iSQI CT-AI Practice Questions

Shared by Houston on 30-10-2026

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Question 1

Question Type: MultipleChoice

Which statement regarding the use of training, validation, and test data sets is correct?

Choose ONE option (1 out of 4)

Options:

A- If only limited data is available, validation and test data sets can be combined in multiple ways during training.
B- If limited data is available, it may be better to work without a separate test data set.
C- Optimally, the data should be distributed equally between the training, validation, and test data sets.
D- The data in the test data set must be equivalent to the data in the training data sets and to the data in the validation data sets.

Answer:

D

Explanation:

The ISTQB CT-AI syllabus (Section3.2 -- Model Evaluation) specifies the correct usage oftraining,validation, andtestdatasets. It emphasizes that thetest dataset must be representative of the real operational dataand must beequivalent in distribution to the training and validation sets, ensuring a fair and unbiased evaluation. Option D precisely matches this requirement.

Option A contradicts the syllabus because validation and test sets servedifferent purposes: validation is for tuning, test is for final evaluation. Combining them undermines the reliability of results. Option B is incorrect because even with limited data, the syllabus recommends maintaining a test set or using techniques such ascross-validationrather than eliminating testing. Option C is wrong because equal distribution (33/33/33) isnot recommended; typically, the training set is much larger (e.g., 70--80%).

Thus, OptionDis the only statement aligned with the syllabus' guidance.

Question 2

Question Type: MultipleChoice

Which option best is correct regarding the layers of a deep neural network?

Options:

A- There is only an input and output layer
B- There is at least one internal hidden layer
C- There must be a minimum of five total layers to be considered deep
D- The output layer is not connected with the other layers to maintain integrity

Answer:

B

Explanation:

The syllabus clearly explains the structure of a deep neural network (DNN):

'A deep neural network comprises three types of layers. The input layer receives inputs... Between the input and output layers are hidden layers made up of artificial neurons, which are also known as nodes.'

(Reference: ISTQB CT-AI Syllabus v1.0, Section 6.1, page 45 of 99)

Question 3

Question Type: MultipleChoice

A company producing consumable goods wants to identify groups of people with similar tastes for the purpose of targeting different products for each group. You have to choose and apply an appropriate ML type for this problem.

Which ONE of the following options represents the BEST possible solution for this above-mentioned task?

SELECT ONE OPTION

Options:

A- Regression
B- Association
C- Clustering
D- Classification

Answer:

C

Explanation:

A . Regression

Regression is used to predict a continuous value and is not suitable for grouping people based on similar tastes.

B . Association

Association is used to find relationships between variables in large datasets, often in the form of rules (e.g., market basket analysis). It does not directly group individuals but identifies patterns of co-occurrence.

C . Clustering

Clustering is an unsupervised learning method used to group similar data points based on their features. It is ideal for identifying groups of people with similar tastes without prior knowledge of the group labels. This technique will help the company segment its customer base effectively.

D . Classification

Classification is a supervised learning method used to categorize data points into predefined classes. It requires labeled data for training, which is not the case here as we want to identify groups without predefined labels.

Therefore, the correct answer isCbecause clustering is the most suitable method for grouping people with similar tastes for targeted product marketing.

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A company producing consumable goods wants to identify groups of people with similar tastes for the purpose of targeting different products for each group. You have to choose and apply an appropriate ML type for this problem.

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Question 5

Question Type: MultipleChoice

There is a growing backlog of unresolved defects for your project. You know the developers have an ML model that they have created which has learned which developers work on which type of software and the speed with which they resolve issues. How could you use this model to

help reduce the backlog and implement more efficient defect resolution?

Options:

A- Use it to prioritize defects automatically based on the time expected for the fix to be made, the speed of the fix, and the likelihood of regressions
B- Use it to assign defects to the best developer to resolve the problem and to load balance the defect assignments among the developers
C- Use it to determine the root cause of each defect and develop a process improvement plan that can be implemented to remove the most common root causes
D- Use it to review the code and determine where more defects are likely to occur so that testing can be targeted to those areas

Answer:

B

Explanation:

The syllabus explains that ML models can be used to analyze reported defects and suggest which developers are best suited to fix them based on historical data about defect assignment and resolution speed:

'Assignment: ML models can suggest which developers are best suited to fix particular defects, based on the defect content and previous developer assignments.'

(Reference: ISTQB CT-AI Syllabus v1.0, Section 11.2, page 78 of 99)

Question 6

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There is a growing backlog of unresolved defects for your project. You know the developers have an ML model that they have created which has learned which developers work on which type of software and the speed with which they resolve issues. How could you use this model to help reduce the backlog and implement more efficient defect resolution?

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B- Use it to assign defects to the best developer to resolve the problem and to load balance the defect assignments among the developers
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D- Use it to review the code and determine where more defects are likely to occur so that testing can be targeted to those areas

Answer:

B

Explanation:

The syllabus explains that ML models can be used to analyze reported defects and suggest which developers are best suited to fix them based on historical data about defect assignment and resolution speed:

'Assignment: ML models can suggest which developers are best suited to fix particular defects, based on the defect content and previous developer assignments.'

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Question 7

Question Type: MultipleChoice

Which of the following statements about ML functional performance metrics is correct?

Select ONE option (1 out of 4)

Options:

A- Metrics used to measure clustering include intra-cluster metrics that measure the proximity of a cluster's data points.
B- The R-squared metric indicates how well the model distinguishes between different classes based on the ROC curve.
C- The silhouette coefficient describes how well the regression model fits the dependent variables.
D- The receiver operating characteristic curve shows, depending on parameters, how well the model distinguishes between different clusters.

Answer:

A

Explanation:

The ISTQB CT-AI syllabus explains ML performance metrics in Section3.2 -- Evaluating ML Models. Forclustering, which is an unsupervised learning method, the syllabus lists metrics such asintra-cluster distance,inter-cluster distance, and coherence measures. Intra-cluster metrics evaluate how close data points are within a cluster, which directly corresponds to Option A.

Option B is incorrect becauseR-squaredis a regression metric measuring goodness-of-fit, not classification performance, and has no connection to ROC curves. Option C is wrong because thesilhouette coefficientis also a clustering metric, measuring cohesion vs. separation---not regression accuracy. Option D is incorrect because ROC curves evaluatebinary or multiclass classification, not clustering.

Thus, OptionAis the only accurate statement based on the syllabus.

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