm to maximize feasible sum).

3. (34 points) Chapter 12- Exercise 2 page 703 (Hillclimbing (gradient ascent) Algorithm for maximum matchings in bipartite graphs)
   For this problem you will need some definitions. The Bipartite Matching Problem is the problem of finding a matching of maximum cardinality in a bipartite graph. Recall that a graph is *bipartite* if its vertex set can be partitioned into two sets (bipartitions) so that there are no edges with both ends in the same bipartition. A *matching* in a graph is a set of edges so that each vertex of the graph is an end of at most one of these edges.