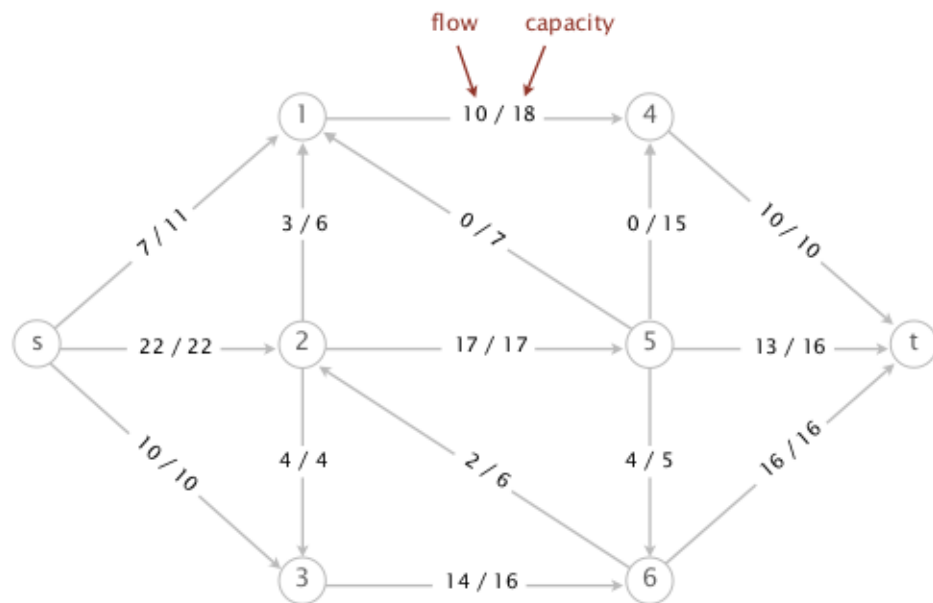# Homework 16

1. Fall 2011 Final Question 11

Consider the following *st*-flow network and feasible flow *f*.

A. What is the value of the flow *f*?

  39

B. Perform one iteration of the Ford-Fulkerson algorithm, starting from the flow *f*. Give the sequence of vertices on the augmenting path.

  s, 1, 2, 6, 5, *t*

C. What is the value of the maximum flow *f*?

  $16 + 10 + 15 = 41$

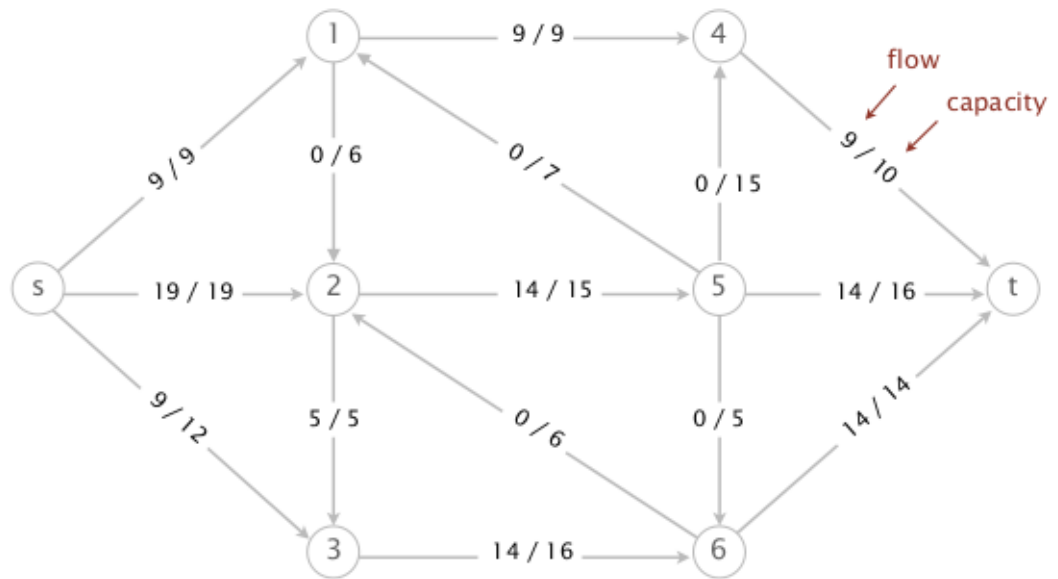D. List the vertices on the s side of the minimum cut.

1, 2, 4

E. What is the capacity of the minimum cut?

41

2. Spring 2012 Final Question 11

Run the eager version of Dijkstras algorithm on the following edge-weighted digraph, starting from vertex 0.

A. What is the value of the flow f?.

37

B. Perform one iteration of the Ford-Fulkerson algorithm, starting from the flow f. Give the sequence of vertices on the augmenting path.

s, 3, 6, 2, 5, t

C. What is the value of the maximum flow f?.

$37 + 1 = 38$

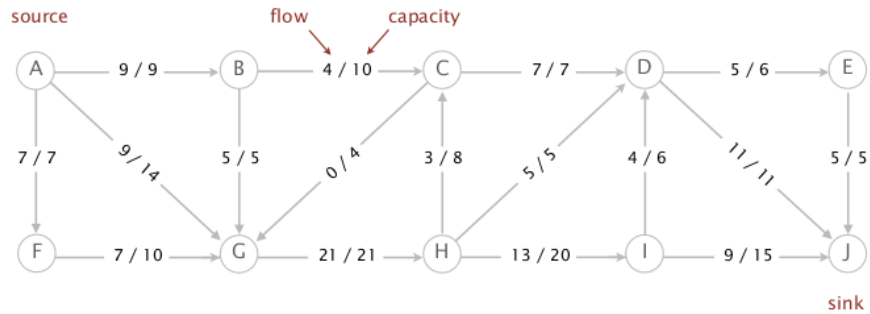D. List the vertices on the s side of the minimum cut.

2, 3, 6

E. What is the capacity of the minimum cut?

38

3. Fall 2012 Final Question 6

Consider the following flow network and feasible flow f from from the source vertex A to the sink vertex J.

A. What is the value of the flow f?.

25

B. Starting from the flow f given above, perform one iteration of the Ford-Fulkerson algorithm. List the sequence of vertices on the augmenting path.

A, G, B, C, H, I, J

C. What is the value of the maximum flow f?.

$25 + 3 = 28$

D. List the vertices on the source side of the minimum cut in alphabetical order.

A, B, C, F, G

E. What is the capacity of the minimum cut?

28