Algorithms
Computer Science 140 & Mathematics 168
Instructor: B. Thom
Spring 2004
Homework 11a
Due on 4/8/04 (beginning of class)

1. **[20 Points] Review of Network Flow Proofs.**

   In class, we proved four fundamental theorems which, in the end, will allow us to show that the network flow algorithms that we will soon discuss do indeed find maximum flows from s to t. For this assignment, you will re-prove the theorems seen in class today:

   (a) The Cut Theorem

   (b) The Capacity Theorem

   (c) The Max-Flow Min-Cut Theorem

   (d) The Greed is Good Theorem.

   Note that our proofs and approach are easier than those given in the book. Your task is to carefully write out the proofs for the these theorems **as presented in class.** Your grade will be based largely on how clearly and precisely you write your proofs.