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**Started on** Saturday, 25 November 2023, 12:30 PM

**State** Finished

**Completed on** Saturday, 25 November 2023, 12:50 PM

**Time taken** 20 mins

**Marks** 17.00/18.00

**Grade** 9.44 out of 10.00 (94%)

**Question 1**

Correct

Mark 1.00 out of 1.00

Given a dataset of using age, gender, education level, years of experience to predict salary, what kind of Machine Learning task is this?

- ☒ a. Regression
- ☐ b. Clustering
- ☐ c. Classification



The correct answer is: Regression

**Question 2**

Correct

Mark 1.00 out of 1.00

Given a dataset of using age, gender, education level, years of experience to predict salary, what type of learning is this?

- ☐ a. Reinforcement Learning
- ☒ b. Supervised Learning
- ☐ c. Unsupervised Learning



The correct answer is: Supervised Learning

## Question 3

Correct

Mark 1.00 out of 1.00

Given two variables age and salary that increases together (the older a person, the more salary that person receives, what is the possible correlation coefficient values?

- ☐ a. 0.001
- ☒ b. 0.72
- ☐ c. -0.5



The correct answer is: 0.72

## Question 4

Correct

Mark 1.00 out of 1.00

You are given a dataset of 4000 rows and 20 columns with one target variable.  $y$  is the column vector of the target variable, what is the dimension of  $y$ ?

- ☐ a.  $20 \times 20$
- ☐ b.  $20 \times 4000$
- ☐ c.  $1 \times 4000$
- ☒ d.  $4000 \times 1$



The correct answer is:  $4000 \times 1$

## Question 5

Correct

Mark 1.00 out of 1.00

You are given a dataset of 4000 rows and 20 columns with one target variable.  $X$  is the feature matrix, what is the dimension of  $X$ ?

- ☒ a.  $4000 \times 19$
- ☐ b.  $20 \times 4000$
- ☐ c.  $19 \times 4000$
- ☐ d.  $4000 \times 20$



The correct answer is:  $4000 \times 19$

## Question 6

Correct

Mark 1.00 out of 1.00

Given two variables  $X$  and  $Y$  where probability  $X$  is known, what is  $P(X)$ ?

- ☐ a. Marginal Probability
- ☐ b. Posterior Probability
- ☒ c. Prior probability
- ☐ d. Joint probability
- ☐ e. Conditional Probability



The correct answer is: Prior probability

## Question 7

Correct

Mark 1.00 out of 1.00

Given two variables  $X$  and  $Y$  where probability  $X$  is known, what is  $P(X,Y)$ ?

- ☐ a. Conditional Probability
- ☒ b. Joint probability
- ☐ c. Posterior Probability
- ☐ d. Prior probability
- ☐ e. Marginal Probability



The correct answer is: Joint probability

## Question 8

Incorrect

Mark 0.00 out of 1.00

Given two variables  $X$  and  $Y$  where probability  $X$  is known, what is  $P(X|Y)$ ?

- ☐ a. Joint probability
- ☒ b. Conditional Probability
- ☒ c. Posterior Probability
- ☐ d. Prior probability
- ☐ e. Marginal Probability



The correct answer is: Conditional Probability

## Question 9

Correct

Mark 1.00 out of 1.00

What is  $P(Y)$

- ☐ a. Prior probability
- ☐ b. Joint probability
- ☒ c. Marginal Probability
- ☐ d. Posterior Probability
- ☐ e. Conditional Probability



The correct answer is: Marginal Probability

## Question 10

Correct

Mark 1.00 out of 1.00

Identify a characteristic of supervised learning approach in machine learning.

- ☐ a. Data patterns can be discovered without guidance.
- ☐ b. It is suitable for data mining.
- ☒ c. Desired output need to be specified.
- ☐ d. No labelled data is required in the approach.



The correct answer is: Desired output need to be specified.

## Question 11

Correct

Mark 1.00 out of 1.00

Identify one supervised learning method for analogue data prediction.

- ☐ a. Clustering
- ☒ b. Regression
- ☐ c. No answer
- ☐ d. Classification



The correct answer is: Regression

## Question 12

Correct

Mark 1.00 out of 1.00

Is programming knowledge the only skill that a Data Scientist needs?

- ☐ a. Yes, programming knowledge is the only skill that a Data Scientist needs
- ☐ b. No, a Data Scientist only needs domain expertise and statistical knowledge, programming knowledge is not necessary
- ☒ c. No, a Data Scientist also needs domain expertise, statistical knowledge, and communication skills



The correct answer is: No, a Data Scientist also needs domain expertise, statistical knowledge, and communication skills

## Question 13

Correct

Mark 1.00 out of 1.00

Gaussian function has the shape of a \_\_\_\_

- ☐ a. square
- ☐ b. triangle
- ☒ c. bell
- ☐ d. trapezoid



The correct answer is: bell

## Question 14

Correct

Mark 1.00 out of 1.00

Name one supervised learning method for discrete data prediction.

- ☐ a. Regression
- ☒ b. Classification
- ☐ c. Clustering
- ☐ d. No answer



The correct answer is: Classification

## Question 15

Correct

Mark 1.00 out of 1.00

Name one supervised learning method for discrete data prediction.

- ☐ a. Regression
- ☒ b. Classification
- ☐ c. No answer
- ☐ d. Clustering



The correct answer is: Classification

## Question 16

Correct

Mark 1.00 out of 1.00

Spam email classification and city population growth regression are examples of ...

- ☐ a. (no suitable answer)
- ☐ b. unsupervised learning
- ☒ c. supervised learning



The correct answer is: supervised learning

## Question 17

Correct

Mark 1.00 out of 1.00

What happens when you change the learning rate to a smaller value in gradient descent?

- ☐ a. The learning fluctuates
- ☒ b. The learning is slow
- ☐ c. The learning is fast



The correct answer is: The learning is slow

## Question 18

Correct

Mark 1.00 out of 1.00

With gradient descent method, small learning rate of an artificial neural network could lead to the outcome

- ☐ a. quickly find a convergence point
- ☒ b. trapped in a local minimum
- ☐ c. swinging around the global minimum



The correct answer is: trapped in a local minimum

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