2 hr exam
Close book and notes

1) 20 pts
Mark the following statements as **TRUE** or **FALSE**. No need to provide any justification except for the question at the bottom of the page.

[TRUE/FALSE]
In a flow network, if all edge capacities are distinct, then the max flow of this network is unique.

[TRUE/FALSE]
To find the minimum element in a max heap of n elements, it takes O(n) time.

[TRUE/FALSE]
Let T be a spanning tree of graph G(V, E), let k be the number of edges in T, then k=O(V)

[TRUE/FALSE]
Linear programming problems can be solved in polynomial time.

[TRUE/FALSE]
Consider problem A: given a flow network, find the maximum flow from a node s to a node t. problem A is in NP.

[TRUE/FALSE]
Given n numbers, it takes O(n) time to construct a binary min heap.

[TRUE/FALSE]
Kruskal's algorithm for finding the MST works with positive and negative edge weights.

[TRUE/FALSE]
Breadth first search is an example of a divide-and-conquer algorithm.

[TRUE/FALSE]
If a problem is not in P, then it must be in NP.

[TRUE/FALSE]
L1 can be reduced to L2 in Polynomial time and L1 is in NP, then L2 is in NP