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ISTQB Certified Tester Advanced Level - Test Analyst (CTAL-TA)

ISTQB ISTQB-CTAL-TA

Version Demo

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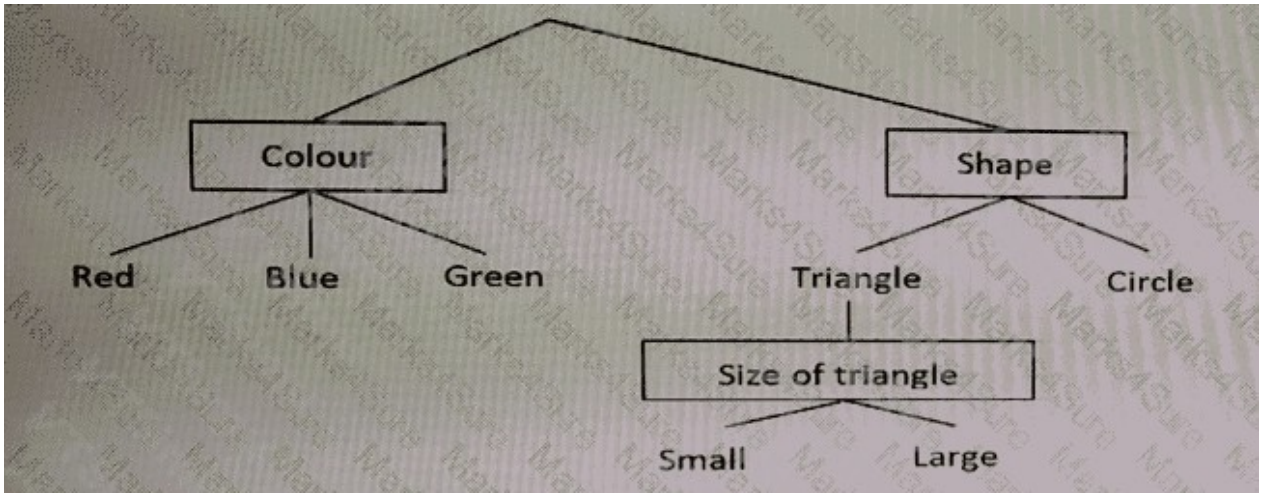
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Topic Break Down

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QUESTION NO: 1

Based on the classification tree shown below, using the pairwise testing technique how many test cases are required to test all pairs?



A. 3

B. 8

C. 9

D. 12

ANSWER: C

Explanation:

9 is correct. The classification tree contains three characteristics: Power Unit with Petrol, Electric, and Hybrid; Body Style with Saloon, Hatchback, and SUV; and Color with Red and Blue. Pairwise testing requires that every possible pair of values from any two characteristics occurs in at least one test case. The Power Unit–Body Style pair has three values for each characteristic, creating nine distinct pairs. Since one test case can contain only one Power Unit–Body Style combination, at least nine test cases are necessary.

Nine test cases are also sufficient. Each of the nine Power Unit–Body Style combinations can be used once, while the Color value is assigned across those combinations so that each Power Unit appears with both colors and each Body Style appears with both colors. This produces complete pair coverage for Power Unit–Body Style, Power Unit–Color, and Body Style–Color without requiring every full three-way combination. This reflects the purpose of pairwise testing: systematically cover interactions of two parameter values while reducing the total number of tests compared with exhaustive combination testing. ISTQB describes classification-tree-based and combinatorial approaches within its Test Analyst syllabus; see ISTQB Certified Tester Advanced Level Test Analyst and the CTAL-TA certification information.

QUESTION NO: 2

A PIN entry component of an ATM system has been developed using the following state table:

	Insert Card	Enter Pin	Valid Pin	Invalid Pin
S1) Start State	S2	-	-	-
S2) Wait for PIN	-	S3	-	-
S3) 1st try	-	-	S6	S4
S4) 2nd try	-	-	S6	S5
S5) 3rd try	-	-	S6	S7
S6) Access account	-	-	-	-
S7) Eat card	-	-	-	-

Using the state transition test technique, how many 0-switch test cases are needed to achieve 100% 0-switch coverage?

