Swedish Software Testing Board (SSTB)
International Software Testing Qualifications Board (ISTQB)

Performance Testing Certificate in Software Testing Version 2018

Examination Questions 2021-05-17

Time allowed: 1:30
(For non-native English speakers 1:53)

There are 40 questions, each question 1 point
You need 26 points or more to pass

You have to follow directives given to you by the invigilator during the whole exam

Mark your answers in the provided answer sheet. Try to answer all 40 questions. Select one option per question if nothing else indicated. Erase any answer you decide to change and mark your new chosen answer clearly.

You are not allowed to keep the questionnaire, other documents or notes. All papers must be handed back to the invigilator at the end of the exam.

9999

1.	**Which of the following performance testing activities should occur during unit testing?**
	a) Testing key use cases and workflows using a top-down approach
	b) Testing data flows and workflows across interfaces
	c) Testing end-to-end behavior under various load conditions
	d) Testing to evaluate resource utilization and potential bottlenecks
	Please select exactly 1 option
2.	**You are testing a sales application for an e-commerce system.** You are particularly interested in the response time for when a user enters text to be used to search for an item in the database. You have noticed that the first time you ran the tests it took 5.00 seconds to respond, but subsequent queries with the same data are responding in 0.01 seconds. What should you have done during your scripting to prevent this issue?
	a) You need to be sure the cache is cleared because the query results are probably being cached
	b) You need to log in each time to ensure that the transaction is performed again
	c) There is no issue, the system is just getting faster
	d) You need to use a different user for each test to avoid the user's information being re-used without being restored
	Please select exactly 1 option
3.	**What is a method for testing transient states?**
	a) Scalability testing
	b) Peak and valley testing
	c) Steady load testing
	d) Spike testing
	Please select exactly 1 option
4.	**Which of the following is an important principle in performance testing?**
	a) The test results should match the stakeholders' expectations for system performance
	b) The tests should be easy to create and understand
	c) The test results must be reproducible when the system under test is unchanged
	d) The tests should be executed in the production environment to provide the most accurate results
	Please select exactly 1 option

5.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	You have been asked to prepare a presentation for the technical stakeholders regarding your plan for performance testing. Which of the following is an example set of information that should be shared with these stakeholders?
	a) Because the cost of a performance test system is prohibitive, we will conduct the performance testing in the production environment using live data.
	b) The performance test system will cost $240,000 which will include the hardware and setup. This system will allow us to create a test system that is representative of the production system and will allow us to simulate production-like conditions.
	c) Once configured, the performance test system will require data loading. Once loaded, we will next proceed to running a small set of sample scripts to verify the output. When those succeed, we will proceed with the performance test script which ramps up users at a rate of 10 per minute until we reach the target number of concurrent users. This load will then be maintained for 2 hours.
	d) The product risks include data contention issues, data access issues, locking issues that will reject concurrent requests, network bandwidth constraints, data seek errors, data seek slowdowns or bottlenecks, and difficulty for the user in processing the returned data.
	Please select exactly 1 option
6.	**When applying the principal performance testing activities, when should the test cases be ordered into performance test procedures?**
	a) Test analysis and design
	b) Test closure
	c) Test implementation and execution
	d) Test planning
	Please select exactly 1 option

7.	**Which of the following is a failure that would typically be found by conducting a spike test?**
	a) The system performs well for the expected load, but cannot scale to a larger load
	b) The system performance gradually degrades
	c) The system provides inconsistent responses to errors
	d) The system handles a sudden burst of activity, but cannot resume a steady state
	Please select exactly 1 option
8.	**Consider the following technical environments:**
	1. Virtualized
	2. Dynamic/Cloud-based
	3. Client/Server and Browser-based
	4. Mobile
	5. Embedded
	6. Mainframe
	Which of these is most likely to have a performance risk due to memory leaks?
	a) 1, 3, 4, 5
	b) 1, 2, 3, 6
	c) 1, 2, 4, 6
	d) 2, 3, 4, 5
	Please select exactly 1 option
9.	**If you have an application that has a memory leak, what is the likely result you will see during performance testing?**
	a) Response time will be consistently slow
	b) Response time will be slow, but only under heavy loads
	c) Response time will degrade over time
	d) Response time will remain acceptable, but the error handling will degrade
	Please select exactly 1 option

10.	**What is the value of nesting transactions for performance testing?**

a) It allows the tester to measure a series of discrete transactions
b) It bypasses the network communication time by sending the transaction directly to the server that will process it
c) It speeds the reporting time for the performance results
d) It supports the concept of parent and child transactions

Please select exactly 1 option

11.	**You are working on a project that tracks health history information for patients across a region.**

The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.

