

# CS7641 ML Practice Quiz

## Module RL 2: Reinforcement Learning

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### Question 1

In reinforcement learning, what is the role of a policy?

- A. To predict the next states.
- B. To map states to actions.
- C. To estimate the long-term value of states.
- D. To generate transitions based on a model.

### Question 2

What are the essential elements of a Q-learning algorithm in reinforcement learning?

- A. Estimating the optimal policy.
- B. Updating estimates based on observed transitions.
- C. Balancing exploration and exploitation.
- D. Predicting the reward for actions.

### Question 3

Which of these are challenges addressed by reinforcement learning algorithms?

- A. Learning without a predefined model.
- B. Balancing exploration and exploitation.
- C. Predicting future states.
- D. Adapting to changing environments.

#### Question 4

In the context of the exploration-exploitation dilemma, what strategies are used in reinforcement learning?

- A. Epsilon-greedy exploration.
- B. Random restarts.
- C. Simulated annealing-like approaches.
- D. Optimism in the face of uncertainty.
- E. Model-based approaches for exploration.

#### Question 5

What outcomes can be expected from the effective application of Q-learning in reinforcement learning?

- A. Convergence to the optimal policy.
- B. Learning to maximize immediate rewards.
- C. Generalizing learning across different environments.
- D. Developing a policy that balances immediate and future rewards.

## Answer key

1. B
2. A, B
3. A, B, D
4. A, C, D, E
5. A, D