A. 4

B. 7

C. 8

D. 28

ANSWER: B

Explanation:

7 is correct. In state-transition testing, 0-switch coverage is transition coverage: every valid individual transition in the state model must be exercised at least once. A 0-switch test is therefore a test of one transition, without requiring a preceding or following transition as part of the coverage objective. The PIN-entry table contains seven valid transitions to cover: the transition into the PIN-entry/first-attempt processing, plus the valid-PIN and invalid-PIN outcomes for each of the three permitted attempts. The valid-PIN outcomes lead to account access, while unsuccessful attempts progress through the retry states and the final unsuccessful attempt leads to card retention. Since each of these transitions is a distinct model element, a separate 0-switch test case is needed for each one when constructing the minimal set specifically for 100% 0-switch coverage. The ISTQB definition describes 0-switch coverage as coverage of the transitions of a state-transition model, and the Test Analyst syllabus includes state-transition testing and switch coverage as techniques for deriving tests from such models. See the ISTQB glossary entry for 0-switch coverage and the ISTQB Advanced Level Test Analyst certification page.

QUESTION NO: 3

A Test Analyst is prioritizing test conditions for a claims-processing release. The product risks have been assessed as follows:

R1: An incorrect excess is deducted from a valid claim. Likelihood 3, impact 5.
R2: A claimant can submit the same claim twice after a browser refresh. Likelihood 4, impact 4.
R3: A confirmation letter displays an incorrect contact telephone number. Likelihood 2, impact 3.

The project uses likelihood multiplied by impact as its risk exposure measure. Which test condition should be given the HIGHEST initial priority?

SELECT ONE OPTION

A. Verify that the applicable excess is deducted from each valid claim.

B. Verify that a browser refresh cannot create a second claim submission.

C. Verify that the contact telephone number is correct in each confirmation letter.

D. Verify the confirmation-letter layout before testing claim submission.

ANSWER: B

Explanation:

The duplicate-claim condition has the highest risk exposure: 4 × 4 = 16. The incorrect-excess risk has an exposure of 15, and the incorrect telephone-number risk has an exposure of 6.

Risk-based testing uses the assessed product risks to prioritize test analysis, design, and execution. Although an incorrect excess has the greatest individual impact, the agreed prioritization method considers both likelihood and impact, making prevention of duplicate claim submission the highest-priority condition.

QUESTION NO: 4

A tablet manufacturer offers the following options for its customers:

Colour: Black, White, Silver, Gold

Model: Standard, Mini, Pro

Gigabytes:32, 64, 128, 256

Connectivity: Wifi-only, Wifi+Cellular

When applying the pairwise test technique, how many TEST CASES would be needed to ensure that ALL pair combinations are tested?

SELECT ONE OPTION

A. 14

B. 9

C. 16

D. 12

ANSWER: C

Explanation:

16 is correct. Pairwise testing, also called two-wise testing, designs a set of tests so that every possible pair of values from any two parameters occurs together in at least one test case. The key lower bound here comes from the pair Colour and Gigabytes. Each has four possible values, so this parameter pair has 4 × 4 = 16 distinct combinations: every colour must be combined with every storage size. A single test case can cover only one specific Colour–Gigabytes pair; therefore, fewer than 16 tests cannot provide complete pair coverage for that pair.

A test suite of 16 cases can be arranged to cover those 16 Colour–Gigabytes combinations while assigning Model and Connectivity values in a balanced way that also covers every required pair involving those parameters. Thus, 16 is both necessary, because of the four-by-four pair, and sufficient for full pairwise coverage of the stated configuration options. Pairwise testing is a combinatorial test-design approach intended to cover interactions between pairs of input values efficiently rather than executing every possible full configuration. See the ISTQB certification information at ISTQB Certified Tester Advanced Level Test Analyst and the ISTQB glossary entry for pairwise testing.

QUESTION NO: 5

You are testing an ATM based on the following use

ATM start screen is showing

1. The user inserts card

2. The user types in PIN

3 The user selects cash with receipt'

4. The user selects €50

5. The user selects no further service' Expected results

- The ATM provides €50 to the user

- The ATM returns the card and balance slip

- The ATM clears the screen

- The ATM returns to start menu

You are asked to review this use case.

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What is the most important information that is missing from this use case?

A. Nothing has been defined for expected response times.

B. The use case should also include alternative behaviour.

C. More test cases are needed to achieve the minimum acceptable level of coverage.

D. Expected results not clearly defined

ANSWER: B

Explanation:

The use case should also include alternative behaviour. A use case must describe more than its successful, basic flow. For testing purposes, it needs alternative and exception flows that state how the ATM behaves when normal processing cannot continue or when a user makes a different valid choice. In this ATM scenario, important behaviour is unspecified for events such as an invalid PIN, cancellation or timeout, an unreadable or retained card, insufficient account funds, unavailable cash, failure to dispense the requested notes, or printer unavailability. These paths provide the test analyst with essential test conditions, expected outcomes, and coverage targets for functional robustness and error handling. Without them, testing would be limited to one happy-path withdrawal and would not adequately assess whether the ATM protects the customer, account, card, and transaction state when conditions deviate from that path. The ISTQB Advanced Level Test Analyst syllabus identifies use cases as a basis for deriving tests and emphasizes reviewing their flows, including alternative and exceptional behavior. See the ISTQB Certified Tester Advanced Level Test Analyst certification page and the ISTQB glossary search for alternative flow.

