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