iSQI

CTFL-AuT

ISTQB Certified Tester

Foundation Level

Automotive Software Tester

iSQI

Exam CTFL-AuT

ISTQB Certified Tester Foundation Level - Automotive Software Tester

Version: 3.1

[Total Questions: 40]

Question No : 1

Which of the following options describes a combination of typical parts of a HiL environment?

A. Breakout box, Software-Compiler, real parts
B. Test case simulator, rest bus simulation, power supply
C. Electric error simulation, signal processing, processor simulation
D. Power supply, real time capable computer electric error simulation

Answer: D

Explanation: This combination of components allows for the simulation of signal processing and processor simulation, while still allowing the use of real parts. The use of a breakout box and a software compiler may also be necessary in some cases.

Question No : 2

Which statement regarding the operating conditions and comparison of test environments is true?

A. To lest m a MIL test environment, a full system specification is necessary.
B. As tests for MIL and SIL take place closer to the test object, the test basis must have a higher degree of detail than In HIL.
C. The costs for debugging are higher for a Si test environment than for a MiL test environment.
D. The proximity to reality in a MiL test environment is higher than In a SI test environment

Answer: B

Explanation: As tests for MIL and SIL take place closer to the test object, the test basis must have a higher degree of detail than in HIL. In MIL and SIL, the test object and the environment model must be defined in detail in order to create an accurate simulation of the real-world environment, so the test basis must include detailed information about the system and its components. In HIL, the test environment is more removed from reality, so the test basis does not need to be as detailed.

Question No : 3

Which test document is required according to Automotive SPICE®?

A. Test procedure specification
B. Test management report
C. Test metrics report
D. Load testing report

Answer: A

Explanation: According to Automotive SPICE®, a Test Procedure Specification is required. The Test Procedure Specification is a detailed document that describes how a particular test case will be executed and what the expected results are. It is an essential part of the software testing process and provides a clear understanding of the testing approach and the scope of testing. The Test Procedure Specification is used by testers to ensure that the test cases are executed consistently and correctly, and it provides a reference for evaluating the test results.
Source: ISTQB Certified Tester, Automotive Software Tester (CT-AUT) Study Guide.

Question No : 4

The following methods table shows a partial functional safety guideline of an OEM (Car Maker):

Methods		ASIL			
		A	B	C	D
1a	Statement coverage	++	++	+	+
1b	Decision coverage	+	++	++	++
1c	Condition coverage	+	+	+	++

What do the plus symbols in the table mean for the taster of the supplier?

A. The tester of the suppler must choose an appropriate combination of methods and explain Ms choice. The methods with a double plus symbol should be given higher consideration
B. Single plus symbol means .should be applied by the tester of the suppler", double plus symbol means "can be applied by the tester of the suppler".
C. A single plus symbol means .must be covered by each tester of the supplier'. double plus symbol means "must be tested for applicability by me tester of the contractor".
D. Single plus symbol means .must be applied by the tester of the suppler", double plus symbol means 'can be applied by the tester of the supplier

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Answer: C

Question No : 5

Which statement regarding AUTOSAR Is TRUE?

AUTOSAR describes...

A. ...a collection of characteristics of the performance of processes of an organization.
B. ...an open and standardized software architecture for vehicle development.
C. ...an analysis unit, which processes Input signals and determines intermediate values and their respective output signals by using existing information.
D. ...activities, methods and measures to achieve functional security for electric and electronic solutions.

Answer: B

Explanation: https://www.pathpartnertech.com/software-architecture-autosar-for-automotive-embedded-system/
AUTOSAR (AUTomotive Open System ARchitecture) is an open and standardized software architecture for vehicle development, enabling the development of safety-relevant automotive software components. It provides a common platform for the development of software components from different suppliers, and thus enables the integration of multiple ECUs in a vehicle.

Question No : 6

Which dimension Is defined in Automotive SPICE®?

