



# AT\*SQA

## Testing for IoT and Mobile

AT\*IoTMobile

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# SAMPLE EXAM

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Version 2020



# AT\*SQA

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

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# AT\*SQA IoT and Mobile Testing — Sample Exam

- 1. What types of testing are particularly important for connected device applications based on the user's expectations?**
  - a. Suitability and Accuracy
  - b. Usability and Performance
  - c. Portability and Usability
  - d. Performance and Security
  
- 2. If an application resides on the mobile device and was written specifically for that device, what type of application is it?**
  - a. Web-based
  - b. Hybrid
  - c. Native
  - d. Device-specific
  
- 3. You are testing an application for a smart phone. You have determined that you only need to test one device from the target family of devices because the behavior of all devices in that family will be the same for this application. This is an example of what test design technique?**
  - a. Boundary value analysis
  - b. Combinatorial
  - c. Decision tables
  - d. Equivalence partitioning
  
- 4. If you are testing a mobile application that is not safety-critical, which lifecycle model is most likely to be used?**
  - a. V-model
  - b. Waterfall
  - c. Mobile model
  - d. Iterative
  
- 5. Which of the following requirements documents would be the best source to determine normal usage scenarios?**
  - a. Requirements specification
  - b. Use cases
  - c. User stories
  - d. Usability requirements

- 6. In a project that is feature-rich but time-poor, which is the most reasonable approach to risk analysis?**
- Conduct a full risk analysis, including weighted likelihood and impact ratings for each item
  - Use a lightweight approach and assign relative importance of each identified item
  - Skip the risk analysis step and proceed to test execution based on experience
  - Concentrate on the functional capabilities and disregard the physical capabilities of the device since those should be tested by the manufacturer
- 7. If you are testing a mobile banking application, is it important to test the interaction between the software and the device?**
- No, it is not necessary to extend the functional testing to cover interaction with the device
  - Yes, using the physical device is how the user interacts with the application and how the application interacts with the Internet
  - No, if the application is developed as a native application, there is no need to test the interaction because the application is portable across many different types of devices
  - Yes, each feature of the device should be tested to verify if it interacts with the application
- 8. You are testing a native application for a smart phone. The application allows the user to make grocery lists on the phone and store up to three lists at a time. A list can contain up to 50 items. Which of the following is the minimum set of test conditions to achieve 100% coverage with the boundary value analysis test technique?**
- List with 47 items
  - List with 0 items, List with 1 item, List with 50 items, List with 51 items, 0 lists saved, 1 list saved, 3 lists saved, 4 lists saved
  - List with 0 items, List with 25 items, List with 51 items, 3 lists saved
  - List with 0 items, List with 12 items, List with 58 items, 0 lists saved, 3 lists saved, 7 lists saved
- 9. Correctness can be defined as a combination of which two quality characteristics?**
- Suitability and accuracy
  - Usability and performance
  - Portability and interoperability
  - Security and usability
- 10. When conducting security testing on a connected device application, which is the correct set of basic areas to cover?**
- Access, data protection, documentation
  - Code, functionality, documentation, security policy
  - Data creation, data storage, data transfer
  - Access, data storage, data transfer, security policy
- 11. Which of the following types of testing might consider the user's age?**
- Scenario-based testing
  - Use case testing

- c. User story testing
- d. Persona-based testing

**12. If your application can only be used within a specific country, what feature of the device might be used to supply information that the application can use to make this determination?**

- a. Geolocation
- b. Telephony
- c. Magnetometer
- d. Altimeter

**13. Your company has created an application for doing crossword puzzles. The target users are in the age class of over 65 years old. There has already been considerable concentration on creating screens that are easy to navigate and intuitive. It is a primary goal that the software be easy to use. Viewability has been implemented with a revolutionary magnification ability based on moving a magnifying glass across the screen. The beta testers have still had problems using the application, particularly when trying to enter the letters into the squares. Given this information, which area should you target for more complete testing?**

- a. Simplicity
- b. Layout
- c. Intuitiveness
- d. Navigation

**14. You are planning to conduct performance testing on a new application. You have been given a set of personas to use during this testing. How should you apply the personas in the performance testing approach?**

- a. Personas should be duplicated by the automated tools to create virtual users who can create a realistic load on the system.
- b. Personas should be reviewed to understand the individual tasks being performed. These tasks can then be scripted and performed in sets.
- c. Personas are used primarily for usability testing and should not be used as guidelines for performance testing.
- d. Personas should be used to derive use cases which can be broken down into user stories and then scripted into performance test scripts.

