

# Sample Exam 1

## ISTQB Performance Testing

### Answer Table

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American Software Testing Qualifications Board

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## ASTQB Performance Testing Sample Exam Answer Key

40 possible points. 26 required to pass (65%).

Question	Answer	Rationale	Learning Objective (LO)	Number of Points
1	<b>C</b>	C is correct. The results from the test must be in a form that allows comparison to the expectations of the users. For example, if the users expect sub 2 second response time with 500 users on the system, then the tests must simulate the same environment to allow the comparison. A is not correct because “identical” is unlikely. Representative or statistically identical is possible, but not truly identical. B is not correct because the results may not meet the user expectations. The system may just be slow. D is not correct because results usually have to be formatted for consumption by executive management. A dashboard may be the preferable method, but other options exist as well.	PTFL-1.1.1	1
2	<b>D</b>	D is correct. Load testing looks at increasing the load on a system, but staying within realistic boundaries. Stress testing pushes the load to and above the expected highest load to see how the system responds.	PTFL-1.2.1	1
3	<b>C</b>	C is correct. This type of testing is looking to see if the system can scale up to handle larger loads.	PTFL-1.2.1	1
4	<b>B</b>	B is correct, this is one of the important activities. A is incorrect as it is dealing with usability reports. Reviewing defect reports regarding performance would be a good activity. C is not correct because it’s looking at security rather than performance, although security changes can result in performance impact. D is not correct because the functional requirements will not yield the performance requirements – those would be non-functional requirements.	PTFL-1.3.1	1
5	<b>A</b>	A is correct. When the load generation tool is using the user interface, any changes to that interface can break the scripts and require re-work. B is not correct because although defects could cause performance issues, there's no guarantee that they will. In fact, the defects could increase the performance in some cases. C is not correct because changes to the API will not necessarily be required when the UI is being updated. D is not correct because this would happen in a usability exercise, not a performance exercise.	PTFL-1.4.1	1
6	<b>D</b>	D is correct. This type of performance issue normally is caused by a saturation or exhaustion of a needed resource such as database connections, memory, disk space, etc. A is not correct because this only occurs under a heavy load and that wouldn't have occurred during functional testing. B is not correct because this would have appeared as a gradual slowdown of the system as memory became more scarce. C is not correct because this would have been evident based on the amount of data in the database rather than the load on the system.	PTFL-1.5.1	1

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7	C	C is correct. Time to restore backups is categorized as an operational environment measurement.	PTFL-2.1.1	1
8	A	A is correct. Aggregating the data provides a summary of the testing data and removes any small performance issues that are not indicative of the overall performance. B is not correct because the data is combined rather than reported separately. C is not correct because unless a slow period is indicative of general performance it will likely be smoothed out in the aggregate report. D is not correct because the ramp-up and ramp-down times are usually excluded to provide a more realistic overall picture.	PTFL-2.2.1	1
9	D	D is correct. This information is normally captured in the server logs. A and B would normally be shown by a performance monitoring tool. C would have to be recorded manually into a defect management system and reported from there. A log might highlight a failure, but the actual defect would have to be determined after more analysis.	PTFL-2.3.1	1
10	C	C is correct. In this case, you want to see how many users can use the system concurrently (at the same time). A, B and D might be interesting, but that will not answer the question.	PTFL-2.4.1	1
11	B	B is correct. Performance testing is particularly sensitive to environment changes and careful monitoring of any changes and control measures to prevent or schedule such changes is critically important. A is not correct because adding more testers doesn't help performance testing. C is not correct because, while the statement is often true, adding good monitoring and control won't help. D is not correct because this is a normal process of test design for a performance testing exercise.	PTFL-3.1.1	1
12	D	D is correct. Performance testing should be conducted as an ongoing activity and performed multiple times and at all levels of testing (unit, integration, system, SIT and acceptance).	PTFL-3.1.1	1
13	A	A is correct. This is a problem that is likely to occur in particular with distributed systems. B is a problem most likely to occur with a virtualized system. C is most likely to occur with a client-server system. D is most likely to occur with a mainframe application.	PTFL-3.2.1	1
14	C	C is correct. This is a problem that is most likely to occur with a client-server system. A is a problem that is likely to occur in particular with distributed systems. B is a problem most likely to occur with a virtualized system. D is most likely to occur with a mainframe application.	PTFL-3.2.1	1
15	B	B is correct. This is a problem most likely to occur with a virtualized system. A is a problem that is likely to occur in particular with distributed systems. C is most likely to occur with a client-server system. D is most likely to occur with a mainframe application.	PTFL-3.2.1	1
16	A	A is correct. Given that these are technical stakeholders, the issues that may arise around getting near real time information from the sensors is the highest priority. Their input in the other areas would be helpful as well, but the technical problems are likely to occur in the interface between the sensors and the software. B is not correct because issues with the API can likely be addressed with software changes and it's fairly unlikely that just the API will be problematic. C is not correct. The judges have five minutes to enter their disqualification information so assuming the UI isn't complex this shouldn't be a	PTFL-3.3.1	1