A. Resource dimension
B. Capability dimension
C. Objective dimension
D. Time dimension

Answer: B

Explanation: In principle, automotive SPICE® has two dimensions: the **process dimension** and the process capability dimension. The processes in the process dimension are based on the ISO 12207 that has been extended and modified with automotive-specific additions.

https://industryforum.co.uk/resources/automotive-spice-by-

vda/#:~:text=Scope%20of%20Automotive%20SPICE%C2%AE,modified%20with%20auto motive%2Dspecific%20additions.

The Capability dimension is defined in Automotive SPICE®. Automotive SPICE® is a model for the assessment and evaluation of software process capability in the automotive industry. The Capability dimension provides a description of the capability level of the software process, which is determined by the process capability maturity level (CMM) and the process capability level (PCL). The Capability dimension includes aspects such as the definition of processes, the availability of resources, the measurement and analysis of processes, and the improvement of processes.
Source: ISTQB Certified Tester, Automotive Software Tester (CT-AUT) Study Guide.

Question No : 7

Which of the statements regarding traceability in Automotive SPICES®3.x is true?

A. The linking of requirements, test cases and test togs provides traceability and enables the desired verification of test cases for test case coverage
B. A1:N relation exists; for example If a test case is tested with the help of several requirements and is therefore linked to several requirements
C. The linking of a requirement, a derived test case and the associated test implementation provides the base for a complete testability.
D. With complete tractably It Is possible to trace test cases to their requirements and test cases which have been executed to their corresponding results.

Answer: D

Explanation:

According to Automotive SPICES® 3.x, traceability is the ability to trace the relationship between two or more elements of the system. This includes traceability between requirements, test cases, test logs, and test results. With complete traceability, it is possible to trace test cases to their corresponding requirements and trace test cases which have been executed back to their corresponding results. This ensures that the system meets the requirements and that all tests have been carried out correctly and consistently.

Question No : 8

Which statement regarding coding standards Is most true?

A. Coding standards should increase the maintainability of the source code.
B. Coding standards should educate the programmer
C. Coding standards should increase the efficiency of the programmer
D. Coding standards should increase the efficiency of the source code.

Answer: A

Explanation: Coding standards are guidelines and rules that are established to ensure that software code is written in a consistent and uniform manner. Following coding standards helps to ensure that the code is easier to read and understand, and makes it easier for multiple developers to work on the same project. This increases the maintainability of the source code, which helps to reduce the cost and time required for bug fixes, updates, and modifications.

Question No : 9

Which statement regarding AUTOSAR Is NOT TRUE?

A. One of the objectives of AUTOSAR is to support the development of reliable systems.
B. One of the objectives of AUTOSAR Is the replicability of software components between different vehicle platforms and between different partners.
C. One of the objectives of AUTOSAR is cooperation regarding the standards and the implementation.
D. One of the objectives of AUTOSAR is the definition of a maintainable as well as adjustable open architecture.

Answer: D

Explanation: According to the ISTQB Certified Tester, Automotive Software Tester (CT-AUT) study guide, the objectives of AUTOSAR (Automotive Open System Architecture) include the definition of a maintainable and adjustable open architecture, the development of reliable systems, the replicability of software components between different vehicle platforms and between different partners, and cooperation regarding the standards and the implementation.

Question No : 10

In the release process, which of the following work products. Information and documents are the typical output of the tester?

A. Tested lest objects
B. Insulation recommendation

C. Non-detected defects

D. Change request

Answer: B

Explanation: When the tester is engaged in the release process, they are typically expected to produce several work products, including an insulation recommendation. This document provides a summary of the results of the tests conducted and provides an overall assessment of the test results. The insulation recommendation should include an assessment of the quality of the tested product, details of any critical or major defects detected, and any other relevant information. The insulation recommendation should also include any proposed changes or improvements to the software that could be made to increase the quality of the product.

Question No : 11

As a unit tester (.module tester'') you are working on a project and are supposed to develop a test strategy.

Which of the following test and analysis procedures is. according to Automotive SPIC®NOT an appropriate clamant of a verification strategy for unit tests (software units), which ware "manually coded"?

