Review Test Submission: Week06 Quiz - Minimax

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Course	CS 6364.001 - Artificial Intelligence - F15
Test	Week06 Quiz - Minimax
Started	10/3/15 6:28 PM
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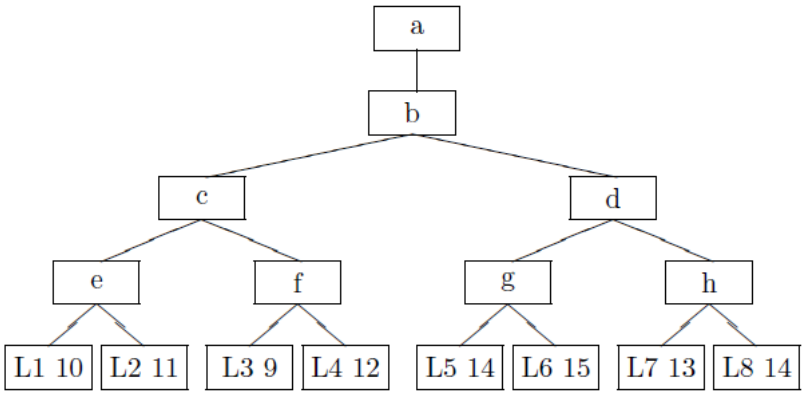
Status	Completed
Attempt Score	14 out of 19 points
Time Elapsed	53 minutes out of 1 hour
Results Displayed	All Answers, Submitted Answers, Correct Answers

Question 1

5 out of 5 points

In the game tree show below, the first level is a MAX level, the second is a MIN level, the third is a MAX level and the fourth is a MIN level. Use MINIMAX to obtain the estimate of the position at node ___ .



Question	Correct Match	Selected Match
node a	G. 10	G. 10
node b	G. 10	G. 10
node c	G. 10	G. 10
node d	B. 14	B. 14
node e	G. 10	G. 10

All Answer Choices

A. 15

B. 14

C. 11

D. 12

E. 9

F. 13

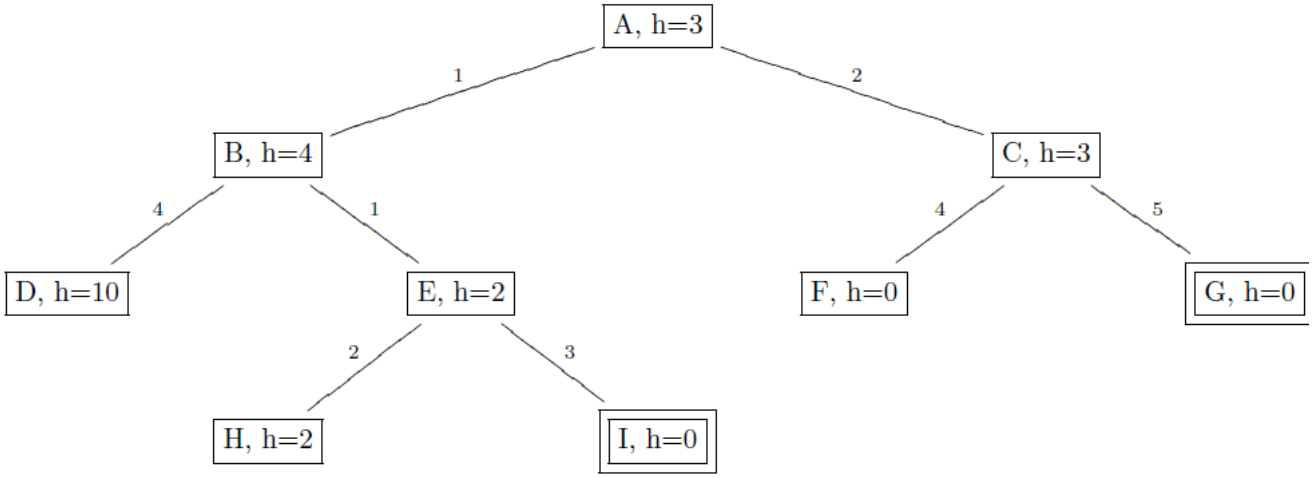
G. 10

Question 2

5 out of 5 points

Consider the search tree below. The initial state is at the top, and the goal states are G and I, represented by the double-bordered rectangles. (Note that this is a search tree. The edges are directed.)

Give a chronologically ordered list of the nodes visited (including the final goal node) for each search strategy.



Question	Correct Match	Selected Match
Breadth-First Search	B. ABCDEFG	B. ABCDEFG
Depth-First Search	A. ABDEHI	A. ABDEHI
IDS	D. AABCABDECFG	D. AABCABDECFG
Best-First Search	E. ACFG	E. ACFG
A* Search	C. ABECI	C. ABECI

All Answer Choices

A. ABDEHI

B. ABCDEFG

C. ABECI

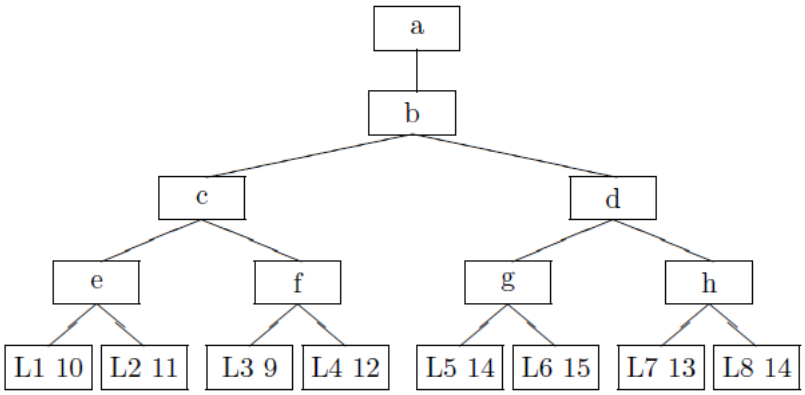
D. AABCABDECFG

E. ACFG

Question 3

0 out of 3 points

In the game tree show below, the first level is a MAX level, the second is a MIN level, the third is a MAX level and the fourth is a MIN level. Apply alpha-beta search to the same tree. What leaves need not be evaluated?



L5
L6
L7
L8

Answers: L3
L4
L5
L6
L7
L8

Question 4

4 out of 6 points

Let h1(n), h2(n), and h3(n) be three heuristic estimates to the distance from node n to the nearest goal node. It is known that h1(n) and h2(n) are both admissible heuristics, but h3(n) is not known to be admissible.

(An admissible heuristic always underestimates the distance to the nearest goal node.) We define other heuristics as combinations of these functions below. If these heuristics are used by A , which heuristics are guaranteed to find the optimal solution?

- h7(n) = min(h1(n), h2(n))
- h9(n) = min(h1(n), h3(n))
- h11(n) = min(h2(n), h3(n))
- h13(n) = min(h1(n), h2(n), h3(n))

Answers: $h_4(n) = h_1(n) + h_2(n)$

- $h_5(n)$ = abs(h1(n) - h2(n)). [that is, the absolute value of the difference]
- $h_6(n)$ = max(h1(n), h2(n))
- h7(n) = min(h1(n), h2(n))

h8(n) = max(h1(n), h3(n))

- h9(n) = min(h1(n), h3(n))

h10(n) = max(h2(n), h3(n))

- h11(n) = min(h2(n), h3(n))

h12(n) = max(h1(n), h2(n), h3(n))

- h13(n) = min(h1(n), h2(n), h3(n))

Tuesday, October 6, 2015 4:56:06 PM CDT

← OK