

Sample Exam 1

ISTQB Performance Testing

Questions

ASTQB Created - 2019

American Software Testing Qualifications Board



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This exam should be completed in 60 minutes.

Question #1 (1pt)

Which of the following is an important principle of performance testing regarding results?

- a. The results must be identical to those returned when the same tests are run in the production environment
- b. The results must prove that the system meets or exceeds user expectations
- c. The results must be in a form that allows comparison to the expectations of the users
- d. The results must be reported via a dashboard for use by executive management

Question #2 (1 pt)

How does load testing differ from stress testing?

- a. Load testing concentrates on the highest expected load while stress testing concentrates on maintaining a high load for a period of time
- b. Load testing concentrates on quick increases and decreases of load while stress testing concentrates on maintaining a high load for a period of time
- c. Load testing and stress testing are actually the same thing
- d. Load testing concentrate on increasing levels of realistic load while stress testing focuses on loads that are at or beyond the expected peak load

Question #3 (1 pt)

If performance testing is being conducted to determine that a system under load can increase its capacity as more memory is allocated to it, what type of testing is being conducted?

- a. Load testing
- b. Stress testing
- c. Scalability testing
- d. Spike testing

Question #4 (1 pt)

Which of the following is an important static activity in performance testing?

- a. Reviewing outstanding usability defect reports
- b. Reviewing the system architecture
- c. Reviewing the security requirements for the system
- d. Reviewing the functional requirements

Question #5 (1 pt)

Why is a stable user interface important when the load will be generated from that interface?

- a. Because changes to the interface may necessitate changes in the performance scripts
- b. Because defects in the interface will cause performance degradation
- c. Because the APIs used by the interface will have to be changed
- d. Because the full user experience cannot be determined until the interface is stable

Question #6 (1 pt)

What is a likely cause of a system responding slowly only under a heavy load?

- a. A network latency issue that should have been visible during functional testing
- b. A slow memory leak
- c. A lack of indexing on a database table
- d. A saturation or exhaustion of a system resource

Question #7 (1 pt)

If you are measuring the time it takes for a system to be restored from a backup, what type of environment are you considering?

- a. Technical
- b. Business
- c. Operational
- d. Virtual

Question #8 (1 pt)

Which of the following is an advantage to aggregating test results?

- a. It's easier to see the overall performance of a system
- b. It's easier to see the specific performance of a specific test
- c. It's easier to understand the length and frequency of any slow periods
- d. It's easier to capture the ramp-up and ramp-down time anomalies

Question #9 (1 pt)

During or after a performance test, what type of information should you check for in the server logs?

- a. Number of concurrent users on the system at a particular point in time
- b. A graph of the system performance during the test
- c. Defects that were reported during the testing
- d. Memory errors and database errors that occurred during the test

Question #10 (1 pt)

If you are testing to understand how many users can use a site at the same time, what test result is particularly interesting to you?

- a. Throughput of data
- b. Business process efficiency
- c. Concurrency of usage
- d. Timing of usage

Question #11 (1 pt)

Why are good test monitoring and control measures so important in performance testing?

- a. Because testing can lag behind schedule and more testers may be required to complete the work
- b. Because environment changes can invalidate test results so being aware of these changes is critical
- c. Because it is difficult to define the performance requirements in a measurable way
- d. Because test design often requires building modular tests that can later be combined into larger suites for execution

Question #12 (1 pt)

How often should performance testing be conducted?

- a. Once, after system testing has been completed
- b. Multiple times, after system testing has been completed
- c. Twice for each test level
- d. Multiple times, at all test levels

Question #13 (1pt)

Which of the following is the most likely performance risk for a distributed system?

- a. Problems with critical workflows or dataflows to or from remote servers
- b. Problems with excessive load on the hardware due to improper configuration of the host virtual machine
- c. Problems with network connection at the client connection point
- d. Problems with new traffic via APIs that overload established applications

Question #14 (1 pt)

Which of the following is the most likely performance risk for a client-server system?

- a. Problems with critical workflows or dataflows to or from remote servers
- b. Problems with excessive load on the hardware due to improper configuration of the host virtual machine
- c. Problems with network connection at the client connection point
- d. Problems with new traffic via APIs that overload established applications

Question #15 (1 pt)

Which of the following is the most likely performance risk for a virtualized system?