Note The components to verify are non-safety relevant and safely relevant (up to ASIL-C) components

A. Tool supported static analysis

B. Hardware-in-the-Loop-Tests

C. Unit tests (Test of Software-Units)

D. Code-Reviews

Answer: B

Explanation: According to Automotive SPICE®, Hardware-in-the-Loop-Tests (HIL-Tests) are not an appropriate component of a verification strategy for unit tests (software units) that are manually coded. HIL-Tests are used to test the interaction of the software system with the actual hardware to ensure the correct behavior of the system. However, these tests are not suitable for manually-coded software units and instead, verification strategies should include tools supported static analysis and code reviews. Unit tests (test of software units) are also an appropriate component of a verification strategy for manually-coded software units.

Question No : 12

Which of the following options Is NOT a general part of a test environment?

A. Test plan
B. Laboratory
C. Real-time PC
D. Communication device

Answer: C

Explanation: A test environment typically includes components such as a test plan, laboratory, test tools, test data, and communication devices, but a real-time PC is not generally included. A real-time PC is a type of computer system that is designed to respond to input within a specified amount of time.

Question No : 13

During product development what does the tester create based on the Safety requirements?

A. A software architecture that fulfils the requirement of .testability
B. Test cases to check compliance with the MISRA-C:2012 coding standard
C. Test cases and test procedure for the verification and validation of the safety related requirements
D. Test cases and test procedures for production

Answer: C

Explanation: According to the ISTQB Certified Tester, Automotive Software Tester (CT-AUT) study guide, testers should create test cases and procedures to verify and validate safety requirements. This includes creating a test plan to ensure that all the safety requirements are tested and verified for correctness. Testers should also create test cases to ensure that all safety requirements are met and that any violations are reported. Additionally, testers should ensure that any modifications or changes to the system are tested and verified for safety compliance.

Question No : 14

Which statement regarding the comparison of the test levels In ISO 26262, ASPICE and CTFL Is true?

A. CTFL, ASPICE and ISO 26262 use the term .system' for a product consisting of a hardware and a software component

B. The following lest levels are equivalent: acceptance test (CTFL). ISO 26262 safety validation (ISO 26262.4-9) and system integration test (ASPICE SYS.4),

C. ASPICE and ISO 26262 do not have an equivalent for system testing (CTFL).

D. The following test levels are equivalent: component test (CTFL), software unit test (ISO 26262.6-9) and software component verification (ASPICE. SVYE.4).

Answer: D

Explanation: The International Software Testing Qualifications Board (ISTQB) Certified Tester, Automotive Software Tester (CT-AUT) study guide states that the following test levels are equivalent: component test (CTFL), software unit test (ISO 26262.6-9) and software component verification (ASPICE. SVYE.4). ISO 26262 and ASPICE both use the term 'system' to refer to a product consisting of a hardware and a software component. ISO 26262 does not have an equivalent for system testing (CTFL), and ASPICE does not have an equivalent for safety validation (ISO 26262.4-9) and system integration test (ASPICE SYS.4).

Question No : 15

Imagine you are participating in an Automotive SPICE®assessment In your rote as a software tester, and you receive the Information that your process has been assessed with ''P" on process attribute PA1.1 at capability level 1. Which meaning it correct?

A. You have NOT fulfilled capacity level 1.

B. You have fulfilled capacity level 3.

C. You have fulfilled capacity level 2.

D. You have fulfilled capability level 1.

Answer: D

Explanation: In Automotive SPICE®, a rating of "P" on process attribute PA1.1 at capability level 1 indicates that the process has fulfilled capability level 1. In Automotive SPICE®, the assessment results are represented by a combination of letters and numbers, with "P" standing for "partially fulfilled." When a process is assessed with "P" at a particular capability level, it means that the process has fulfilled some, but not all, of the requirements of that capability level. In this case, the software tester has fulfilled capability level 1 for process attribute PA1.1, which means that the basic requirements for that attribute have been met.

Question No : 16