

iSQI CTAL-TAE

ISTQB Certified Tester Foundation Level- Performance Testing

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CTAL-TAE

ISTQB Certified Tester Advanced Level, Test Automation Engineering

ADVANCED LEVEL TEST AUTOMATION ENGINEER CERTIFICATION PREPARATION

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PRACTICE QUESTIONS

2026

UPDATED EDITION

About This Preparation Material

This document provides practice questions and verified technical explanations for the ISQI CTAL-TAE examination: *ISTQB Certified Tester Advanced Level, Test Automation Engineering*.

Review the scenario-based questions, recommended options, and comprehensive explanations on the following pages to evaluate your readiness for test automation architecture, SUT integration, pilot execution, and reporting strategies.

Question 1**SINGLE CHOICE**

Your organization is evaluating test automation tools for a microservices-based e-commerce platform with dozens of independent services, multiple databases, and asynchronous messaging. The system has high complexity and frequent deployments. During the tool assessment phase, you need to determine which factors related to the system under test (SUT) architecture should most influence your tool selection and automation strategy.

Which of the following should be your primary considerations when aligning tool capabilities with this SUT architecture?

- A.** The SUT's distributed nature, API-first design, and asynchronous communication patterns require tools with strong API testing and message queue integration capabilities
- B.** The microservices architecture makes it impossible to automate end-to-end tests, so you should focus only on unit-level automation
- C.** Since the system is complex, you should select the most expensive enterprise tool available to ensure it handles all scenarios
- D.** The frequency of deployments means you should prioritize manual testing over automation to avoid false positives
- E.** Microservices eliminate the need for test data management strategies during automation

Answer: A**Explanation:**

The correct answer recognizes that test automation tool selection must be aligned with the architecture and characteristics of the SUT. In a microservices environment with asynchronous patterns, tools must support API testing, containerization, message queue monitoring, and distributed tracing—capabilities that directly map to how the system communicates and operates.

Why other options are incorrect:

- Option B: Microservices can absolutely be tested end-to-end; you simply need tools that understand their distributed nature.
- Option C: Tool selection should be driven by technical fit and requirements, not cost alone; an inappropriate expensive tool wastes resources.
- Option D: Frequent deployments actually require robust automation to maintain quality and enable continuous delivery.
- Option E: Complex distributed systems require more rigorous test data management, not less, to ensure reproducibility across services.

Question 2**SINGLE CHOICE**

Your team is designing a test automation framework for a mobile banking application. During the architecture planning phase, you must decide how to structure the framework layers. You've identified the need to separate concerns between test logic, UI interaction logic, and business operations, while also planning for maintainability across multiple platforms (iOS and Android).

Which layers or components should be included in your automation architecture to support these goals?

- A.** Test layer (test cases and test data), Business logic layer (domain operations and workflows), and UI abstraction layer (platform-specific element locators and interaction methods)
- B.** A single monolithic layer combining all test logic, UI interactions, and business operations to maximize execution speed
- C.** Only UI layer automation, since mobile applications primarily require testing of the user interface
- D.** Separate layers for each test case, one layer per platform, and no reusable business logic components
- E.** API layer only, since mobile apps are typically wrappers around backend services

Answer: A**Explanation:**

The correct answer reflects sound test automation architecture principles. A well-layered architecture separates concerns: the test layer focuses on what to test, the business logic layer encapsulates domain workflows, and the UI abstraction layer hides platform-specific interaction details. This separation enables test reuse across platforms and reduces maintenance burden when UIs change.

Why other options are incorrect:

- Option B: Monolithic scripts are difficult to maintain and scale; layering is a fundamental principle of sustainable automation architecture.
- Option C: Mobile testing requires testing business workflows, data validation, API integration, and offline behavior—not just UI.
- Option D: This approach creates massive duplication and makes maintaining cross-platform test suites extremely difficult.
- Option E: While API testing is important, it is not the only layer needed for comprehensive mobile application testing.

Question 3**SINGLE CHOICE**

During the pilot phase of your automation initiative, you have automated 200 test cases for a critical payment processing module. After two weeks of execution, you notice that 15% of tests are failing intermittently on the same scenarios that pass consistently in manual testing. The failures appear random and occur at different points within the test execution.

When conducting root cause analysis for these intermittent failures, which factors should you investigate as part of verifying the quality of your automation solution?

- A. Timing and synchronization issues in the test scripts, test environment infrastructure stability, test data state dependencies between tests, and race conditions in test execution order
- B. The competency level of the manual testers, since their tests pass while automated tests fail
- C. Replace all failing tests with new ones rather than debugging, to save time
- D. Immediately roll back to manual testing, as intermittent failures prove automation is not viable for this module
- E. Assume the application has a bug and report it to development without investigating the test automation code

Answer: A**Explanation:**

The correct answer identifies the core factors that typically cause intermittent test failures in automation. These include improper wait strategies (timing), unstable test environments, test data pollution (one test affecting another), and non-deterministic test execution order. Root cause analysis should focus on the automation solution's quality and its interaction with the SUT before concluding that either the application or automation approach is fundamentally flawed.

