

**CS 3510 A: Design and Analysis of Algorithms**  
**Fall 2008**

Home work 5 // Due: Friday, November 21, 2008

1. (25 points) Exercise 3.28, page 101 of the text.
2. (15 points) Let  $\mathcal{A}$  be a unit-time algorithm that decides if an input bipartite graph has a perfect matching or not.

Using  $\mathcal{A}$  give an  $O(m + n)$  algorithm to construct a perfect matching in an input bipartite graph  $G = (V_1, V_2, E)$  with  $|V_1| = |V_2| = n$  and  $|E| = m$ , if  $G$  has a perfect matching.

3. (10 points) Exercise 7.19, page 225 of the text.