CS347 FS2003 Quiz 2

This is a closed-book test. The only item not supplied that you are allowed (and required) to use, is a pen or pencil. Mark all paper you use with your name, the date, and the string “cs347fs2003 quiz2”. If you are caught cheating, you will receive a zero grade for this test. The max number of points per question is indicated in square brackets after each question. The sum of the max points is 100. You have exactly 25 minutes to complete this test. Good luck!

All the questions are about the following state space graph, with A being the start state and D & H being the goal states. The order in which successors are generated is counterclockwise, starting downwards. Example: A generates first B, then C, then D, and finally E. 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 for UCTS. [25]
2. Is UCTS complete for this problem? Explain your answer! [10]
3. Is UCTS optimal for this problem? Explain your answer! [10]
4. What is the diameter of this state space? Explain your answer! [10]
5. Give the execution trace for DLTS with depth-limit = 1. [25]
6. Is DLTS with depth-limit = 1 optimal for this problem? Explain your answer! [10]
7. Is DLTS with depth-limit = diameter optimal for this problem? Explain your answer! [10]