QUESTION NO: 6

A software component for a game application calculates a player's trophy level based on two input parameter values: Points Earned and Level of Difficulty. A total score is calculated by the component as:

Total Score = Points Earned × Level of Difficulty

The trophy levels are:

Blue - total score equal to or less than 40

Silver - total score > 40

Gold - total score > 70

Diamond - total score > 80

Platinum - total score > 90

The component then outputs the correct trophy level.

Applying the **Equivalence Partition test design technique** to this component, what percentage of output partitions have been exercised by the following suite of test cases?

Player 1 - Points earned 25, level of difficulty 2

Player 2 - Points earned 20, level of difficulty 3

Player 3 - Points earned 30, level of difficulty 1

SELECT ONE OPTION:

A. 60%

B. 40%

C. 10%

ANSWER: B

Explanation:

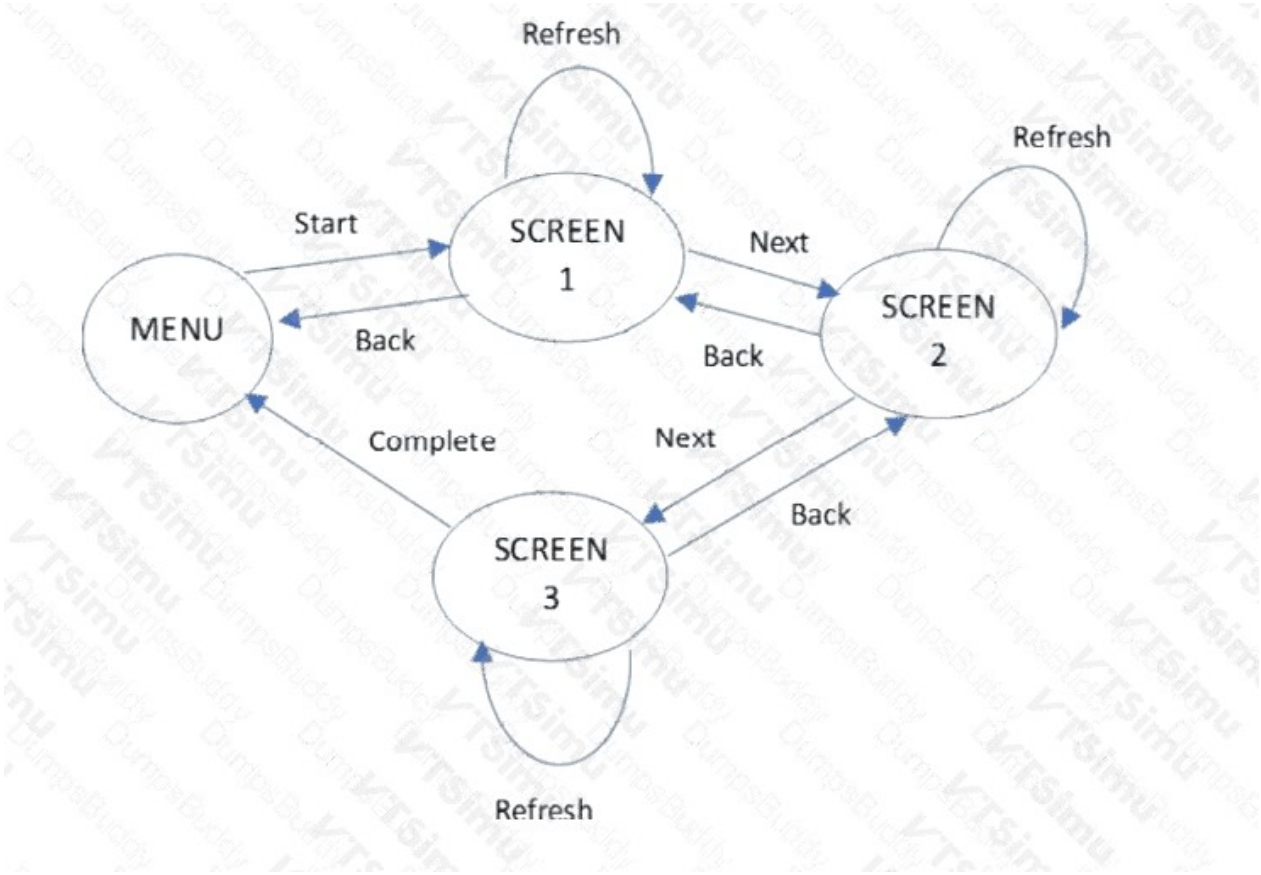
40% is correct. Equivalence partitioning divides a domain into partitions for which the software is expected to behave equivalently; for output coverage here, the relevant partitions are the five possible trophy outcomes. The ordered threshold rules imply the non-overlapping output ranges Blue (score at most 40), Silver (above 40 through 70), Gold (above 70 through 80), Diamond (above 80 through 90), and Platinum (above 90). This interpretation is necessary for the component to produce one correct trophy level for each score.