Why other options are incorrect:

- Option B: The contrast between manual and automated test results suggests an automation quality issue, not a manual tester competency issue.
- Option C: Replacing tests without understanding the root cause perpetuates the same problems in new tests.
- Option D: Intermittent failures in automation are common during pilot phases and are often solvable through proper investigation and remediation.
- Option E: If manual tests pass, the application is likely functioning correctly; the issue typically lies in the automation or test environment.

Question 4**SINGLE CHOICE**

Your organization is implementing test automation for a legacy enterprise system that was not originally designed with testability in mind. The application has deeply nested UI controls, limited logging capabilities, business logic tightly coupled to the presentation layer, and no documented APIs for test data setup. You are tasked with preparing the test automation solution.

Which of the following represent key challenges related to system observability and controllability in this scenario, and what strategies could help address them?

- A. Limited observability due to poor logging makes it hard to understand test failures, and tight coupling reduces controllability; strategies include adding test hooks to the application, implementing comprehensive logging, creating test APIs for data setup, and using OS-level monitoring
- B. The legacy system is too old to automate; you should only perform manual testing
- C. Since there are no APIs, you must automate through the UI layer only, which is always sufficient for any application
- D. Work with development to rewrite the entire application before attempting any automation
- E. Observability and controllability are not relevant factors for legacy system automation

Answer: A**Explanation:**

The correct answer acknowledges that legacy systems present real challenges around observability (ability to see internal state) and controllability (ability to manipulate state). However, these challenges can be mitigated through practical strategies: test hooks, enhanced logging, test-specific APIs, and additional monitoring tools. This reflects the ISTQB Advanced Level perspective that focuses on designing systems and solutions for testability.

Why other options are incorrect:

- Option B: Legacy systems can be effectively automated despite their age, though they may require additional preparation and creative solutions.
- Option C: While UI automation is possible, relying solely on the UI for a tightly-coupled system leads to brittle, slow, hard-to-maintain tests.
- Option D: Complete rewrites are often impractical; test automation can work effectively with legacy systems through proper preparation.
- Option E: Observability and controllability are fundamental concepts in test automation design and directly impact automation success.

Question 5

SINGLE CHOICE

After six months of automation execution, your test automation metrics show high pass rates, good coverage, and fast execution. However, stakeholders are receiving generic automation reports that simply list passed/failed counts without business context. Additionally, maintenance costs have increased significantly due to brittle tests, and you're struggling to communicate automation ROI to leadership. You've been asked to improve your test automation reporting and metrics strategy.

Which of the following metrics and reporting approaches would provide better insight and business value?

- A. Calculate defect detection effectiveness (defects found by automation vs. total defects), trend test execution time over releases, track test maintenance effort, and create dashboards that map automation results to business risks and features rather than just pass/fail counts
- B. Increase the number of test cases executed daily to demonstrate automation value
- C. Report only the total number of tests passed each week to show consistent execution
- D. Track only the percentage of tests that are automated versus manual, regardless of their effectiveness
- E. Measure automation success solely by how much it reduces manual testing effort without considering defect detection

Answer: A**Explanation:**

The correct answer reflects advanced-level metrics strategy that goes beyond vanity metrics. It focuses on actionable metrics (defect detection effectiveness, maintenance trends) and business-aligned reporting (feature/risk-based dashboards) that demonstrate real value and enable informed decision-making. This approach helps stakeholders understand not just that tests run, but what they detect and how sustainable the automation is.

Why other options are incorrect:

- Option B: Simply running more tests does not improve value if tests are brittle or redundant; quality matters more than quantity.
- Option C: Pass/fail counts alone provide no insight into defect detection, risk coverage, or automation effectiveness.
- Option D: Automation percentage is a process metric, not an outcome metric; it doesn't reveal whether automation is finding problems or preventing regressions.
- Option E: Effort reduction is only one dimension; if automation misses defects, it actually increases risk and total cost.

End of Practice Questions

You have completed the demo question set for ISQI CTAL-TAE: ISTQB
Certified Tester Advanced Level, Test Automation Engineering.

Summary Checklist:

- SUT Architecture Alignment & Tool Selection
- Layered Test Automation Architecture & Cross-Platform Design
- Root Cause Analysis for Intermittent Test Failures
- Observability & Controllability Strategies for Legacy Systems
- Business-Aligned Metrics & Defect Detection Effectiveness

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