Mid-Semester Assessed Quiz

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Due No due date **Points** 10 **Questions** 10
Available Apr 22 at 16:15 - Apr 22 at 17:15 about 1 hour **Time Limit** 50 Minutes

This quiz was locked Apr 22 at 17:15.

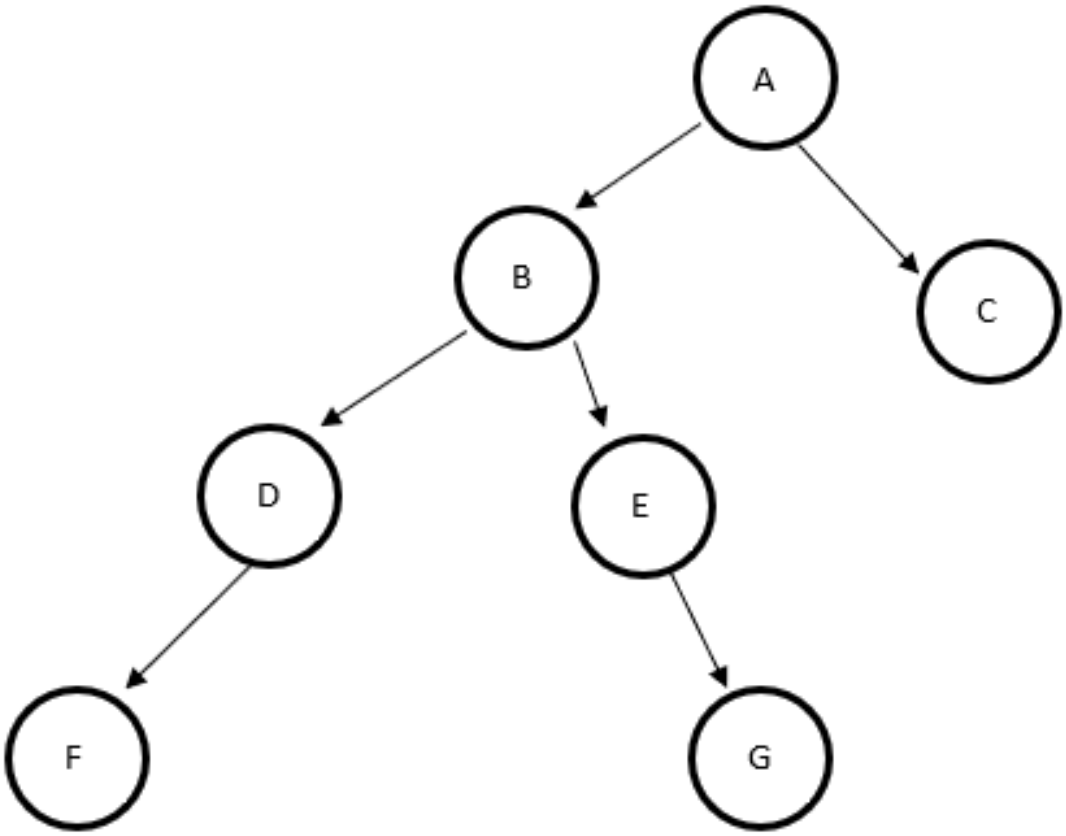
Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	42 minutes	7.33 out of 10

Score for this quiz: **7.33** out of 10
Submitted Apr 22 at 16:58
This attempt took 42 minutes.

Question 1 — 1 / 1 pts

Consider the search tree shown in the figure below. Assume the Goal state is G and that ties are broken alphabetically (e.g. B before C). Using Iterative Deepening Search on the tree above starting from node A, how many times will node E be visited before a solution is found?



- 4
- 1

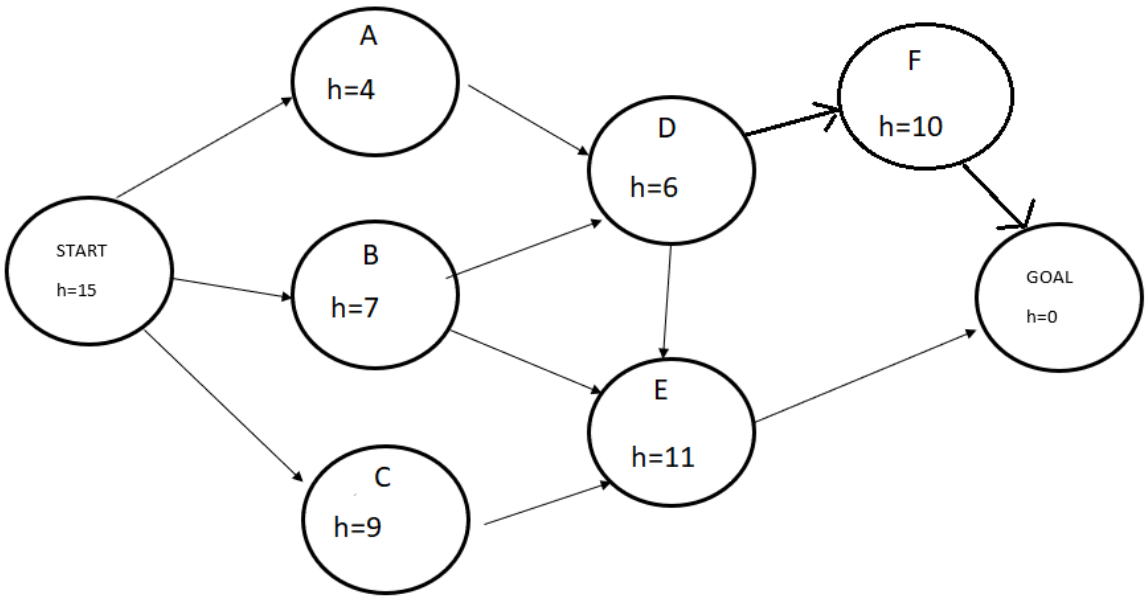
Correct!

