

## Review Questions 9

*Your Name:*

Please print out this form (two-sided, if you can) and write your answers *legibly* in the spaces provided. If you can't write legibly, type.

1. Explain how the coloring rule at the top of page 2 of the lecture notes can be viewed as a special case of the greedy method for the minimum spanning tree algorithm.

2. Suppose you had to implement Kruskal's algorithm using no additional data structure to help determine if two nodes are in the same tree or not (that is, the only data structures you have available are the *wgraph* data structure and the set of blue edges, implemented as a list with a constant time membership test). Explain how you would implement the step that determines if two nodes are in the same blue tree or not.

3. What is the running time of your implementation of Kruskal's algorithm from question 2? You may assume that it takes constant time to determine if an edge is in the set of blue edges.