One of the operational profiles you have identified is an emergency room doctor. You have determined that this person will access the system 10 times per shift (a shift is 10 hours) and that they will normally update 6 patient records for each access by entering notes into the database regarding the patient's treatment. They will print those patient records to be retained in the patient file at the hospital. For new patients, another user will enter the information into the system.

The shifts these doctors work are: 7am – 5pm (day shift), 2pm – midnight (evening shift), 9pm to 7am (night shift). There are 1000 doctors that work the day shift, 1000 that work the evening shift, and 500 that work the night shift.

Assuming an even distribution of the system access across a shift, what is the highest number of concurrent accesses on the system from these doctors?

a) 12 000
b) 2 000
c) 1 000
d) 6 000

Please select exactly 1 option

SSTB
Swedish Software
Testing Board

ISTQB®
Certified Tester
Foundation Level

12.	If you are testing from the UI and you need to simulate the amount of time it will take a real user to read a prompt and enter data in a field, what should you implement in your test script?
	a) Think time
	b) Latency time
	c) Wait time
	d) Reading time
	Please select exactly 1 option
13.	What is the purpose of a load generator tool?
	a) It simulates user behavior according to the operational profiles
	b) It maintains a load on the user interface to accurately mimic user response time
	c) It creates a load on the network to allow testing for collisions
	d) It feeds data to the dashboard showing how the system is responding to the load
	Please select exactly 1 option
14.	What is one of the advantages to conducting performance tests at the protocol level?
	a) It is the easiest method for manual scripting
	b) It is the best way to evaluate the total user experience
	c) It is the best way to handle data correlation
	d) It is scalable because the client is bypassed
	Please select exactly 1 option
15.	What is the best method to use for verifying that a performance test script added users to a system?
	a) Use the script to verify that the users exist in the database
	b) Manually check via an application to see if the users were created
	c) Use the script to verify through the application that the users were created
	d) Check the error output from the script to verify no errors occurred
	Please select exactly 1 option

16.	**You are working on a project that tracks health history information for patients across a region.** The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions. Given this information, when is the best time in the project to analyze and assess the performance risks? a) Repeatedly throughout the requirements, development, and performance testing b) After design but prior to coding c) During the requirements phase and again just prior to executing the performance tests d) During system testing and again prior to the performance tests Please select exactly 1 option
17.	**Consider the following technical environments:** 1. Single computer 2. Multi-tier system 3. Distributed 4. Virtualized 5. Dynamic/Cloud-based 6. Client/Server and Browser-based 7. Mobile 8. Embedded 9. Mainframe Which of these is most likely to have a performance risk due to connectivity issues? a) 5, 6, 7, 9 b) 2, 3 c) 2, 4, 5, 8 d) 7, 8 Please select exactly 1 option

SSTB
Swedish Software
Testing Board

ISTQB®
Certified Tester
Foundation Level

18.	**Should performance test results be aggregated?**
	a) No, the results should be analyzed individually so that all variations are understood
	b) Yes, this is the best way to focus on the outliers in the performance metrics
	c) No, the results from each test should be reported and tracked separately
	d) Yes, this gives a better overall picture of the performance of the system and helps to identify trends
	Please select exactly 1 option
19.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	Which of the following is a technical objective for performance that could be applicable to this project?
	a) The system must perform at or above the level of the legacy system when handling a similar load and responding to a similar request
	b) The system must be able to scale to 10 million patient records with no degradation in the performance
	c) The response time must remain the same when the disaster recovery system is in use rather than the primary system and the switchover must cause no discernable downtime
	d) The response time must be within three seconds from the time the request is sent when there are 100 concurrent users making similar requests
	Please select exactly 1 option
20.	**What is a pay-as-you-go tool?**
	a) A monitoring tool that populates the dashboard with pertinent metrics based on what you have paid to monitor
	b) A server-based tool that provides you with full ownership of the tool for your usage
	c) A tool that provides the ability to test from multiple points of presence for load generation
	d) A tool with a licensing agreement that requires you to pay only for the number of virtual users and instances that you actually use
	Please select exactly 1 option

