ECE608, Fall 2013, Quiz 11

First Name: ___________________ Last Name: ____________________

Use only the space provided on this page to answer the following questions.

(1) Show the residual network for the following flow network.

(2) Suppose that $f$ is a maximum flow in a flow network $G = (V,E)$ with source $s$ and sink $t$. Explain how to find a cut $(S,T)$ of $G$ such that $|f| = c(S,T)$.

Solution:

(1)

(2) Apply BFS to the residual network starting from $s$. Include the vertices that are reachable from $s$ in $S$. Assign $T = V - S$.

The edges from $S$ to $T$ are such that $f(e) = c(e)$. The edges from $T$ to $S$ are such that $f(e) = 0$. Therefore, $|f| = f(S,T) = c(S,T)$. 