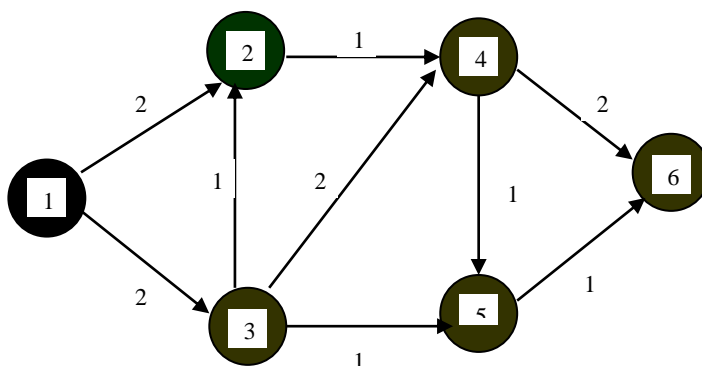


Home Work Set # 7 (Due April 28, 2016)

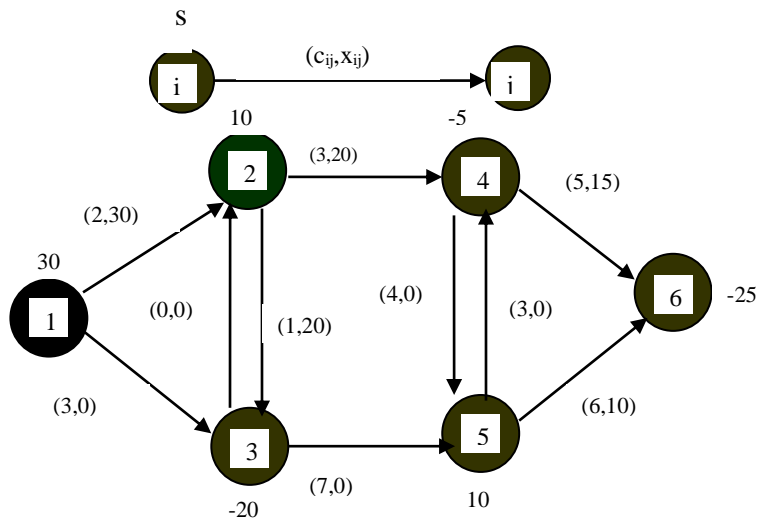
1. Solve the following **maximum** assignment problem using the auction, Hungarian and the JVC algorithms.

	A	B	C	D	E
a	3	14	18	2	5
b	14	9	19	2	14
c	14	10	4	17	12
d	7	2	9	9	19
e	18	11	16	2	10

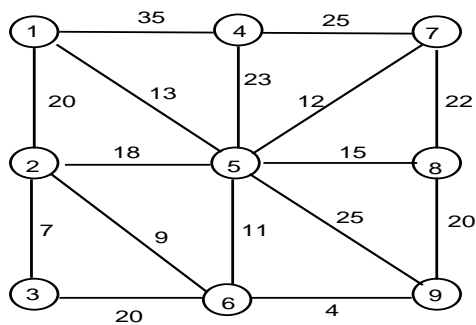
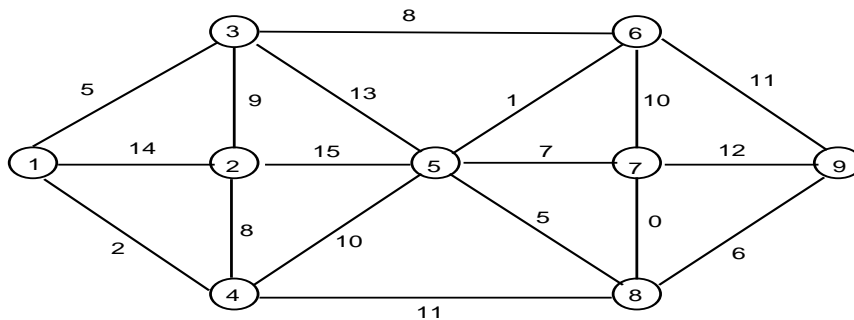
2. Solve the maximum flow problem in Figure 1 by the labeling algorithm and the DMKM algorithm.



3. Figure 2 gives the data and an optimal solution for the MCNF problem. Assume that all arcs are uncapacitated. The numbers next to the node are the supplies (negative implies the demand at the node). Determine the optimal node potentials (dual variables).



3. Using Kruskal's and Prim's algorithms, find minimum spanning trees of the graphs shown below.



4. Solve the following knapsack problem using DP and B&B methods.

$$\max_{x_i \in \{0,1\}; i=1,2,3,4,5} 3x_1 + 4x_2 + 5x_3 + 8x_4 + 10x_5$$

$$2x_1 + 3x_2 + 4x_3 + 5x_4 + 9x_5 \leq 20$$