- a. Problems with critical workflows or dataflows to or from remote servers
- b. Problems with excessive load on the hardware due to improper configuration of the host virtual machine
- c. Problems with network connection at the client connection point
- d. Problems with new traffic via APIs that overload established applications

Question #16 (1 pt)

Base Scenario:

You are working for a company that has developed software that will be used in the Olympic skiing events to track and post times. This software will take data from various sensors to determine start and finish times for each individual racer as they race one at a time. It will also allow judges to enter a disqualification status for an individual skier at any time during their run and within 5 minutes of the end of their run. The information will be sent through an API to software that will control the display board at the event and to the interface used by the broadcast communities.

Your company has also developed a mobile application that will be available for free download to anyone in the world who wants to receive “real time” results from the events. Testing for the mobile application will be done in the cloud using device simulators.

The technical stakeholders on the project are available for a one-day performance risk analysis session. Of the risks in this product, which one is best analyzed by these stakeholders?

- a. The time that will be required to get the information from the sensors into the application
- b. The time that will be required to communicate through the API to the display board
- c. The time that will be required for a judge to enter a disqualification status
- d. The time that will be required for the data to be available on the mobile applications

Question #17 (1 pt)

Refer to Base Scenario

You have determined that testing the mobile application will require an expensive cloud resource that will supply simulated and real devices. Setting this up will not be a major effort, but you will be billed for each minute of use as well as for each device (simulated or real) that is used.

Your development lifecycle methodology is agile.

Given this information, what is the best time to conduct the full performance test for the mobile application?

- a. As part of CI/CD, for each build
- b. As part of each iteration, toward the end of the iteration
- c. As part of a separate iteration which will occur when the software is functionally stable
- d. As part of the final release testing, after the regression testing has been successfully completed

Question #18 (1 pt)

Refer to Base Scenario

The expected data to be viewed on the mobile devices is:

- Results that are automatically displayed when each racer completes their run
- Final results that are automatically displayed when the race is completed
- Summary of all racers that were disqualified
- Ranking board showing the top five racers – updated when each racer completes their run

The acceptable time (90% of the transactions) for the automatic results to be received is 3 seconds. For information that is queried (summary and ranking board), the acceptable response time (for 90% of the transactions) is 5 seconds.

What additional information do you need to derive the performance test objectives?

- a. A description of the devices that will be used
- b. A description of the handling that will occur when connectivity is lost
- c. A list of the system resources that should be tracked and the expected usage of those resources
- d. A list of all other applications that are expected to be running on the target devices throughout the tests

Question #19 (1 pt)

Refer to Base Scenario

You have been asked to prepare a performance test plan. Given the project information that has been supplied, what type of performance testing will be the most important for this project?

- a. Spike testing
- b. Stress testing
- c. Endurance testing
- d. Scalability testing

Question #20 (1 pt)

Refer to Base Scenario

You have run one cycle of performance tests. You have accumulated the following metrics:

Virtual users = 100,000

Virtual users successfully completing all transactions = 97%

Transaction time for results that are automatically displayed when each racer completes their run

Average = 2 seconds, 90% = 3 seconds, 95% = 5 seconds

Transaction time for final results that are automatically displayed when the race is completed
Average = 1 second, 90% = 3 seconds, 95% = 4 seconds

Transaction time for summary of all racers that were disqualified
Average = 6 seconds, 90% = 7 seconds, 95% = 8 seconds

Transaction time for ranking board showing the top five racers
Average = 4 seconds, 90% = 5 seconds, 95% = 9 seconds

The acceptable time (90% of the transactions) for the automatic results to be received is 3 seconds.
For information that is queried (summary and ranking board), the acceptable response time (for 90% of the transactions) is 5 seconds.

For this information, you have created the following report:

Transaction Time	Results
Individual run completion	Met
Race completion	Met
Disqualifications	Too slow
Ranking board	Met

For which stakeholder group would this report be most appropriate?

- a. Stakeholders with a business focus
- b. Stakeholders with a technology focus
- c. Future product users
- d. Competitors

Question #21 (1 pt)

Considering the previous scenario and disregarding the performance times, what information would be most interesting to the technical stakeholders?

- a. How the virtual users were created
- b. The ramp-up and ramp-down times needed for all users
- c. What caused 3% of the transactions to fail to complete
- d. Which environment was used for the tests

Question #22 (1 pt)

In the OSI model layers, which layers are most commonly accessed for performance testing?

- a. Layers 1 – 3
- b. Layers 3 – 5
- c. Layers 5 – 7
- d. Layers 7 – 9

Question #23 (1 pt)

If you are conducting performance testing with particular emphasis on database access, which protocol are you likely using for the testing?

- a. HTTP
- b. ODBC
- c. REST
- d. HTML

Question #24 (1 pt)

Refer to Base Scenario

Which of the following is an example of a transaction?

