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Marks

10.00/10.00

Grade

100.00 out of 100.00

### Question 1

1.00/1.00

Generative models are primarily used for which of the following tasks?

- ☒ Generating new data samples similar to the input data ✓
- ☐ Regression
- ☐ Classification
- ☐ Reinforcement learning
- ☐ Clustering

The correct answer is: Generating new data samples similar to the input data

### Question 2

1.00/1.00

Which statement best differentiates generative from discriminative models?

- ☐ Generative models are only for images, discriminative for text
- ☐ Both models serve the same purpose
- ☐ Generative models are newer than discriminative models
- ☒ Generative models learn the joint probability distribution, while discriminative models learn the conditional probability ✓
- ☐ Generative models cannot be trained with labeled data

The correct answer is: Generative models learn the joint probability distribution, while discriminative models learn the conditional probability

### Question 3

1.00/1.00

In the context of models, what does  $P(x | y)$  typically represent?

- ☐ The probability of  $y$  given  $x$
- ☐ The generative capacity of  $x$
- ☐ The distribution of  $y$
- ☒ The probability of  $x$  given  $y$  ✓
- ☐ The likelihood of  $y$

The correct answer is: The probability of  $x$  given  $y$

### Question 4

1.00/1.00



32%



In the context of generative models, what does  $P(x)$  represent?

- ☐ The posterior probability of  $x$
- ☐ The joint probability of  $x$  and  $y$
- ☐ The likelihood of  $x$
- ☒ The probability distribution of the data  $x$  ✓
- ☐ The conditional probability of  $x$  given  $y$

The correct answer is: The probability distribution of the data  $x$

#### Question 5

1.00/1.00

What is the primary goal of generative models in AI?

- ☐ To reduce computational cost
- ☐ To optimize algorithms
- ☒ To generate new data samples ✓
- ☐ To analyze data distributions
- ☐ To classify data

The correct answer is: To generate new data samples

#### Question 6

1.00/1.00

If a model is better at distinguishing between classes rather than generating data, it is likely a \_\_\_\_\_.

- ☐ Likelihood model
- ☐ Joint probability model
- ☐ Generative model
- ☐ Bayesian model
- ☒ Discriminative model ✓

The correct answer is: Discriminative model

#### Question 7

1.00/1.00

What does likelihood measure in the context of a model?

- ☐ The error rate of the model
- ☐ The probability of the model being correct
- ☐ The complexity of the model
- ☒ How well the model explains the observed data ✓
- ☐ The generative capacity of the model



The correct answer is: How well the model explains the observed data



### Question 8

1.00/1.00

Which model type is primarily concerned with determining  $P(y | x)$ ?

- ☐ Generative Model
- ☐ Both Generative and Discriminative
- ☐ Bayesian model
- ☐ Probability Distribution
- ☒ Discriminative Model ✓

The correct answer is: Discriminative Model

### Question 9

1.00/1.00

Which of the following is crucial for understanding the behavior of generative models?

- ☐ Convolutional layers
- ☐ Activation functions
- ☐ Backpropagation
- ☐ Gradient descent
- ☒ Probability distributions and likelihood ✓

The correct answer is: Probability distributions and likelihood

### Question 10

1.00/1.00

Which of the following is NOT a generative model?

- ☐ Variational Autoencoders
- ☐ Gaussian Mixture Models
- ☐ Restricted Boltzmann Machines
- ☐ Generative Adversarial Networks
- ☒ Support Vector Machines ✓

The correct answer is: Support Vector Machines