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		performance issue. It certainly won't be high volume. D is not correct. While this will be the highest number of concurrent users, this needs to be addressed first from the business standpoint so the users are better understood and their expectations are documented.		
17	C	C is correct. Because of the expense of the environment, you don't want to run this test too early or too often but you do want to run it as soon as you can. Executing when the software is functionally stable will help reduce the need to re-run the tests as changes are made to the software to add features or fix defects. A is not correct because it would be too expensive and would require stubbing. B is not correct because it would be too early and too expensive. D is not correct because it's too late to fix anything that is found.	PTFL-3.4.1	1
18	C	C is correct. To set up the tests you need to know what system resources (memory, network throughput, etc.) need to be tracked and any baseline usage that is expected. A is not correct because the actual devices will not be used for this test. B is not correct because handling connectivity issues is a functional issue even though it can significantly impact performance. D is not correct because the performance tests will be using simulated devices which will assume full usage of the device's capabilities. There is no way to know what other applications might be running – there are too many options.	PTFL-4.1.1	1
19	A	A is correct. Spike testing is going to be very important because of the sudden loads when an important race is being run and then the return to a quiescent state between races. B would be good to do, but if the peak load is known, that can be covered in the spike testing. C is not correct because the system does not need to run for a long time. Worst case, you could reboot between events. D is not correct because the goal is not to determine if resources can be added to deal with increasing loads. This is a short-term usage system.	PTFL-4.1.2	1
20	A	A is correct. This is a high-level report that is most appropriate for stakeholders that have a general business focus. B is not correct because the technical stakeholders would want more details. C is not correct because presumably the slow problem will be fixed prior to release. D is not correct because arming competitors with defect information is never a good idea.	PTFL-4.1.3	1
21	C	C is correct. Technical users will want to know what happened with the 3% that failed. As they are troubleshooting, they may be interested in D, but that won't be the first area to investigate. A and B are not correct because the creation of the users and the time required to complete the transactions is not in question here.	PTFL-4.1.3	1
22	C	C is correct. Layer 5 (session layer) to Layer 7 (application layer) are the most commonly used.	PTFL-4.2.1	1
23	B	B is correct. ODBC is an open database protocol that is commonly used for database communication. JDBC is the java version of the protocol. HTTP and HTML are web protocols and REST is a web service protocol.	PTFL-4.2.1	1
24	B	B is correct. This is a complete request. The information is pushed from the service and received by the mobile application. The user then views this information. A is not a complete transaction because the request is not fulfilled. C is not a complete transaction because the disqualification	PTFL-4.2.2	1

