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Exam Code: CT-PT

Exam Name: ISTQB Certified Tester - Performance Testing

Exam A

QUESTION 1
Which of the following performance script types measures network response times?

A. GUI scripts
B. API scripts
C. HTTP scripts
D. Protocol-level scripts

Correct Answer: D
Section:
Explanation:
Protocol-level scripts measure the actual response times of network requests, making them ideal for analyzing network latency, bandwidth issues, and server response times.
Option A (GUI scripts) measure user interactions, not network timing.
Option B (API scripts) measure API interactions but do not provide detailed network response time analysis.
Option C (HTTP scripts) measure web requests but lack low-level network insights.

QUESTION 2
What is the primary purpose of a load generator?

A. Create a steady and consistent background load on the system
B. Simulate user behavior in accordance with the defined operational profile
C. Record and analyze the behavior of the system as it is executing the prescribed tests
D. Support root cause analysis when performance degradation is encountered

Correct Answer: B
Section:
Explanation:
A load generator is responsible for simulating virtual users and applying workloads to a system as defined by an operational profile. This allows testers to analyze how the system behaves under different load conditions.
Option A (Background load) is incorrect because load generators create simulated user interactions, not just background noise.
Option C (Record and analyze behavior) is the role of monitoring tools, not a load generator.
Option D (Support root cause analysis) is incorrect because root cause analysis is done after the load test, using monitoring tools.

QUESTION 3
You are managing the testing efforts of an existing distributed system that manages inventories of automobile and light truck tires from multiple warehouses across the country. The system is being enhanced to track incoming restocking shipments at the point of entry to the warehouse and outbound sales shipments at the point of shipment from the warehouse, all of which are executed in real-time. System loads traditionally peak on Mondays due to built-up demand from the previous weekend.
You are constructing an operational profile that emulates entities that submit large, bulk orders of greater than or equal to 1600 tires per transaction. You feel the profile you are constructing accurately reflects this type of power purchaser.
Which of the following steps must you take to ensure your operational profile is accurate?

A. Execute the performance test with the operational profile and adjust the parameters as needed.
B. Review and adjust the profile with key stakeholders prior to using it.
C. Aggregate the specific operational profiles into a single generic profile and use that generic profile for load testing.

D. Based on the power purchaser information, create operational profiles for low and medium purchasers and use equal proportions of those profiles during the testing.

Correct Answer: B
Section:
Explanation:
To ensure an accurate operational profile, it is crucial to validate and adjust it with key stakeholders before executing tests. This step ensures that the workload realistically represents actual user behavior.
Option A (Executing the test first and adjusting later) is incorrect because adjustments should be made before execution to avoid misleading results.
Option C (Aggregating profiles into a single generic profile) removes important distinctions between different user types, reducing test accuracy.
Option D (Creating separate profiles and using equal proportions) does not match the actual power purchaser behavior, which requires a realistic representation of their higher-volume transactions.

QUESTION 4
What is typically the result of oversaturation of system resources during performance testing?

A. Response time will gradually improve over a period of time.
B. Response time will be slow under significant load levels.
C. Error logging will decrease.
D. The size of the database will gradually decrease.

Correct Answer: B
Section:
Explanation:
When system resources are oversaturated (e.g., CPU, RAM, or network bandwidth), response times will degrade because the system struggles to process requests efficiently. This is a key performance bottleneck indicator.
Option A is incorrect because response times do not improve under heavy load; they typically worsen.
Option C is incorrect because error logging may actually increase rather than decrease under stress.
Option D is incorrect because database size is independent of system saturation unless records are actively purged.

QUESTION 5
What should be captured for batch processing performance metrics?

A. Throughput and wait times
B. Number of records deleted
C. Average percentage of network latency
D. Number of concurrent virtual users

Correct Answer: A
Section:
Explanation:
For batch processing performance metrics, the two most important factors are:
Throughput -- Measures the number of transactions processed over time.
Wait times -- Evaluates delays in processing batches.
Option B (Number of records deleted) is irrelevant unless batch processing specifically involves deletions.
Option C (Network latency percentage) applies to real-time transaction processing, not batch jobs.
Option D (Concurrent virtual users) applies more to load testing rather than batch performance.

QUESTION 6
What is an advantage of aggregating the results of performance testing?

A. Aggregated results provide more detail and allow for a more complete analysis of the test.

B. Testing is expedited when the results are aggregated.
C. It is easier for stakeholders to draw a correct conclusion from aggregated results.
D. Aggregated results show when testing has been completed.