SSTB
Swedish Software
Testing Board

ISTQB®
Certified Tester
Foundation Level

21.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	One of the operational profiles you have identified is an emergency room doctor. You have determined that this person will access the system 10 times per shift (a shift is 10 hours) and that they will normally update 6 patient records for each access by entering notes into the database regarding the patient's treatment. They will print those patient records to be retained in the patient's file at the hospital. For new patients, another user will enter the information into the system.
	The shifts these doctors work are: 7am – 5pm (day shift), 2pm – midnight (evening shift), 9pm to 7am (night shift). There are 1000 doctors that work the day shift, 1000 that work the evening shift, and 500 that work the night shift. Assuming an even distribution of the system access across a shift, which of the following is the proper load profile for these doctors?
	a) Separate tests for 120,000 transactions per hour and 30,000 transactions per hour b) 6250 transaction per hour c) Stepped ramp-up with 7 hours at 21,000 transactions, 3 hours at 27,000 transactions, 3 hours at 36,000 transactions, 11 hours at 66,000 transactions d) Steady ramp-up increasing the transactions by 15,000 per hour starting at 15,000 transactions and ending at 150,000 transactions
	Please select exactly 1 option
22.	**What happens when the performance test system is not equivalent to the production environment?**
	a) The results will be easier to understand because the system can be configured for a particular test b) Projects become more reliable because of the targeted focus and this results in risk being reduced c) The tests will tend to run more quickly because they are not burdened by production data d) Projections become less reliable, and risk increases because the results may not be representative
	Please select exactly 1 option

23.	**Which of the following is the best description of spike testing?**
	a) It focuses on the ability of the system to handle loads that are at or beyond the expected peak load
	b) It focuses on the ability of the system to meet future efficiency requirements
	c) It focuses on the ability of the system to respond to quick and extreme changes in load
	d) It focuses on the ability of the system to handle loads that are gradually increased to reach the expected maximum
	Please select exactly 1 option
24.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	You have been asked to write a performance test plan for this project. Which of the following is the information you will need to deal with the most critical performance objective?
	a) How is user access authenticated and authorized
	b) What is the expected use of the data after it has been presented to the user
	c) Who can access what data and how often will they do it
	d) Where will the data be stored and how much storage is available
	Please select exactly 1 option

25.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	What is the best way to address the performance testing for the response time?
	a) Conduct a network assessment to ensure there are no latency issues between the database server and the web servers, then test with a network scanner to ensure no collisions are occurring that might cause performance delays
	b) Test from the UI with the full data set loaded to ensure the response time will be adequate when the database is loaded
	c) Conduct a technical review of the database implementation and conduct a performance test from the UI with the full database loaded
	d) Test via the web services at the API level to ensure access to the data is fast enough without having the testing complicated by the UI
	Please select exactly 1 option

26.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	You have a technical team conducting the performance tests and they are comfortable with programming the performance test scripts for re-usability and maintainability. You are now looking for a tool to use for this testing. You have found one that is compatible with your environment and will be able to generate a load via the protocols in use. The team has looked at it and they are comfortable that they can code in the tool and will be able to create their scripts with little training.
	Because there are many stakeholders for this testing, you have verified that the tool provides excellent monitoring and reporting capabilities. You have verified with the various system administrators that they are comfortable with the tool and happy to use its monitoring capabilities in addition to their own tools during the testing.
	What do you still need to verify before selecting this tool?
	a) The ability of the tool to meet your requirements for concurrent virtual users b) The availability of a record/playback capability for your testers to use c) The project schedule d) The ease with which your team can code the required performance scripts
	Please select exactly 1 option

27.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	You have been asked to prepare a presentation for the business stakeholders regarding your plan for performance testing. Which of the following is an example set of information that should be shared with these stakeholders?
	a) Once configured, the performance test system will require data loading. Once loaded, we will next proceed to running a small set of sample scripts to verify the output. When those succeed, we will proceed with the performance test script which ramps up users at a rate of 10 per minute until we reach the target number of concurrent users. This load will then be maintained for 2 hours.
	b) The performance test system will cost $240,000 which will include the hardware and setup. This system will allow us to create a test system that is representative of the production system and will allow us to simulate production-like conditions.
	c) The product risks include data contention issues, data access issues, locking issues that will reject concurrent requests, network bandwidth constraints, data seek errors, data seek slowdowns or bottlenecks, and difficulty for the user in processing the returned data.
	d) Because the cost of a performance test system is prohibitive, we will conduct the performance testing in the production environment using live data.
	Please select exactly 1 option
28.	**If performance testing is being conducted for software that is written in C++, what do you need to monitor that wouldn't be a concern if the software was written in Python?**
	a) Network latency
	b) Memory use
	c) Batch processing
	d) Connectivity
	Please select exactly 1 option

