

CSCI 5582 Fall 2003 Quiz 1

Name: _____

*On my honor, as a University of Colorado student, I have neither given nor received unauthorized assistance on this work.*_____

1. True or False: Given an instance of a uniform cost search with an optimal solution with cost C , the search must have expanded every partial path reachable from the start state having a cost $< C$. **(5 Points)**
2. True or False: Iterative deepening is complete. (5 Points)
3. How does IDA* determine the ordering of the nodes it visits during a single iteration (5 Points)
 - a. It consults a priority queue sorted by $f=g+h$.
 - b. It keeps a priority queue sorted by h alone.
 - c. It uses a depth-first strategy
4. Discuss the potential problem for optimality posed by the Graph-Search algorithm in the text. (10 Points)

5. Consider the Australian constraint map shown on the handout. Make the assumption that you've been handed this with an assignment of Blue to the Northern Territory (NT) and Blue also to Victoria (V), which turns out to be a bad idea. Trace how a backtracking search using the variable and value heuristics from the text along with forward tracking would attempt to assign values to the remaining variables. Assume that there are three colors. Stop when you reach a backtrack point. Be specific. Use the back of this page. (10 Points)
6. Describe how a system could have detected the problem with the starting assignment in the last question much earlier. (15 Points)