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ISTQB CT-AI Exam Syllabus Topics:

Topic	Details
Topic 1	• Testing AI-Based Systems Overview: In this section, focus is given to how system specifications for AI-based systems can create challenges in testing and explain automation bias and how this affects testing.
Topic 2	• Methods and Techniques for the Testing of AI-Based Systems: In this section, the focus is on explaining how the testing of ML systems can help prevent adversarial attacks and data poisoning.
Topic 3	• Test Environments for AI-Based Systems: This section is about factors that differentiate the test environments for AI-based
Topic 4	• Neural Networks and Testing: This section of the exam covers defining the structure and function of a neural network including a DNN and the different coverage measures for neural networks.
Topic 5	• ML Functional Performance Metrics: In this section, the topics covered include how to calculate the ML functional performance metrics from a given set of confusion matrices.
Topic 6	• Quality Characteristics for AI-Based Systems: This section covers topics covered how to explain the importance of flexibility and adaptability as characteristics of AI-based systems and describes the vitality of managing evolution for AI-based systems. It also covers how to recall the characteristics that make it difficult to use AI-based systems in safety-related applications.

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ISTQB Certified Tester AI Testing Exam Sample Questions (Q36-Q41):

NEW QUESTION # 36
Which of the following statements about the structure and function of neural networks is true?
Choose ONE option (1 out of 4)

- A. A single-layer perceptron is NOT a neural network
- B. Training a neural network only changes the values of the weights at the connections between neurons
- C. The bias of a neuron is determined by the activation values of the neurons in the previous layer
- D. The input layer of a deep neural network must have at least as many neurons as its output layer

Answer: B

Explanation:
Section1.7 - Neural Networksof the ISTQB CT-AI syllabus explains that neural networks consist of neurons connected by weighted links. During training,learning occurs by adjusting the weights on these connections. This is the essence of gradient descent and backpropagation. Option B correctly states this behavior: only theweightsare modified, not the activation functions, neuron counts, or architectural structure.
Option A is incorrect because a neuron'sbiasis not determined by previous activations; it is an independent trainable parameter added to the weighted input sum. Option C is incorrect because the syllabus states that a single-layer perceptron is a valid type of neural network, although limited to linearly separable problems.
Option D is incorrect because no rule requires the number of input neurons to exceed or equal the number of output neurons. Instead, input neurons correspond to thenumber of features, while output neurons correspond totasks or classes.
Therefore,Option Bprecisely reflects the syllabus definition of what changes during neural network training.

NEW QUESTION # 37
The activation value output for a neuron in a neural network is obtained by applying computation to the neuron.
Which ONE of the following options BEST describes the inputs used to compute the activation value?
SELECT ONE OPTION

- A. Individual bias at the neuron level, and weights assigned to the connections between the neurons.
- B. Activation values of neurons in the previous layer, and weights assigned to the connections between the neurons.
- C. Individual bias at the neuron level, activation values of neurons in the previous layer, and weights assigned to the connections between the neurons.
- D. Individual bias at the neuron level, and activation values of neurons in the previous layer.

Answer: C

Explanation:
In a neural network, the activation value of a neuron is determined by a combination of inputs from the previous layer, the weights of the connections, and the bias at the neuron level. Here's a detailed breakdown:
Inputs for Activation Value:
Activation Values of Neurons in the Previous Layer: These are the outputs from neurons in the preceding layer that serve as inputs to the current neuron.
Weights Assigned to the Connections: Each connection between neurons has an associated weight, which determines the strength and direction of the input signal.
Individual Bias at the Neuron Level: Each neuron has a bias value that adjusts the input sum, allowing the activation function to be shifted.
Calculation:
The activation value is computed by summing the weighted inputs from the previous layer and adding the bias.
Formula: z=∑(wiai)+bz = \sum (w_i \cdot a_i) + bz=∑(wiai)+b, where wiw_iwi are the weights, aia_iai are the activation values from the previous layer, and bbb is the bias.
The activation function (e.g., sigmoid, ReLU) is then applied to this sum to get the final activation value.
Why Option A is Correct:
Option A correctly identifies all components involved in computing the activation value: the individual bias, the activation values of the previous layer, and the weights of the connections.
Eliminating Other Options:
B . Activation values of neurons in the previous layer, and weights assigned to the connections between the neurons: This option misses the bias, which is crucial.
C . Individual bias at the neuron level, and weights assigned to the connections between the neurons: This option misses the

activation values from the previous layer.
D . Individual bias at the neuron level, and activation values of neurons in the previous layer: This option misses the weights, which are essential.
Reference:
ISTQB CT-AI Syllabus, Section 6.1, Neural Networks, discusses the components and functioning of neurons in a neural network.
"Neural Network Activation Functions" (ISTQB CT-AI Syllabus, Section 6.1.1).