- a. Requesting a current ranking list
- b. Receiving and viewing an individual skier's results
- c. Entering a disqualification request
- d. Printing the final ranking from a particular race

Question #25 (1 pt)

Why is it important to include think time when creating performance test scripts?

- a. Because the system needs time to ramp-up and ramp-down
- b. Because users tend to pause during transactions to read screens, absorb information or navigate
- c. Because performance testers must carefully include every step a user will follow, requiring them to "think" as they script
- d. Because systems cannot keep up with transactions that are received from multiple scripts

Question #26 (1 pt)

Refer to Base Scenario

You have identified three operational profiles for the product:

1. The mobile user who checks the results for every race on their phone
2. The judge who enters disqualification status information during and immediately after a race
3. The broadcast companies who access the data through the API

What operational profile are you missing?

- a. The skier
- b. The audience who is viewing the display board with the scores
- c. The display board itself
- d. Mobile users who are at the race and are checking the results for every race on their phone

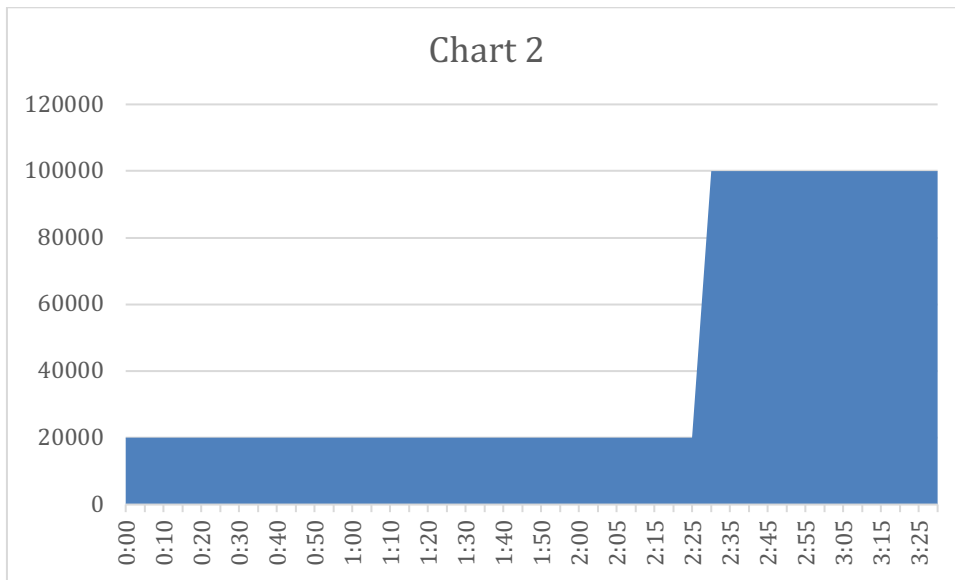
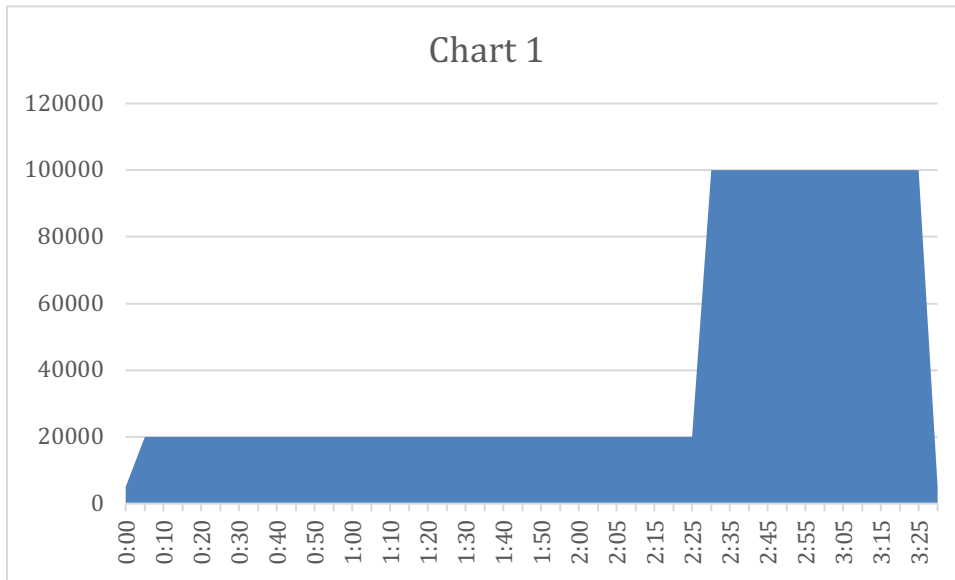
Question #27 (1 pt)

