

Quiz 3

Started: Jan 25 at 9:02pm

Quiz Instructions

Question 1

1 pts

Which of these is true with respect to effect of control on system dynamics? Check all that apply.

- ☐ Good control u_k leads to small state x_k with small effort u_k .
- ☐ System behavior is completely determined by the state x_k and control input u_k at each step.
- ☐ Good control u_k leads to large state x_k with small effort u_k .
- ☐ System behavior is completely determined only by the initial state x_0 and control input u_k at each step.

Question 2

1 pts

Which of the following is the correct representation of finite and infinite horizon problem?

$l(x_k, u_k)$ is the running cost function which penalizes nonzero state and input, N is the number of steps for finite horizon problem, $g(x_k)$ is the cost at state x_k , J_N is the total cost for finite horizon and J_∞ is the total cost for infinite horizon.

- ☐ $J_N = g(x_N) + \sum_{k=0}^{N-1} l(x_k, u_k), J_\infty = g(x_0) + \sum_{k=1}^{\infty} l(x_k, u_k)$
- ☐ $J_N = \sum_{k=0}^N l(x_k, u_k), J_\infty = g(x_0) + \sum_{k=1}^{\infty} l(x_k, u_k)$
- ☐ $J_N = g(x_N) + \sum_{k=0}^{N-1} l(x_k, u_k), J_\infty = \sum_{k=0}^{\infty} l(x_k, u_k)$
- ☐ $J_N = \sum_{k=0}^N l(x_k, u_k), J_\infty = \sum_{k=0}^{\infty} l(x_k, u_k)$

Question 3

1 pts

Which of these is true with respect to Dynamic Programming? Check all that apply.

- ☐ Dynamic Programming is an iterative way to solve sequential optimization problem.
- ☐ Dynamic programming is a single step way to solve sequential optimization problem.
- ☐ We use forward induction to find the optimal control strategy.
- ☐ We use backward induction to find optimal control strategy.

Question 4**1 pts**

Control policy is a function that maps information set to action set.

- ☐ True
- ☐ False

Quiz saved at 9:02pm

SUBMIT QUIZ

