Unit 14 - Week 12

Assignment 12

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-22, 23:59 IST.

1) Consider an environment in which an agent is randomly dropped into either state s_1 or s_2 initially with equal probability. The agent can only view obstacles present immediately to the North, South, East or West. However the observation made in each direction by the agent may be wrong with a probability of 0.1. If in state s_1 obstacles are present to the North and South, and in s_2 obstacles are present to the East and West, what is the probability of the agent being in state s_1 if the observation made is that there are obstacles present to the North, South and West ***2 points***

- 81/82
- 41/82
- 73/82
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
81/82

2) In the same environment as Question 1, suppose state s_1 has obstacles present only to the North and South, and s_2 has obstacles present only to the East and West. What is the probability of the agent being in state s_1 if the observation made is that there are obstacles present only to the North and East ***2 points***

- 81/82
- 41/82
- 73/82
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
41/82

3) **Assertion**: One of the reasons history based methods are not feasible in certain scenarios is the significant increase in state space when trajectory lengths are large ***2 points***
Reason: The number of states increases polynomially w.r.t. trajectory length

- Both Assertion and Reason are true, and Reason is correct explanation for Assertion
- Both Assertion and Reason are true, but Reason is not correct explanation for assertion
- Assertion is true, Reason is false
- Both Assertion and Reason are false

No, the answer is incorrect.
Score: 0

Accepted Answers:
Assertion is true, Reason is false

4) In the case of POMDPs, which of the following is a good estimate of the return of a trajectory, given the current belief state and the solution to the underlying MDP(Value function for all states)? ***2 points***

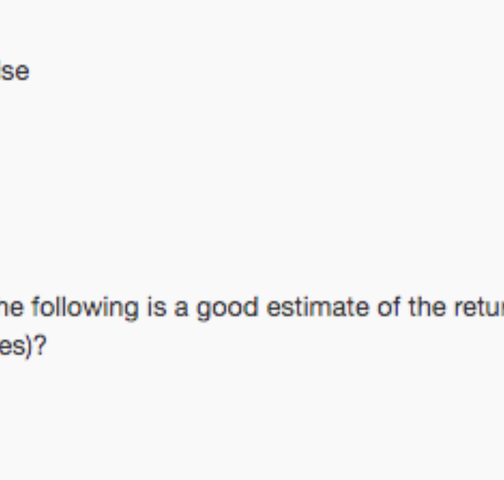
- Average of all $V(s)$ where $b(s) > 0$
- Weighted average of all $V(s)$where $b(s)$ are the weights
- Average of all $V(s)$ where $b(s) \geq b(s')\forall s'$
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Weighted average of all $V(s)$where $b(s)$ are the weights

5) ***2 points***

Consider the below gridworld:



In the figure above, black squares are blocked. Assume the agent can see one step in the 4 cardinal directions. Assume that the agent's observations are always correct and that there is no prior information given regarding the states.

Assertion: If the observation is that there are no obstruction to the East or West, but are present to the North and South, the belief that the agent is in the green shaded square is 0.5.
Reason: Only the green and blue shaded squares have obstructions to the North and South, but not to the East or West.

- Assertion and Reason are both true and Reason is a correct explanation of Assertio
- Assertion and Reason are both true and Reason is not a correct explanation of Assertion
- Assertion is true but Reason is false
- Assertion and Reason are both false

No, the answer is incorrect.
Score: 0

Accepted Answers:
Assertion and Reason are both false