Status	Finished
Started	Monday, 11 November 2024, 11:55 AM
Completed	Monday, 11 November 2024, 12:00 PM
Duration	5 mins 3 secs
Marks	5.00/5.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Complete

Mark 1.00 out of 1.00

Consider the following statements:

(1) In Reinforcement Learning, taking an action a at a state s always results in a reward r and a new state s'. That is, every time we take action a at state s, we receive the same reward r and go the same new state s'.

(2) The reward received upon taking an action a at a state s is always a non-negative value.

☑ a. Both (1) and (2) are false.

☐ b. (1) is true and (2) is false

☐ c. Both (1) and (2) are true.

☐ d. (1) is false and (2) is true

Question 2

Complete

Mark 1.00 out of 1.00

Suppose that you have build a variational autoencoder with a latent space dimension of 50. Then, which of the following is true?

☐ a. The output of the encoder is a 50 dim vector, and the input to the decoder is a 100 dim vector

☑ b. The output of the encoder is a 100 dim vector, and the input to the decoder is a 50 dim vector

☐ c. The output of the encoder is a 100 dim vector, and the input to the decoder is also a 100 dim vector

☐ d. The output of the encoder is a 50 dim vector, and the input to the decoder is also a 50 dim vector

Question 3

Complete

Mark 1.00 out of 1.00

Consider the following statements, about the loss functions used in training different types of autoencoders.

(1) The loss function of an autoencoder and a denoising autoencoder are different

(2) The loss function of a variational autoencoder and a denoising autoencoder are different

- ☑ a.   (1) is false and (2) is true

- ☐ b.   both (1) and (2) are false

- ☐ c.   both (1) and (2) are true

- ☐ d.   (1) is true and (2) is false

Question 4

Complete

Mark 1.00 out of 1.00

Consider the transposed convolution operation, that is used to upscale an image in GANs.
Consider the simple case of single channel convolution.

Suppose that the input map is matrix of dimension 5x5 and the kernel is of size 2x2. Then what is the dimension of the output matrix of this transposed-convolution. You may assume that the stride is 1.

- ☐ a.   5x5

- ☐ b.   3x3

- ☑ c.   6x6

- ☐ d.   4x4

Question 5

Complete

Mark 1.00 out of 1.00

Let P be some policy for an MDP, and let P* be the optimal policy. Let P(s) denote the value of the state s under the policy P, and likewise for P*(s)

Consider the following statements:

(1) for every state s of the MDP, P(s) <= P*(s)

(2) It is possible that there is some state s' such that P(s') > P*(s'),
however (Sum of P(s) over all states) <= (Sum of P*(s) over all states)

- ☐ a.   Both (1) and (2) are false

- ☐ b.   (1) is false and (2) is true

- ☑ c.   (1) is true and (2) is false

- ☐ d.   Both (1) and (2) are true