



AT*SQA

**Testing for IoT
and Mobile**

AT*IoTMobile

**SAMPLE EXAM
ANSWERS**

Version 2020

AT*SQA

ASSOCIATION FOR TESTING &
SOFTWARE QUALITY ASSURANCE
Global Certification Body for ISTQB and ASTQB

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AT*SQA Connected Devices — Sample Exam Answer Key

40 possible points. 27 required to pass (65%). 90 minutes.

Question	Answer	Rationale	Learning Objective (LO)	Number of Points
1	B	B is correct. While all of these are important, the user has particularly high expectations for the usability and performance of a mobile application.	LO-1.4.a	1
2	C	C is correct. An application that resides on the mobile device rather than on a web server and is written to work with a specific device is a native application.	LO-1.5.b	1
3	D	D is correct. This is an example of EP where all the members of the class are expected to behave in the same manner, therefore only one member of the class needs to be tested. Combinatorial technique is not the correct answer because that would be looking to reduce the set of test devices based on creating combinations to test.	LO-1.7.a	1
4	D	D is correct. Agile, a form of iterative lifecycle models, is often used for developing mobile applications as are other iterative lifecycles. Waterfall and V-model would be used for safety-critical where more documentation and control is required. The “mobile model” doesn’t yet exist but may in the future!	LO-1.8.a	1
5	B	B is correct. Use cases should supply the expected usage scenarios. User stories are too brief to give the scenario view. Usability requirements generally focus on the user interface requirements rather than usage scenarios. Requirements specifications are notorious for not having much information regarding actual usage.	LO-2.1.a	1

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6	B	B is correct since this is a time challenged project. If there were adequate time, A might be the right answer, depending on the criticality of the product. C is never a good idea since even minimal risk analysis is needed to focus the testing. D is risky because the interaction of the application with the physical capabilities of the device still need to be tested.	LO-2.2.a	1
7	B	B is correct. Testing the physical device's interaction with the application is important. A is not correct because B is correct. C is not correct and a native application is developed for a specific device and is generally not portable. D is incorrect because devices have many, many features and testing all the features would be out of scope for the application under test.	LO-2.5.a	1
8	B	B is correct because it is doing BVA on both the list quantity and the list saving capability. D is incorrect because it has achieved EP coverage, but didn't get the boundaries. A is incorrect because it doesn't consider the list save capabilities and it doesn't test the invalid values for the list. C is incorrect because it does not sufficiently test the save feature.	3.2.a	1
9	A	A is correct per the syllabus. The others are quality characteristics, but are not components of correctness.	LO-3.2.b	1
10	D	D is correct per the syllabus. The others are incorrect.	LO-3.2.c	1
11	D	D is correct. An age class user is a realistic persona to use in testing. A is not correct because it is looking at a scenario rather than the user. B is incorrect for the same reason. C is incorrect because a user story is looking at a small bit of functionality and is concentrating on why the functionality is needed rather than the user.	LO-3.2.d	1

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12	A	A is correct. Geolocation can pinpoint the location of the device and determine if it is in the correct country for the application to work. Without geolocation, the location might have to be determined by IP address or triangulation on a cellular network. Telephony could be used, but only if the telephone is involved in the application and we don't know that from the question.	LO-3.2.e	1
13	B	B is correct since the users seem to be having problems accessing either the pointer or the keyboard to enter the letters. A and C seem to not be issues at this time since it is not an issue with understanding the application. D may be an issue depending on how the user gets to the various input methods, but that is not indicated in the information here.	LO-3.3.d	1
14	A	A is correct. Personas represent realistic users doing realistic transactions and so are well suited for use in performance testing. B is not correct because transactions are needed for performance testing rather than tasks. C is not correct because while personas are used for usability testing, they are also used for performance testing. D is not correct because user stories cover small bits of functionality, not transactions.	LO-3.3.a	1
15	D	D is correct. The battery life is one of the resources of the device and usage of that resource should be tested to ensure the application is not abusing the resource.	LO-3.3.b	1
16	A	A is correct. A simulator is not a real device and doesn't have the hardware and connectivity characteristics that the real device has. B is not correct because you can thoroughly test a simulator, but that still won't get around the problem in A. C is not correct because this is precisely why simulators are used – they are easily cloned. D is not correct because simulators can certainly run concurrent applications.	LO-3.3.c	1