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		request is not recorded. D is not a capability of the system.		
25	B	B is correct. Think time is used to simulate a real user's interaction with the system.	PTFL-4.2.2	1
26	C	C is correct. The display board is receiving the information from the application and is a component of the overall system. A is not correct because the skier does not actually use the data. B is not correct because they are viewing the results of the data manipulation by the display board, which is one step removed from the product. D is not correct because these folks are the same as those described in #1.	PTFL-4.2.3	1
27	A	A is correct. This shows the proper ramp-up and down for the expected users. B is not correct because it does not show the 5000 users who are always connected and will be there before ramp-up and after ramp-down. C is not correct because the 20,000 users don't start until 20 minutes into the test and the 100,000 users start too soon (should start at 2:30). D is not correct because that is just an average across all usages.	PTFL-4.2.4	1
28	B	B is correct. The throughput for one phone for the automatic race results is $30 + 8 + 4$ for the individual races + 1 for the final results = 43.	PTFL-4.2.5	1
29	C	C is correct. The purpose of the clean-up is to reset the system back to the state it was in before the test was run – or as much as possible. This enables the script to be run again. The clean-up may include deleting created data or recreated data that was deleted during the script execution. A and B are not correct because reporting data and errors should be gathered throughout the execution. D is not correct because the tool will inform the operator when the script(s) have completed; this doesn't have to be scripted.	PTFL-4.2.6	1
30	C	C is correct. A good practice is to verify that the transactions are actually completing. This is usually done by checking via an independent method such as querying the database to see if created data is there and deleted data is not. A and B are not correct because these transactions could also fail, giving a false negative. D is not correct because the errors have already been recorded by the script. Adding system log verification to the script is tricky. It's usually better to use a log analysis tool to check for interesting errors.	PTFL-4.2.6	1
31	D	D is correct. You need the full set of virtual users to adequately test this application. Even testing with 100,000 may be risky since the application may be more widely used than expected. Stress testing would be wise. A is too low. B is dangerous because systems don't normally degrade in a linear fashion. C is also dangerous because 20,000 users with no think time may very well flood the system. In this case, it's also not valid because the information is being sent to the users automatically – they are not requesting it, so no think time is actually involved.	PTFL-4.2.7	1
32	A	A is correct. When the judge logs in, he is creating a session. That session information, including the information associated with the judge himself, must be used to record the disqualification. Since the user name and password will be handled potentially by a system variable, that information may have to be correlated manually in the test script. B, C and D don't pertain to the	PTFL-4.2.7	1

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		performance scripts but are functional issues.		
33	B	B is correct. The more similar the performance test environment to production, the more accurate the test results. A is not correct because running performance tests in production can have serious consequences if the production system is impacted by the tests (e.g., slowed down, crashed). C is not a good candidate since a sandbox environment should not be used for performance testing. D is not a good candidate because it usually is not a good representation of the production environment and often contains code that is not tested or ready for performance testing.	PTFL-4.2.8	1
34	D	D is correct. Service virtualization is used to replace or emulate a component of the system that is not available for some reason. A is not correct. Services that reside in VMs look the same as services on a physical machine. B is not correct. You might want to use service virtualization, but that would not be required just because it is a cloud implementation. C is not correct. If the performance testing tool is a Software as a Service tool, it has no bearing on the services that it is testing.	PTFL-4.2.8	1
35	C	C is correct. It's important to let the system reach a steady state before starting to load on users. Depending on the scenario you are testing, A or D would be the correct thing to do once the steady state has been reached. B is only done at the end of the test.	PTFL-4.3.1	1
36	A	A is correct. Doing manual checking of the performance during performance testing will help supply ad hoc measurements that can be used to validate the measurements that the tool is gathering. B is not correct because running the same scripts as the tool should not find functional issues. If it does, the system was not ready for performance testing. C is not correct because one or two manual users is not creating a significant load for the system. D is not correct because end users would not be involved in this testing as it might yield frightening results before the system is tuned.	PTFL-4.3.1	1
37	C	C is correct. The disqualifications time is too slow, particularly for the 90%, but it's also too slow even for the average. Tuning and retesting will be required. A may be correct and will probably need to happen, but not until C is resolved. B and D are worrying about the 95% numbers, but those are not in the requirements.	PTFL-4.4.1	1
38	B	B is correct. The load generator creates and executes multiple client instances that simulate user behavior according to a defined operational profile. A is not correct because while the number of users simulated depends on the defined number of virtual users, this is not the basis for the behaviors. C is not correct. Load profiles are based on the selected combination of operational profiles. D is used to compare the actual results to the expected results.	PTFL-5.1.1	1
39	C	C is correct. The management console starts and stops the tests and aggregates metrics during the tests. A is not correct because these activities are dictated by the scripts. B is not correct because the graphs produced by these tools are fitting for technical consumption, not executive management. D is not correct because error reporting is shown in the console, but error recovery must be scripted.	PTFL-5.1.1	1
40	C	C is correct. The communication with the display board will require either an emulator or the real device to ensure the communication is fast enough to suit the needs of the	PTFL-5.2.1	1

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		audience. Problems may be found during the testing that indicate the board itself is too slow, but that will need to be discovered before the product is released. A is not correct because it won't deal with the display board. B is not correct because emulators are not needed for the phone app. D is not correct because this would be very expensive, unnecessary and usability testing is not in scope.		