The test scores are 50 for Player 1 (25 × 2), 60 for Player 2 (20 × 3), and 30 for Player 3 (30 × 1). Scores of 50 and 60 both exercise the Silver output partition, while 30 exercises the Blue output partition. Thus, the suite exercises two distinct output equivalence partitions: Blue and Silver. With five total output partitions, the output-partition coverage is 2/5 × 100, which equals 40%.

This follows the ISTQB treatment of equivalence partitioning as identifying partitions that can be covered by representative test cases; repeated tests within the same partition do not increase the number of distinct partitions exercised. See the ISTQB Advanced Level Test Analyst syllabus page and the ISTQB Glossary definition of equivalence partitioning.

QUESTION NO: 7

When applying the State Transition test technique to the given State Transition diagram, and assuming that screen refreshes can be applied multiple times, how many 1-switch transitions are there starting from the state 'Screen 1'?



SELECT ONE OPTION

A. 7

B. 10

C. 5

D. 3

ANSWER: A

Explanation:

7 is correct because 1-switch coverage concerns sequences of two consecutive transitions: the first transition takes the system from the starting state to an intermediate state, and the second transition leaves that intermediate state. Starting at Screen 1, the Refresh transition returns to Screen 1; because refreshes may be applied repeatedly, this first transition can be followed by each of the three transitions available from Screen 1. The Next transition takes the system to Screen 2, from which there are three possible second transitions. The Back transition takes the system to Menu, from which one subsequent transition is available. Therefore, the total number of distinct two-transition sequences starting from Screen 1 is 3 + 3 + 1 = 7. This applies the ISTQB definition of switch coverage, where a 1-switch represents a pair of adjacent transitions rather than a single direct state change. State-transition testing is used to derive tests from permitted state changes and transition sequences, including valid self-transitions such as Refresh. See the ISTQB Advanced Level Test Analyst certification page and the ISTQB glossary entry for transition coverage.

QUESTION NO: 8

You work for an insurance company with parallel projects. You need to recommend the best approach for test case design for each project.

Project A: Maintenance release with minor UI changes, experienced testers, manual execution.

Project B: Development of a new algorithm for risk assessment, high risk of regression, automation needed, audit required.

SELECT ONE OPTION

A. Project A - High level test cases. Project B - Low level test cases

B. Project A - Low level test cases. Project B - Low level test cases

C. Project A - High level test cases. Project B - High level test cases

D. Project A - Low level test cases. Project B - High level test cases

ANSWER: A

Explanation:

“Project A - High level test cases. Project B - Low level test cases” is the appropriate recommendation because the appropriate level of test-case detail depends on the purpose of testing, the test basis, execution approach, tester skill, required repeatability, and evidence obligations. For the minor UI maintenance release, experienced testers performing manual execution can effectively use high-level test cases. These define the test objective, relevant conditions, and expected outcomes without prescribing every interaction, allowing knowledgeable testers to apply judgement efficiently while focusing on the changed UI and its surrounding behaviour.

The new risk-assessment algorithm requires low-level test cases because its business and regulatory impact calls for precise, repeatable verification. Detailed cases can specify exact preconditions, input data, calculation rules, execution steps, and expected results. This level of specification provides a dependable basis for automated regression tests, which are particularly valuable where algorithm changes may introduce regression risk. It also supports auditability by preserving clear, reproducible evidence of what was tested and the expected decision logic. ISTQB describes the role of test work products, including test cases, in its Advanced Test Analyst syllabus: ISTQB Advanced Level Test Analyst. Guidance on test-case design and maintaining traceable test documentation is also available in the ISTQB Glossary: test case.