Question	Answer	Rationale	Learning Objective (LO)	Number of Points
17	B	B is correct. The other three are referring to application types rather than devices.	LO-4.1.a	1
18	C	C is correct. This is a generic testing tool that would still be useful in a connected device application project. A and B are specific tools that would be designed for use for the specific project. D might work but most generic performance testing tools don't work well for connected device applications because of their inability to work with simulators and provide the variability in network connections.	LO-4.1.b	1
19	A	A is correct since this information is coming from the device itself. B, C, and D all get the information from a source other than the device.	LO-4.2.a	1
20	C	C is correct. Since the application is running through the browser, if a device supports that browser it should work on the device. This makes the application very portable. A and B are characteristics of native applications. D is incorrect because native applications are generally faster.	LO-4.3.a	1
21	B	B is correct. A is incorrect because real devices will always be more accurate. C is incorrect because usability requires the look and feel of the real device. D is not true on a large scale and may not even be true on a small scale. A well-designed simulator should be easier to re-configure as needed.	LO-4.4.a	1
22	A	A is correct. Simulators are the best approach for this testing because a large number are needed to access the web service at the same time. Specific altitude readings can be programmed into the simulator. B is not correct because there is no need to interact with the phone's hardware to do this test and it is stated in the question that the altimeter information has already been tested separately. The altitude information can be programmed into the simulator. C is not	LO-4.4.b	1

Question	Answer	Rationale	Learning Objective (LO)	Number of Points
		correct because that would just complicate the tests and simulators alone will be sufficient. D would be difficult to manage and finding 5,000 high-altitude drinkers on a night other than New Year's Eve may be difficult.		
23	D	D is correct as this is more beneficial for performance testing. Mixing any of the other three will help create a realistic load, but without D the others are not as useful.	LO-4.5.a	1
24	D	D is correct. The cloud solution would be the best for this case as it would allow many different devices to be simulated across a number of different types of networks with varying speeds. A is not correct because this is a browser-based application so testing across an entire device family is not warranted. B is not correct because this is a product with competitors and the innovative technology should not be known in the market before the product is released. C is not correct because simulators will not give the network type and speed variance needed.	LO-4.x.a	1
25	C	C is correct. The interaction with the Internet is what allows a refrigerator to be a part of the IoT. A, B and D are not factors in being part of the IoT.	CD-5.2.a	1
26	C	C is correct. This is the most likely application to have a security risk because it is using public cellular connections for long periods. A, B and D are not as risky because they will be using home, office or hospital WiFi which "should" be more secure.	CD 5.3.a	1
27	A	A is correct. This is an example of a benefit of the IoT.	CD-5.3.b	1
28	D	D is correct. This is an example of a smart appliance. A smart appliance is able to communicate over the Internet and provide information that can be received by an	CD-5.4.a	1

Question	Answer	Rationale	Learning Objective (LO)	Number of Points
		application such as one running on a smart phone. A, B and C are not correct because they are not communicating via the Internet to an application that could be running on a smart phone, tablet, desktop or some other device capable of Internet communication.		
29	A	A is correct. This is a connected wearable device that communicates to the Internet to pass information to an application that can then present that information to another consumer, which could be another application or a human user. B, C and D are all worn by a user, but they do not communicate to the Internet to provide or gather information.	CD 5.4.b	1
30	A	A is correct. This is an example of a connected system because it must connect to either the car's WiFi or the cellular network to contact the emergency authorities. B, C and D are all examples of autonomous systems which work without interaction with the Internet.	CD-5.4.c	1
31	A	A is correct. This is the type of application that is part of the Industrial Internet of Things. B is actually an autonomous application, not a connected one. C and D are part of the IoT but not necessarily part of the IIoT.	CD-5.4.d	1
32	D	D is correct. The key driver is the need for higher security which is difficult to guarantee when information is passed over the Internet. A, B and C are all possible reasons as well, but these are not the key drivers.	CD-5.4.e	1
33	D	D is correct. Any network type should be supported by a protocol such as MQTT. This widens the potential application and location of the IoT device that uses the protocol.	CD-5.5.a	1
34	B	B is correct. Edge computing will provide a way for the data to be processed locally to help reduce the need to transmit the raw data for processing.	CD-5.5.c	1

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35	B	B is correct. Headless testing makes sense because there is no UI to the device itself. The only UI is on the reporting end, but that is stated as out of scope for the testing. A is not correct because usability testing would only be applicable to the out of scope reporting. C and D are not correct because headless testing is needed.	CD-5.6.a	1
36	D	D is correct.	CD-5.7.a	1
37	B	B is correct. Capabilities are expected to grow and will also expand across more devices and new devices.	LO-6.1.a	1
38	C	C is correct per the syllabus. A is probably not a goal since products come and go and long-term maintainability of the test framework may be a poor investment. B is not correct because known vendors may not produce tools that support the latest technologies. D is not correct because a lightweight risk analysis is more likely used than a formal risk analysis process.	LO-6.2.a	1
39	A	A is correct. It is important to use tools that are well suited for mobile. Keyword-driven test automation is likely to be more maintainable than data-driven, particularly when the application changes frequently. B is incorrect because high re-usability is not a goal for this project. High levels of coverage are probably not important in the test automation because the product has a short lifespan. Also, the tools may not be well-suited to mobile products. C is not correct because bypassing test automation violates the rules of the iterative lifecycles and would miss the opportunity of automating testing after the continuous integration occurs. D is not correct because the test automation should be used	LO-6.2.b	1

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		for the functional testing and needs to be done early in the lifecycle to ensure good product development and continuous integration testing.		
40	A	A is correct per the syllabus.	LO-6.4.a	1