Correct Answer: C
Section:
Explanation:
Aggregating test results helps stakeholders understand performance trends by combining data points from multiple test runs. This makes it easier to draw conclusions about system behavior.
Option A is incorrect because aggregation may reduce detailed visibility, not increase it.
Option B is incorrect because aggregation does not expedite testing itself.
Option D is incorrect because aggregated results do not indicate test completion.

QUESTION 7
Which of the following is an advantage of using performance monitoring tools?

A. They can prevent malicious behavior.
B. They proactively compile metrics from server logs.
C. They more easily identify and report multi-threading problems.
D. They can proactively detect denial-of-service (DoS) attacks.

Correct Answer: B
Section:
Explanation:
Performance monitoring tools collect real-time and historical performance data, particularly from server logs, application metrics, and infrastructure monitoring. This allows testers to analyze performance trends efficiently.
Option A is incorrect because monitoring tools do not prevent malicious behavior but may detect it.
Option C is incorrect since identifying multi-threading issues is typically done through profiling tools rather than performance monitors.
Option D is incorrect as DoS attack detection falls under security testing.

QUESTION 8
Which of the following is usually identified by a performance test?

A. Resource bottlenecks
B. Suitability issues
C. Learnability concerns
D. Failure to meet accessibility requirements

Correct Answer: A
Section:
Explanation:
Performance tests primarily identify resource bottlenecks such as CPU saturation, memory leaks, network congestion, and database slowdowns.
Option B (Suitability issues) is a functional requirement concern, not a performance issue.
Option C (Learnability concerns) relates to usability testing, not performance.
Option D (Accessibility requirements) falls under compliance and usability testing, not performance testing.

QUESTION 9
Which of the following is a typical performance risk associated with mobile, browser-based, and embedded real-time architectures?

A. Slow hard disk speed

B. Misconfigured host machine
C. Unexpected loads due to API accessibility
D. Internet connectivity issues

Correct Answer: C
Section:
Explanation:
Mobile and browser-based applications often rely on APIs for data retrieval and processing. Unexpected API load can cause latency issues, bottlenecks, and system crashes.
Option A (Hard disk speed) is not a major issue in cloud-based or mobile systems.
Option B (Misconfigured host machine) affects on-premise systems, not mobile/browser-based applications.
Option D (Internet connectivity issues) is a user-side issue, not a system performance risk.

QUESTION 10
Which of the following is a typical performance risk associated with mainframe architectures?

A. Inconsistent loads when accessed via APIs
B. Slow hard disk speed
C. Misconfigured host machine
D. Lack of RAM

Correct Answer: B
Section:
Explanation:
One of the key performance risks in mainframe architectures is slow hard disk speed, which can impact transaction processing, batch jobs, and database access times.
Option A (Inconsistent loads via APIs) is more relevant to distributed or cloud architectures rather than mainframes.
Option C (Misconfigured host machine) is a configuration issue, not a typical performance risk.
Option D (Lack of RAM) is less common in mainframes, which typically use optimized memory management.

QUESTION 11
You are managing a project that is testing a system that manages a newly redesigned jet engine for heavy aircraft. Given the fact that this engine is specifically engineered to reduce noise, it is important that the software maintains enough thrust for lift for a period of 5 minutes without exceeding 87.5dB. The software must achieve this independent of other internal systems such as fuel or navigation management.
Given the risk for the ability of the aircraft to meet the noise abatement regulations while still being able to fly, when is the optimum time in the software lifecycle to apply the performance testing?

A. Preferably during each phase in the lifecycle
B. Preferably at the end of system testing
C. Preferably during system integration testing
D. Preferably at the end of unit testing

Correct Answer: A
Section:
Explanation:
Performance testing should be integrated into every phase of the software lifecycle to ensure that critical performance requirements (such as thrust-to-noise ratio) are met early and continuously validated.
Option B (End of system testing) is too late, as issues may be costly to fix at that stage.
Option C (During system integration testing) is useful but not comprehensive enough.
Option D (At the end of unit testing) is incorrect because unit tests do not assess overall system performance.

QUESTION 12
Which of the following is considered a common web service protocol?

A. SOAK
B. REST
C. HTTP
D. RTE

Correct Answer: B
Section:
Explanation:
REST (Representational State Transfer) is a widely used web service protocol that enables client-server communication over HTTP. It is commonly used in modern APIs and web applications for performance testing.
Option A (SOAK) refers to soak testing, which evaluates performance over an extended period.
Option C (HTTP) is a transport protocol, but REST is the actual web service architecture built on HTTP.
Option D (RTE) is not a web service protocol but may refer to Real-Time Enterprise systems.