- 2
- 3
- 5

Question 2

1 / 1 pts

Consider the search tree shown in the diagram below. The first node expanded will be the START node. Using the Weighted A* Algorithm with *W=3* and assuming a uniform cost of 2 to move between nodes, which will be the 5th node expanded?



- B
- F
- D
- G
- A
- E

Correct!

- C

Question 3

0 / 1 pts

Assume a robot is situated in a 8 x 8 grid. The robot can move left, right, up and down within the grid. Each of these actions has a cost of 1. The robot keeps track of its current position using two fluents row(X) and col(X). For example, if the robot was in position (3, 4) in the grid then the fluents row(3) and col(4) would be true.

Assume the robot is initially in the state {row(1), col(1)} and that the goal is to reach {row(4), col(4)}. What is the h^{max} value for the initial state?

ou Answered

6

rrect Answers

3 (with margin: 0)

Question 4

1 / 1 pts

Below is the Bellman-Ford Table for $h^{add}(I)$ for a particular problem where I is the initial state of the problem.

A	B	C	D
Infinity	Infinity	Infinity	Infinity
6	8	Infinity	8
6	5	3	4
6	5	3	4

If the goal is {C, D}, what is the value of $h^{add}(I)$?

Correct!

7

rrect Answers

7 (with margin: 0)

Question 5

1 / 1 pts

Consider a heuristic function that sets the heuristic value for each state to zero (i.e. the behavior of the null Heuristic from your first assignment). For all search problems with positive action costs, this heuristic is:

- Admissible, Goal Aware and Safe, but not necessarily Consistente
- Consistent, Goal Aware and Safe, but not necessarily Admissible
- Admissible, Consistent and Safe, but not necessarily Goal Aware

Correct!

- (•) Admissible, Consistent, Safe and Goal Aware
- None of the othe answers
- Admissible, Consistent and Goal Aware, but not necessarily safe

Question 6

0 / 1 pts

Consider the well-known blocks world domain used in lectures. When modeled using STRIPS, how many predicates will appear in the delete list for the *pickup* action?

ou Answered

2

rrect Answers

3 (with margin: 0)

Question 7

0.67 / 1 pts

Which of the following statements are true (select all that apply)?

Correct!

- [x] The relaxation produced by removing delete lists from a STRIPS planning problem is efficiently constructable

rrect Answer

- [ ] Any STRIPS planning problem can be modelled using PDDL

Correct!

- [x] Both PlanLen and PlanEx are PSPACE-complete in general

- [ ] The relaxation produced by removing preconditions and delete lists from a STRIPS planning problem is efficiently computable

- [ ] Satisficing plans are generally more difficult to compute than optimal plans

Question 8

1 / 1 pts

Consider the Pacman domain used in your first assignment, where the goal is to eat all of the food on the map. Imagine that eating a food dot caused Pacman to move to one of the unoccupied adjacent nodes (e.g. the one above, below, left or right of the current position), with an equal probability of moving to any of those nodes. This could best be modeled as:

- ( ) A Boolean Satisfiability Problem

Correct!

- (•) A Markov Decision Process
- ( ) A classical planning problem
- ( ) A Partially Observable Markov Decision Process

Question 9

1 / 1 pts

The h+ heuristic can be calculated by:

- ( ) Counting the number of goal atoms that are not true in the current state
- ( ) Solving the delete relaxed problem using a satisficing planner

- Solving the origianal problem using a satisficing planner
- Correct! Solving the delete relaxed problem using an optimal planner
- Taking the average of the hadd and hmax heuristics

Question 10

0.67 / 1 pts

Which of the following statements are true (select all that apply)?

- Correct! The h+ heuristic is admissible for all search problems
- Correct! Iterative Deepening Search is complete for all search spaces
- Correct! Breadth first search is complete for all search spaces
- All safe heuristics are goal aware
- The goal counting heuristic is admissible for all search problems
- ou Answered The hadd heuristic is admissible for all search problems

Quiz Score: **7.33** out of 10