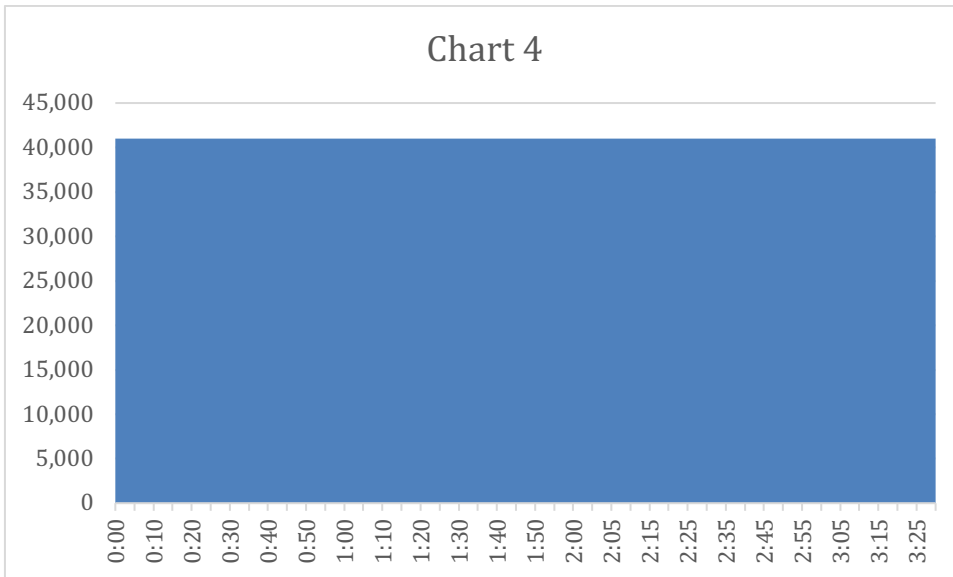
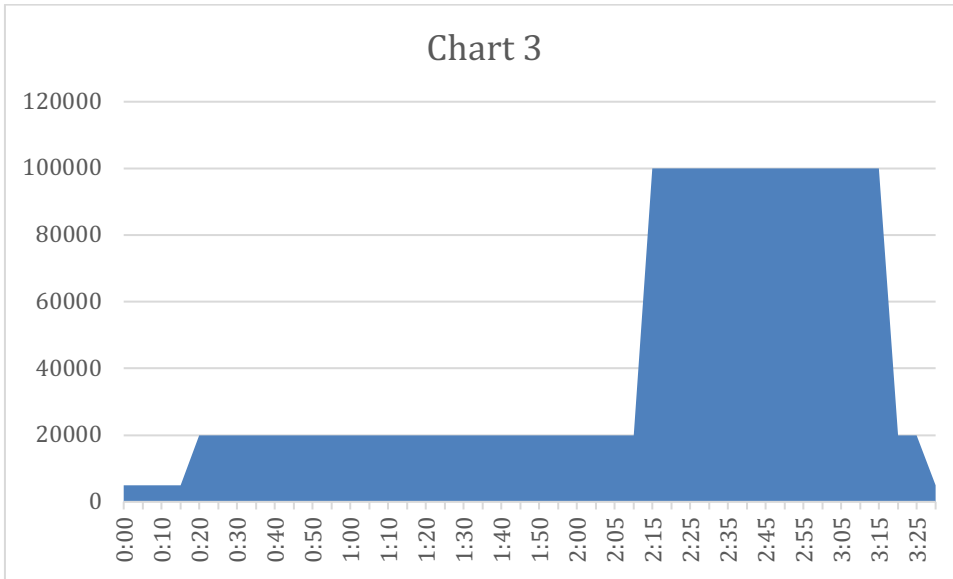
Refer to Base Scenario

You have identified that you expect to have a load of 100,000 users for a high interest race and 20,000 users for a low-interest race. There are 5,000 users who seem to always be connected, even when nothing is happening.

High-interest races are the semi-finals and finals for any particular contest. A race normally lasts for 5 minutes and there are usually 8 racers in the semi-finals and 4 racers in the finals. A low-interest race is any of the first 30 races that lead to determining who will be in the semi-finals.

Which of the following is a correct diagram of the proper load profile for one contest (the x axis shows hh:mm and the y axis shows number of users)?





- a. Chart 1
- b. Chart 2
- c. Chart 3
- d. Chart 4

Question #28 (1 pt)

In the scenario above, for a given contest with 30 racers, what is the expected throughput for the automatic results display for one phone?

