Reliable ISTQB CT-AI Study Plan - Exam CT-AI Simulator Fee

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ISTQB CT-AI Exam Syllabus Topics:

Topic	Details
Topic 1	• 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.
Topic 2	• 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 3	• Machine Learning ML: This section includes the classification and regression as part of supervised learning, explaining the factors involved in the selection of ML algorithms, and demonstrating underfitting and overfitting.
Topic 4	• Introduction to AI: This exam section covers topics such as the AI effect and how it influences the definition of AI. It covers how to distinguish between narrow AI, general AI, and super AI; moreover, the topics covered include describing how standards apply to AI-based systems.
Topic 5	• 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 6	• 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 7	• systems from those required for conventional systems.

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ISTQB Certified Tester AI Testing Exam Sample Questions (Q93-Q98):

NEW QUESTION # 93
A system is to be developed to detect lung cancer using X-ray images.
Which statement BEST describes the difference between a conventional system and an AI system with supervised machine learning?
Choose ONE option (1 out of 4)

- A. An AI system independently determines patterns in X-rays during training; a conventional system requires a human to program in those patterns.
- B. The implementation of an AI system consists mainly of training data, whereas that of a conventional system consists of branches and loops.
- C. The X-ray images that an AI system can analyze must be structurally different from X-ray images used in a conventional system.
- D. The results of analyzing an X-ray for lung cancer using an AI system are more understandable than with a conventional system.

Answer: A

Explanation:
The syllabus explains the fundamental distinction betweenconventional systemsandAI-based systems using supervised machine learningin Section1.3 - AI-Based and Conventional Systems. A conventional system relies on human-programmed logic-such as branches, conditions, and explicit rules-to interpret input data.
The system behaves exactly as specified by its developers.
In contrast,AI systems using supervised learning automatically learn patternsfrom labeled data. The syllabus states that"patterns in data are used by the system to determine how it should react in the future...
The AI determines on its own what patterns or features in the data can be used". This aligns directly with Option C: an AI system identifies relevant diagnostic patterns in X-ray images during training, whereas a conventional system requires human experts to explicitly program those patterns.
Option A is incorrect because AI outputs are typicallylessexplainable, not more. Option B is incorrect because both systems can use thesame X-ray images; ML does not require structurally different images. Option D is oversimplified and not fully accurate; while training data is central to ML, AI systems also include architecture, algorithms, and preprocessing-not just data.
Thus,Option Cis the correct and syllabus-aligned answer.

NEW QUESTION # 94
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. Individual bias at the neuron level, activation values of neurons in the previous layer, and weights assigned to the connections between the neurons.
- C. Individual bias at the neuron level, and activation values of neurons in the previous layer.
- D. Activation values of neurons in the previous layer, and weights assigned to the connections between the neurons.

Answer: B

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 # 95
Which of the following aspects is a challenge when handling test data for an AI-based system?

- A. Output data or intermediate data
- B. Personal data or confidential data
- C. Data frameworks or machine learning frameworks
- D. Video frame speed or aspect ratio

Answer: B

Explanation:
Handlingtest datain AI-based systems presents numerous challenges, particularly in terms ofdata privacy and confidentiality. AI models often require vast amounts of training data, some of which may containpersonal, sensitive, or confidential information. Ensuringcompliance with data protection laws (e.g., GDPR, CCPA)and implementingsecure data-handling practicesis a major challenge in AI testing.
* Data Privacy Regulations
* AI-based systems frequently process personal data, such as images, names, and transaction details, leading toprivacy concerns.
* Compliance with regulations such asGDPR (General Data Protection Regulation)andCCPA (California Consumer Privacy Act)requiresproper anonymization, encryption, or redactionof sensitive data before using it for testing.
* Data Security Challenges
* AI models mayleak confidential informationif proper security measures are not in place.
* Protectingtraining and test data from unauthorized accessis crucial to maintainingtrust and compliance.
* Legal and Ethical Considerations
* Organizations mustobtain legal approvalbefore using certain datasets, especially those containinghealth records, financial data, or personally identifiable information (PII).
* Testers may need toemploy synthetic dataordata maskingtechniques to minimize exposure risks.
* (B) Output data or intermediate data#
* While analyzing output data is important, it does notpose a significant challengecompared to handlingpersonal or confidential test data.
* (C) Video frame speed or aspect ratio#
* These aretechnical challengesin processing AI models but do not fall underdata privacy or ethical considerations.
* (D) Data frameworks or machine learning frameworks#
* Choosing an appropriateML framework (e.g., TensorFlow, PyTorch)is important, but it is nota major challenge related to test data handling.
* Handling personal or confidential data is a critical challenge in AI testing"Personal or otherwise confidential data may need special techniques for sanitization, encryption, or redaction.Legal approval for use may also be required." Why is Option A Correct?Why Other Options are Incorrect?References from ISTQB Certified Tester AI Testing Study GuideThus,option A is the correct answer, asdata privacy and confidentiality are major challenges when handling test data for AI-based systems.

NEW QUESTION # 96
Which ONE of the following types of coverage SHOULD be used if test cases need to cause each neuron to achieve both positive and negative activation values?
SELECT ONE OPTION

- A. Threshold coverage
- B. Sign change coverage
- C. Value coverage
- D. Neuron coverage

Answer: B

Explanation:
* Coverage for Neuron Activation Values: Sign change coverage is used to ensure that test cases cause each neuron to achieve both positive and negative activation values. This type of coverage ensures that the neurons are thoroughly tested under different activation states.
* Reference: ISTQB_CT-AI_Syllabus_v1.0, Section 6.2 Coverage Measures for Neural Networks, which details different types of coverage measures, including sign change coverage.

NEW QUESTION # 97
Written requirements are given in text documents, which ONE of the following options is the BEST way to generate test cases from these requirements?
SELECT ONE OPTION

- A. Analyzing source code for generating test cases
- B. GUI analysis by computer vision
- C. Natural language processing on textual requirements
- D. Machine learning on logs of execution

Answer: C

Explanation:
When written requirements are given in text documents, the best way to generate test cases is by using Natural Language Processing (NLP). Here's why:
Natural Language Processing (NLP): NLP can analyze and understand human language. It can be used to process textual requirements to extract relevant information and generate test cases. This method is efficient in handling large volumes of textual data and identifying key elements necessary for testing.
Why Not Other Options:
Analyzing source code for generating test cases: This is more suitable for white-box testing where the code is available, but it doesn't apply to text-based requirements.
Machine learning on logs of execution: This approach is used for dynamic analysis based on system behavior during execution rather than static textual requirements.
GUI analysis by computer vision: This is used for testing graphical user interfaces and is not applicable to text-based requirements.

NEW QUESTION # 98
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