QUESTION NO: 9

Based on the tax system specification as described below, using boundary value analysis, which would be the best test set to explicitly test on single boundary value fully?

Tax system

A tax system needs to be updated due to new legislation. For a person with a salary of less than € 20 000 and who is married, the tax needs to be recalculated.

If a person has at least three and less than six children, an additional 10% reduction is applicable.

A. Test set (i)

B. Test set (ii)

C. Test set (iii)

D. Test set (iv)

ANSWER: B

Explanation:

Test set (ii) is correct because it provides full single-boundary-value coverage for the relevant numerical decision boundaries. The salary rule changes at €20,000: salaries below this value meet the condition, while €20,000 and above do not. The child-count rule has two boundaries: the reduction becomes applicable at three children and ceases to be applicable at six children. A suitable boundary-value test set therefore exercises values immediately on both sides of each threshold, while holding the other relevant conditions—particularly marital status and the non-varied input—at values that allow the specified tax rule to be evaluated.

Single boundary value analysis isolates one boundary at a time. This helps reveal defects such as using an incorrect comparison operator, for example implementing a strict comparison where an inclusive one is required, or vice versa. Testing around €20,000, three children, and six children directly verifies the transitions defined by the legislation. This

application is consistent with ISTQB's treatment of boundary value analysis as a black-box technique focused on values at boundaries and their adjacent values. See the ISTQB Advanced Level Test Analyst certification page and the ISTQB Certified Tester Foundation Level syllabus resources.

QUESTION NO: 10

How many cases are required to test the tax system specification as described below, using a decision table which is not collapsed?

Tax system

A tax system needs to be updated due to new legislation. For a person with a salary of less than € 20.000 and who is married, the tax needs to be recalculated. If the person also has more than two and less than five children, an additional 10% reduction is applicable.

A. 2

B. 4

C. 6

D. 8

ANSWER: D

Explanation:

8 is correct because an uncollapsed decision table includes every possible combination of the identified binary conditions, including combinations that may result in no action. The specification provides three conditions to evaluate: whether the salary is less than €20,000, whether the person is married, and whether the person has more than two and fewer than five children. The children requirement is one compound business condition: it is either satisfied (the person has three or four children) or not satisfied. Each condition therefore has two possible outcomes, yes or no.

The number of rules in a complete, uncollapsed decision table is calculated as 2 raised to the number of binary conditions. With three conditions, this is 2^3, producing eight distinct rules and therefore eight test cases. The rules cover every combination of the three condition outcomes, allowing the expected tax-recalculation action and, where applicable, the additional 10% reduction to be specified for each combination. This is consistent with decision-table testing, which derives tests from combinations of conditions and the resulting actions. ISTQB describes decision tables as a useful technique for systems whose behavior depends on combinations of conditions; see the ISTQB Glossary entry for decision table testing and the ISTQB Test Analyst certification page.

QUESTION NO: 11

Which TWO of the following are MOST likely to be defects found as part of portability testing?

a) Insufficient, unclear installation or de-installation instructions

b) Clumsy screen navigation and input screen labeling

c) Inability to log on as an administrator

d) Time out errors when entering incorrect login details

e) The stock control barcodes cannot be read by the replaced barcode scanner

SELECT ONE OPTION

A. a, e

B. a, d

C. c, e

D. b, d

ANSWER: A

Explanation:

a, e is correct because portability testing addresses whether a system can be installed, uninstalled, moved, adapted, and used effectively in changed target environments. Clear, complete installation and de-installation instructions are directly relevant to *installability*. A defect in these instructions can prevent, delay, or make unreliable the deployment or removal of the product on a target platform, so it is a portability-related defect even where the executable software itself is technically capable of installation.

The barcode-scanner problem is also a portability concern because replacement of a scanner represents a change in the operational hardware environment. The application must be capable of operating with the replacement device, including correctly receiving and processing its barcode input. Failure after such a hardware substitution indicates that the product is not sufficiently adaptable to its intended environment. Portability testing therefore evaluates the product's behavior across relevant platforms, configurations, and hardware or software environment changes, rather than only verifying functionality in one original setup.

This aligns with the ISTQB Test Analyst syllabus treatment of quality characteristics and with ISO/IEC 25010's portability subcharacteristics, including adaptability and installability. See the ISTQB Advanced Level Test Analyst certification page and the ISO/IEC 25010 quality model overview.