NEW QUESTION # 38
The training of an ML model... What type of bias is LEAST important to look for when testing the model?
Choose ONE option (1 out of 4)

- A. Inappropriate bias
- B. Algorithmic bias
- C. Automation bias
- D. Sample bias

Answer: C

Explanation:
The ISTQB CT-AI syllabus distinguishes between several types of bias relevant in AI testing, including sample bias,algorithmic bias, andinappropriate bias. In Section3.3 - Bias in AI-Based Systems, the syllabus stresses the importance of identifying biases that originate fromtraining data,model development, anddecision logic. Sample bias occurs when the training data does not adequately represent the population; algorithmic bias arises when the model produces systematically skewed results due to learned patterns; inappropriate bias involves ethically or socially problematic distortions in the outcomes. All three of these bias types directly affect theoutputs of the AI modeland are therefore highly relevant when testing an industrial inspection system intended to reliably detect defects. These biases can lead to defective items being missed or false alarms being raised, which impacts quality assurance significantly .
Automation bias, however, is fundamentally different. It refers to ahuman cognitive bias, where users (e.g., inspectors) overly trust or rely on the AI system's output. While important in user-interaction testing, it isnota biaswithin the ML model itself. Since the question asks which bias isleast important when testing the model, automation bias can be legitimately deprioritized duringmodel-level testing.
Therefore, OptionBis correct.

NEW QUESTION # 39
Which of the following statements regarding experience-based testing for AI-based systems is correct?
Choose ONE option (1 out of 4)

- A. Exploratory testing is often used for AI-based systems because there are often insufficient specifications or problems with the test oracle for AI-based systems.
- B. Intuitive test case design for AI-based systems involves interactive, hypothesis-driven examination of data for correlations or developmental trends.
- C. Tour refers to intuitive test case design for AI-based systems based on multiple, sequential test cases using systematically biased training data.
- D. In checklist-based testing of AI-based systems, the existing test cases are dynamically adapted, for example based on metamorphic testing.

Answer: A

Explanation:
The ISTQB CT-AI syllabus explains inSection 4.4 - Experience-Based Testing for AI Systemsthat AI- based systems frequently suffer frominsufficient specifications, unpredictable model behavior, andtest oracle problems, especially when outputs depend on probabilistic or learned patterns. The syllabus explicitly states thatexploratory testingis especially valuable in such contexts because it allows testers to investigate the system interactively, observe unexpected behavior, and evaluate system responses that cannot be fully predicted beforehand. Thus, OptionCaccurately reflects the role and justification of exploratory testing for AI systems.
Option A describes data analysis rather than intuitive test design. Option B is incorrect because checklist- based testing does not dynamically adapt test cases; instead, it follows predetermined checklists. Option D incorrectly defines "tour-based testing"; tours refer to structured exploratory approaches, not biased datasets.
Therefore,Option Cis the syllabus-aligned correct statement.

NEW QUESTION # 40
Which of the following is one of the reasons for data mislabelling?

- A. Small datasets
- B. Lack of domain knowledge
- C. Expert knowledge
- D. Interoperability error

Answer: B

Explanation:
Data mislabeling occurs for several reasons, which can significantly impact the performance of machine learning (ML) models, especially in supervised learning. According to the ISTQB Certified Tester AI Testing (CT-AI) syllabus, mislabeling of data can be caused by the following factors:
* Random errors by annotators- Mistakes made due to accidental misclassification.
* Systemic errors- Errors introduced by incorrect labeling instructions or poor training of annotators.
* Deliberate errors- Errors introduced intentionally by malicious data annotators.
* Translation errors- Occur when correctly labeled data in one language is incorrectly translated into another language.
* Subjectivity in labeling- Some labeling tasks require subjective judgment, leading to inconsistencies between different annotators.
* Lack of domain knowledge- If annotators do not have sufficient expertise in the domain, they may label data incorrectly due to misunderstanding the context.
* Complex classification tasks- The more complex the task, the higher the probability of labeling mistakes.
Among the answer choices provided, "Lack of domain knowledge" (Option A) is the best answer because expertise is essential to accurately labeling data in complex domains such as medical, legal, or engineering fields.
Certified Tester AI Testing Study Guide References:
* ISTQB CT-AI Syllabus v1.0, Section 4.5.2 (Mislabeled Data in Datasets)
* ISTQB CT-AI Syllabus v1.0, Section 4.3 (Dataset Quality Issues)

NEW QUESTION # 41
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