SSTB
Swedish Software
Testing Board

ISTQB®
Certified Tester
Foundation Level

29.	**Which of the following is the best description of load testing?** a) It focuses on the ability of the system to handle loads that are at or beyond the expected peak load b) It focuses on the ability of the system to handle loads that are gradually increased to reach the expected maximum c) It focuses on the ability of the system to meet future efficiency requirements d) It focuses on the ability of the system to respond to quick and extreme changes in load Please select exactly 1 option
30.	**You are working on a project that tracks health history information for patients across a region.** The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions. You have conducted your tests and have determined the following metrics: < 3 second response time: 85% of the time < 5 second response time: 90% of the time <10 second response time: 95% of the time < 60 second response time: 100% of the time Given this information, how should you present the results to the stakeholders? a) The test failed; the system is too slow. The requirements should be reviewed to ensure that <3 seconds is required 100% of the time. b) The response time for 90% of the tests is probably acceptable, but more tuning is needed to bring down the 95% response time. c) The response time for 100% of the tests is unacceptable and tuning will be required to bring it down to <3 seconds. d) 85% of the time the performance goal is met, so the system should be accepted based on industry standards. Please select exactly 1 option

31.	If your performance test is testing the speed with which database requests are sent and received, which protocol is being used?
	a) ODBC b) REST c) HTTP d) SMTP Please select exactly 1 option
32.	Which of the following is a true statement regarding tracking metrics for network latency during a performance test?
	a) Network latency is difficult to track and should not be included in the performance metrics b) Low latency could indicate a network bandwidth problem that could negatively impact performance c) Network latency is too variable to be useful during performance tuning d) High latency could indicate a network bandwidth problem that could negatively impact performance Please select exactly 1 option
33.	If your performance test is testing the speed of the response of a web service, which protocol is being used?
	a) HTTP b) REST c) ODBC d) SMTP Please select exactly 1 option

SSTB
Swedish Software
Testing Board

ISTQB®
Certified Tester
Foundation Level

34.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	One of the operational profiles you have identified is an emergency room doctor. You have determined that this person will access the system 10 times per shift (a shift is 10 hours) and that they will normally view 6 patient records for each access. They will print those patient records to be retained in the patient file at the hospital. They will also enter notes into the database regarding the patient's treatment. For new patients, another user will enter the information into the system.
	You have created a performance script that logs in as a doctor (from a list of doctors) and then performs the patient look ups. When you run the script, the login works, but then you are not able to perform the patient look ups. You are getting an error that indicates the user is not known to the system.
	What is likely your problem?
	a) The login information from the previous user is cached by the system and you need to clear the cache before you can log in as a new user
	b) The script needs to pass the login username/password for each transaction
	c) You cannot use the same user to log in and do the patient look ups because the user has expired
	d) The script is not capturing and re-using the system identifier for the user
	Please select exactly 1 option
35.	**When is it appropriate to generate load via the application's APIs?**
	a) When only small numbers of test instances are available
	b) When the UI is likely to change but the transactions must be processed as if they were created through the UI
	c) When testing must be conducted at the communications protocol level
	d) When many testers are available who can represent the real users
	Please select exactly 1 option

36.	**What is a concern when using a properly configured load generation tool to build the background load for the performance tests?** a) The load generated may affect the production system and the production data b) The load generator log reports may be difficult to read, resulting in problems with interpreting the performance results c) The load generator may experience performance problems and will not be able to maintain a steady load d) The load generated will contain invalid data Please select exactly 1 option
37.	**What is the purpose of having a ramp up period at the beginning of performance tests?** a) To ensure the performance monitoring tools are working b) To allow the system to achieve a steady state before taking measurements c) To allow the system to achieve an orderly shut down after the tests d) To increase the number of users beyond the desired load Please select exactly 1 option
38.	**In what way are log analysis tools helpful for collecting metrics?** a) They monitor the systems while the performance tests are conducted and report on the behavior during the tests b) They scan the various server logs and compile metrics for occurrences that were recorded during the test execution c) They write the performance results to the server logs for later manual analysis d) They create the system load and monitor the system performance Please select exactly 1 option

39.	**You are working on a project that tracks health history information for patients across a region.**
	The number of records handled by the system is in the millions due to the large number of patients in the region. Patient information must be accessible to doctors in offices, hospitals, and urgent care facilities. The information should be presented to the requestor within three seconds of request, particularly for patients with critical allergies and preconditions.
	One of the operational profiles you have identified is an emergency room doctor. You have determined that this person will access the system 10 times per shift (a shift is 10 hours) and that they will normally view 6 patient records for each access. They will print those patient records to be retained in the patient's file at the hospital. They will also enter notes into the database regarding the patient's treatment. For new patients, another user will enter the information into the system.
	Given this information, what is missing to construct the operational profile for this user class?
	a) Batch processing of the patient upload information has not been considered
	b) The number of users across the system for this role is not known
	c) Other system components that may be required (x-ray upload, lab results reporting) have not been considered
	d) No interviews were conducted to better understand the user class
	Please select exactly 1 option
40.	**When applying the principal performance testing activities, when should risk identification and analysis occur?**
	a) Test closure
	b) Test analysis and design
	c) Test planning
	d) Test implementation and execution
	Please select exactly 1 option