QUESTION 13
Which of the following is considered a common database protocol?

A. ODBC
B. JUNIT
C. SMP
D. MMS

Correct Answer: A
Section:
Explanation:
ODBC (Open Database Connectivity) is a standard database protocol that enables applications to connect to and interact with databases regardless of vendor specifications.
Option B (JUNIT) is a unit testing framework, not a database protocol.
Option C (SMP - Symmetric Multiprocessing) relates to CPU architecture, not databases.
Option D (MMS - Multimedia Messaging Service) is related to mobile messaging, not database communication.

QUESTION 14
Which of the following can provide measurements for both individual and aggregated elements within a single performance test?

A. Aggregated metrics
B. Process optimization tracking
C. Measuring underlying transactions
D. Nested transactions

Correct Answer: D
Section:
Explanation:
Nested transactions allow performance tests to capture both individual and aggregated elements by grouping multiple related transactions and measuring their cumulative impact.
Option A (Aggregated metrics) provides summaries but lacks insight into individual elements.
Option B (Process optimization tracking) focuses on business process improvement, not test metrics.
Option C (Measuring underlying transactions) focuses only on individual transactions.

QUESTION 15
During performance testing, in addition to the transaction response time, which of the following is needed to accurately reflect the total time to complete a transaction?

A. Think time
B. Wait time
C. Action time
D. User time

Correct Answer: B
Section:
Explanation:
Wait time is the period a transaction spends waiting for resources, database responses, or external services before completing. It is critical for understanding real-world transaction durations.
Option A (Think time) refers to user delays, not system delays.
Option C (Action time) focuses on execution time only.
Option D (User time) is not a standard performance metric.

QUESTION 16
At what point during performance testing does monitoring with the load testing tool begin?

A. When testing is concluded.
B. Before testing execution.
C. Immediately after test execution.
D. Simultaneously with test execution.

Correct Answer: D
Section:
Explanation:
Performance monitoring must begin simultaneously with test execution to capture system behavior in real-time. This ensures that bottlenecks and performance issues are identified immediately.
Option A (After testing is concluded) is incorrect because historical monitoring does not help in real-time analysis.
Option B (Before execution) is incorrect because monitoring needs active system load to measure performance.
Option C (Immediately after execution) is incorrect because it misses runtime metrics.

QUESTION 17
Which of the following is a key challenge when testing applications in a cloud environment?

A. Limited ability to control test execution timing
B. Inability to generate significant load
C. Lack of user behavior simulation tools
D. Test execution speed being too high

Correct Answer: A
Section:
Explanation:
One of the biggest challenges of cloud-based performance testing is the lack of control over test execution timing due to shared cloud resources. Cloud environments dynamically allocate computing power, meaning that test execution may vary due to background processes, VM migrations, or auto-scaling events.
Option B (Inability to generate load) is incorrect because cloud platforms can scale up resources to generate high loads.
Option C (Lack of behavior simulation tools) is incorrect because cloud providers offer robust testing tools.
Option D (Test execution speed being too high) is not a valid performance testing challenge.

QUESTION 18

Which of the following is a major contributor to unreliable performance projections?

A. Redundancy between the test and production environments
B. Disagreement between the technical and business stakeholders during analysis
C. Differences in the hardware between the test and production environments
D. Business stakeholders setting unrealistic performance goals

Correct Answer: C
Section:
Explanation:
One of the biggest contributors to unreliable performance projections is differences between the test and production environments. If test environments do not match CPU, memory, network configurations, and database setups in production, the results may not be representative of real-world performance.
Option A (Redundancy between test and production environments) is not a problem; it's actually beneficial for reliability.
Option B (Disagreement between stakeholders) can affect planning but does not cause unreliable projections.
Option D (Unrealistic stakeholder goals) affects expectations but not the accuracy of projections.

QUESTION 19
Which of the following is the most economical solution to minimize costs and time for performance testing for a high-end production client-server platform?

A. Isolated lab environment
B. Cloud-based environment
C. Mainframe environment
D. No environment

Correct Answer: B
Section:
Explanation:
A cloud-based environment is the most cost-effective solution for performance testing. It offers scalability, pay-per-use models, and flexibility, allowing testers to simulate large workloads without expensive infrastructure investments.
Option A (Isolated lab environment) is costly due to hardware maintenance and infrastructure costs.
Option C (Mainframe environment) is expensive and impractical for performance testing.
Option D (No environment) is not a viable option.

