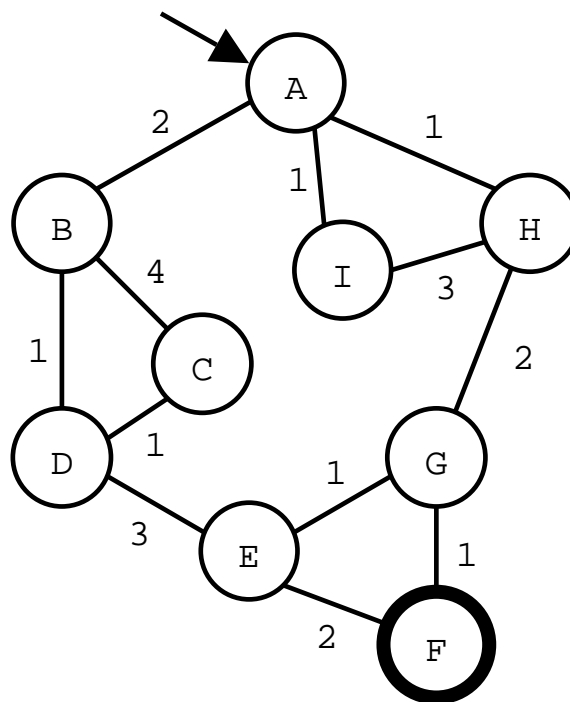


CS347 SP2005 Quiz 1

This is an open-book open-notes quiz. The *only* prohibited items are electronic devices. Mark every sheet of paper you use with your name and the string “cs347sp2005 quiz1” (omittance, even if it is partial, will be penalized at 1 point per sheet). If you are caught cheating, you will receive a zero grade for this quiz. The max number of points per question is indicated in square brackets after each question. The sum of the max points is 25. You have up to 25 minutes to complete this quiz. Good luck!

All the following questions are about the following state space graph, with A being the start state and F being the goal state. The order in which successors are generated is counterclockwise, ending at exactly 9 o'clock. Example: A generates first B, then I, and finally H. When sorting by path-cost, nodes with equal path-cost are ordered such that the earlier a node is generated, the higher its priority. Nodes already on the open list have higher priority than newly added nodes with equal path-cost.



1. Give the execution trace of BFBS. [7]
2. Give the execution trace of UCTS. [8]
3. Is BFBS optimal for this problem? Explain your answer! [2]
4. Is UCTS optimal for this problem? Explain your answer! [2]
5. Is there a single step cost that can be changed in the state space graph which would make BFBS not complete? If yes, then give the action and new step cost; otherwise, explain why not. [3]
6. Is there a single step cost that can be changed in the state space graph which would make UCTS not complete? If yes, then give the action and new step cost; otherwise, explain why not. [3]