CAP.01 Artificial Intelligence Test 2

Brandon Thompson

November 5, 2019

1. In the game tree of a two-player turn-taking game, the root is game state after the first player has made the first movement. F
2. While guiding a computer to play a two-player turn-taking game, the evaluation function is used to evaluate all nodes within a game tree. F
3. While guiding a computer to play a two-player turn-taking game, exhaustively searching a game tree is not necessary. T
4. While guiding a computer to play a two-player turn-taking game, cutting off the search of the game tree only at quiescent postilions is a good way to prevent the horizon problem. F
5. The alpha-beta pruning will cut a branch from a game tree, if the move along that branch is determined to be worse than another move that has been examined already. T
6. In the worst case, the alpha-beta pruning will not cut any branch from the game tree at all. T
7. Search can be used to solve problems that are limited by constraints. T
8. Forward checking can be used to delete impossible future choices while solving 8-queens problem. T
9. Chronological backtracking is suitable for solving constraint satisfaction problems. F
10. The least constraint variable is a good technology to speed up the search of constraint satisfaction problems. F
11. Meta-heuristics are heuristics that are used to guide other heuristics. T
12. Tabu search is a meta-heuristic that would prefer a poor path than repeating a visited path. T
13. Ant colony optimization has been successfully applied in routing cables through a communication network. T
14. Simulated annealing tends to accept a new state that has higher energy than the current state, if the increase of energy is high. F
15. In terms of decision trees, entropy is the indication of how much a data set is purified. F
16. In terms of decision trees, the information gain is represented as entropy reduction. T
17. In a rule based system, the fact base is like a human's long term memory. F
18. While designing an expert system, the knowledge engineer is responsible for writing meta-rules.T
19. In terms of expert systems, meta-rules might have a lower priority than ordinary rules. F
20. The Rete algorithm is an efficient method to speed up the comparisons between the left-hand side of rules and the contents in the fact base. T

Given the following game tree, apply minimax algorithm with alpha beta pruning to mark branches that need to be pruned.