QUESTION 20
You are heading the testing effort for a system that manages the air/fuel ratio of direct-injection fuel devices built specifically for high-altitude rescue helicopter engines. At altitude, the system must be able to perform in order to make enough air/fuel ratio adjustments per millisecond between fuel and both an on-board source and available ambient air in order to prevent an engine stall due to oxygen starvation. The system is following a sequential development lifecycle.
For this safety-critical software, when is the appropriate point in the lifecycle to identify and define the performance goals?

A. After test readiness has been achieved, but before system testing starts
B. During the requirements phase when the business stakeholders have the opportunity to agree
C. At the very beginning of the project during the concept stage
D. During the software design phase when the requirements are set and the design is being defined

Correct Answer: B
Section:
Explanation:
For safety-critical software, performance goals must be identified as early as the requirements phase. This ensures that performance constraints are well understood and accounted for throughout development.

Option A (After test readiness but before system testing) is too late, as requirements should be defined before coding begins.
Option C (During the concept stage) is too early, as details may not be concrete.
Option D (During software design) is useful but should be preceded by a proper definition during the requirements phase.

QUESTION 21
Stakeholders were unhappy with previous performance test results, which indicated that the adjustments were not made fast enough and engine stall was probable. The developers have now made changes that they believe will significantly improve the performance of the adjustments.
What should you do to ensure the performance test objectives have been properly defined before you run the next set of performance tests?

A. Understand the delta between the results from previous performance tests and the results from the expected performance improvements.
B. Adjust stakeholder expectations to be more aligned with the reality of the previous test results.
C. Realign performance test objectives with business stakeholders to meet project milestone dates.
D. Realign performance test objectives with all stakeholders to meet time-to-market goals.

Correct Answer: A
Section:
Explanation:
Before running the next set of performance tests, it is crucial to understand the differences (delta) between the previous test results and the expected improvements. This ensures that:
The changes made by developers are properly validated.
Performance objectives are aligned with measurable improvements.
Option B (Adjust stakeholder expectations) is incorrect, as performance testing should focus on real data rather than adjusting expectations.
Option C and D (Realign objectives for milestones or time-to-market goals) are incorrect because test objectives should focus on technical accuracy rather than schedule constraints.

QUESTION 22
Which of the following should be a key part of your test acceptance criteria in your performance test plan?

A. Convincing technical and business stakeholders to provide realistic performance goals for the regional servers
B. Describing the system under test in order to provide context to the metrics
C. Highlighting any technical differences in the hardware between the test environment and the production environment
D. Documenting previously baselined performance metrics in order to compare these to the new performance measurements

Correct Answer: C
Section:
Explanation:
One of the most critical test acceptance criteria in performance testing is to ensure that the hardware in the test environment is comparable to production. Differences in CPU, memory, disk I/O, or network infrastructure can distort performance results.
Option A (Convincing stakeholders to set goals) is a planning activity, not an acceptance criterion.
Option B (Describing the system under test) is important but does not directly affect test acceptance.
Option D (Comparing baselined metrics) is useful, but without a comparable test environment, baseline metrics may be misleading.

QUESTION 23
You are managing the testing efforts of an existing distributed system that manages inventories of automobile and light truck tires from multiple warehouses across the country. The system is being enhanced to track incoming restocking shipments at the point of entry to the warehouse and outbound sales shipments at the point of shipment from the warehouse, all of which are executed in real-time. System loads traditionally peak on Mondays due to built-up demand from the previous weekend.
You are preparing a presentation to the business stakeholders, outlining your performance testing strategy.
Which of the following is appropriate to present to this audience?

A. Established HTTP response per second goals that will have acceptable minimum, maximum, and average response times

B. A test plan that includes specific technical specifications for the computing hardware to be used for performance testing
C. A comprehensive list of support staff to be available during performance testing, including key members of the application development team
D. The risks that may exist due to platform differences between the test environment and the production environment

Correct Answer: D
Section:
Explanation:
Business stakeholders are most concerned with risks that affect deployment and production stability. The primary risk in performance testing is that the test environment may differ from production, leading to misleading test results.
Option A (HTTP response goals) is too technical for a business stakeholder audience.
Option B (Hardware specifications) is relevant for technical teams, not business stakeholders.
Option C (Support staff details) is a logistical aspect, not a key performance testing risk for business decision-makers.