- a. 30
- b. 43

- c. 20,000
- d. 100,000

Question #29 (1 pt)

Why is it important to have a clean-up section in a performance test script?

- a. To ensure that data is collected for response time reporting
- b. To ensure any errors are recorded and data issues are resolved
- c. To ensure the system is reset to a point that the script can be run again
- d. To ensure the operator is informed that the test has been completed

Question #30 (1 pt)

Which of the following is a good practice when adding verification logic to a script?

- a. Try to add data that has already been added
- b. Try to delete data that has already been deleted
- c. Verify that the transactions have completed by querying the database to see if the data was changed correctly
- d. Verify that no errors have been recorded by the script and that no errors have been recorded in the system logs

Question #31 (1 pt)

Refer to Base Scenario

You have identified that you expect to have a load of 100,000 users for a high interest race and 20,000 users for a low-interest race. There are 5,000 users who seem to always be connected, even when nothing is happening.

You have been looking at purchasing a load testing tool, but you have found that licenses for virtual users are very expensive. What is the minimum number of virtual users you will need to conduct a load test for this application?

- a. 5,000 since that is the base load
- b. 10,000 and extrapolate the results to 100,000
- c. 20,000 with all think time removed
- d. 100,000 each creating the expected throughput

Question #32 (1 pt)

Refer to Base Scenario

The judges must log in with a username and password before they are allowed to enter any disqualifications. A judge normally logs in once for a race and may enter several disqualifications during

that race. How will correlation be needed when creating the performance scripts for the judges' interactions?

- a. It will be needed to ensure the judge's session information is recorded with their disqualification entries
- b. It will be needed to ensure the disqualification is recorded against the correct skier
- c. It will be needed to time a disqualification correctly during the race to ensure it is within the 5-minute time limit
- d. It will be needed to ensure the results correctly record the judge's information

Question #33 (1 pt)

What is the best environment to use for performance testing?

- a. The production environment
- b. A complete replica of the production environment
- c. The sandbox environment
- d. The development environment

Question #34 (1 pt)

When would it be appropriate to use service virtualization?

- a. When a web service resides in a virtual machine
- b. When the cloud is being used for testing
- c. When the performance testing tool is a SaaS
- d. When the service to be used is not available

Question #35 (1 pt)

What should be done immediately after the ramp-up is completed for a performance test?

- a. Start the step-up load of virtual users
- b. Initiate the ramp-down
- c. Wait until the system has reached a steady state, then start the step-up
- d. Bring on the full load of virtual users

Question #36 (1 pt)

Should manual tests be run during performance testing?

- a. Yes, this will help to verify that the performance being recorded by the tool is accurate
- b. Yes, this will help verify that there are no functional issues occurring
- c. No, this is likely to interfere with the metrics being gathered by the performance testing tools
- d. No, this can give a false impression to the users regarding the performance they will experience with the released product

Question #37 (1 pt)

Refer to Base Scenario

You have run one cycle of performance tests. You have accumulated the following metrics:

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Average = 6 seconds, 90% = 7 seconds, 95% = 8 seconds

Transaction time for ranking board showing the top five racers

Average = 4 seconds, 90% = 5 seconds, 95% = 9 seconds

The acceptable time (for 90% of the transactions) for the automatic results to be received is 3 seconds. For information that is queried (summary and ranking board), the acceptable response time (for 90% of the transactions) is 5 seconds.

Given this information, which scenarios will require system tuning and further testing?

- a. All of them because these results are for only one run
- b. The automatic displays because their 95% numbers are too slow
- c. The summary of disqualifications because all times are too slow
- d. The ranking board because this is a time critical part of the system and the 95% numbers are too slow

Question #38 (1 pt)

What is the basis for the scripts executed by a load generator to simulate user behavior?

- a. The expected number of virtual users
- b. The defined operational profiles
- c. The defined load profiles
- d. The expected system response time

Question #39 (1 pt)

What is a function of the load management console of a performance testing tool?

- a. To manage the activities of the virtual users
- b. To provide raw data for executive management
- c. To start and stop the tests
- d. To handle error recovery for a test script

Question #40 (1 pt)

Refer to Base Scenario

Is it suitable to use simulators in the cloud for all performance testing?

- a. Yes, simulators will be cost effective and accurate enough for this testing
- b. No, emulators will be needed for all transactions to ensure the information is displayed correctly
- c. No, cloud simulators can be used for the phone testing, but emulators or the real device will be needed to test the communication with the display board
- d. No, testing should be conducted on real devices to verify the usability as well as the performance