

#### ColumbiaX: CSMM.101x Artificial Intelligence (AI)

Help



- Artificial Intelligence Course: Getting Started
- Week 1: Introduction to Al
- Week 2: Intelligent Agents and Uninformed Search
- Week 3: Heuristic Search
- Week 4: Adversarial Search and Games
- Week 5: Machine Learning 1
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# Week 9 Quiz

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## Q1

10/10 points (graded)

What are the five essential parameters that define an MDP? Check all that apply:

- ✓ state space ✓
- state model
- ✓ action space ✓
- ✓ transition model ✓
- ✓ starting state ✓
- action state
- ✓ reward distribution ✓

~

Submit

You have used 1 of 2 attempts

• Answers are displayed within the problem

## Q2

10/10 points (graded)

In an MDP with finite state space consisting of n states and finite action space consisting of m actions, what is the dimension of the transition probability matrix?

○ n^3 m

#### Learning

Week 9: Reinforcement Learning Introduction

- 9.1 Reinforcement Learning Overview
- 9.2 Markov Decision Process (MDP)
- 9.3 MDP Finding Optimal Policy
- 9.4 Example of an MDP and Bellman Equations
- 9.5 Value Function
   Matrix Notation
- 9.6 Finding Optimal Policy in MDPs - Iterative Methods
- 9.7 Policy Iteration Method Example
- 9.8 Value Iteration Method
- 9.9 Reinforcement Learning -Algorithms

### Week 9 Quiz: Reinforcement Learning

Quiz due Apr 11, 2017 05:00 IST

Week 9 Project: Constraint Satisfaction Problems

Project due Apr 11, 2017 05:00 IST

Week 9 Optional Project: Reinforcement Learning (not graded)

Week 9 Discussion Questions

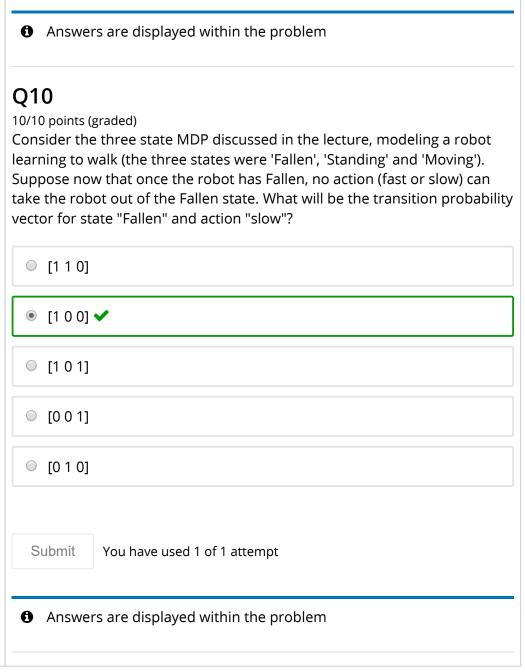
close to 0

close to 1 🗸

does not matter

Submit You have used 1 of 1 attempt **1** Answers are displayed within the problem Q5 10/10 points (graded) In any MDP, given a discount factor smaller than 1, the optimal discounted reward is same for all starting states. True False Submit You have used 1 of 1 attempt **1** Answers are displayed within the problem Q6 10/10 points (graded) A deterministic stationary policy takes the same action (Check all that apply): At all time steps. In any given state, for all time steps. In any given state and history of actions taken, for all time steps. Submit You have used 1 of 2 attempts **1** Answers are displayed within the problem Q7 10/10 points (graded) For every MDP, there exists a stationary policy whose expected discounted

Week 9 Quiz   Week 9 Quiz: Reinforcement Learning   CSMM.101x Courseware   edX reward for every starting state is at least as good as that of any other policy.
● True
O False
Submit You have used 1 of 1 attempt
Answers are displayed within the problem
Q8 10/10 points (graded) Bellman optimality equations suggest that in every state, the optimal action to take is the one that maximizes immediate expected reward.
O True
● False ✔
Submit You have used 1 of 1 attempt
Answers are displayed within the problem
Q9  10/10 points (graded)  If the discount factor is 0, then Bellman optimality equations suggest that in every state, the optimal action to take is the one that maximizes immediate expected reward.
● True
O False
Submit You have used 1 of 1 attempt



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