**15. If you are testing how much battery is being used by your application, what are you testing?**

- a. Task completion
- b. Delays
- c. User interface delays
- d. Resource usage

- 16. You have been doing your mobile application performance testing on a simulator. Why would you need to do some testing on a real device?**
- Because a simulator is not an exact replica of the real device and may give different performance results
  - Because it is not possible to thoroughly test a simulator to ensure it is working correctly
  - Because simulators cannot be cloned to provide enough devices to generate a realistic load
  - Because simulators cannot run concurrent applications
- 17. If a tool is able to simulate the way in which a specific device would respond to an application, it is considered to be what type of simulator?**
- A hybrid simulator
  - A native device simulator
  - A web-based application simulator
  - A browser-based application simulator
- 18. Which of the following is a generic tool that would be useful for a connected device application testing project?**
- A simulator
  - An emulator
  - A defect tracking system
  - A performance testing tool
- 19. In what way might a mobile device itself supply data to the mobile application?**
- By providing location information by using its geolocation capability
  - By gathering input from the user
  - By communicating with a backend system
  - By connecting to another device
- 20. Which of the following is true about a browser-based application?**
- It is designed to exercise capabilities of a particular device
  - It runs on the device
  - It is portable to any device that can run the supported browser
  - It is generally faster than a native application
- 21. Which of the following is a reason to use simulators for testing?**
- Simulators give more accurate performance than real devices
  - Real devices can be difficult and expensive to procure in large quantities
  - Simulators can interact with users to provide feedback on usability
  - Real devices can be quickly configured to provide new testing scenarios
- 22. You are responsible for performance testing for a new hybrid mobile application that will run on smartphones. The application will use the phone's GPS capability to determine the altitude of the phone. The altitude information is sent to the application which then**

**contacts a web server to compute the “safe limit” for alcohol consumption. The “safe limit” is displayed for the user. The device has already been tested for high altitude usage, so that is not a concern for this test.**

**You expect your highest usage of the system to be on New Year’s Eve when many people are skiing at high altitudes and will need to check their safe limit. For the first year of usage, 5,000 concurrent users are expected to use the application on that one evening.**

**Given this information, what is the best approach to use for conducting the performance test?**

- a. Clone simulators to create 5000 users and conduct the test with those simulators
- b. Clone emulators to create 5000 users and conduct the test using the emulators
- c. Use a mix of simulators and emulators to give the most realistic results
- d. Use crowd-sourcing and real users to get accurate results from real devices

**23. Which cloud capability is most beneficial for performance testing?**

- a. Supporting a variety of network types
- b. Supporting a variety of protocols
- c. Supporting a variety of device types
- d. Supporting a variety of device quantities and usages

**24. You are testing an application that will allow users to scan the barcode from a package mailing label and then receive emails from the package shipper as the package moves through the various stages of its delivery (e.g., pickup, receipt at central processing, routing, delivery). If requested, the user can also receive a picture of the signature of the recipient of the package. This is a web browser-based application. It is expected that this application will have wide usage across a large set of devices and networks with varying speeds and reliability.**

**Your company has several competitors who are working on similar products although your company’s product has some new innovations and a very attractive user interface. As a result, once it is released, your company expects to grab that majority market share.**

**Given this information, what would be the best approach for doing**

**your testing to ensure the capabilities of the product are tested as well as the range of environments and networks?**

- a. Use a remote device lab that is provided by a device manufacturer to ensure your application works across the whole family of devices
- b. Use crowd sourcing to get the widest distribution of device locations and types with minimal cost
- c. Use a set of simulators that can simulate the various capabilities of a wide variety of devices
- d. Use a cloud-based virtual test environment to simulate various devices and networks

**25. In what way can a refrigerator become part of the IoT?**

- e. a. By allowing manual temperature setting
- f. b. By providing an on and off function which is controlled by a physical switch
- g. c. By uploading and downloading information to and from the Internet
- h. d. By providing a required function for humans

**26. Which of the following is most likely to have a security risk?**

- a. A refrigerator that relies on WiFi within the home
- b. A smartphone application that is used in a business office
- c. A tablet application that is used to download and upload patient information (including diagnostic images) as mobile nurses travel to and from patient's homes
- d. A tablet application that is used to download and upload patient information (including diagnostic images) by nurses in a hospital

**27. You receive a message on your phone from an application that receives sensor information from your refrigerator. This message says the temperature is running high and indicates there may have been a coolant failure. What is this an example of?**

- a. It's an example of a benefit of the IoT
- b. It's an example of a risk of the IoT
- c. It's an example of a security risk in the application
- d. It's an example of a reliability risk in the application

**28. Which of the following is an example of a smart appliance?**

- a. A refrigerator that detects the milk supply is low and displays a message on the front panel of the door
- b. A car that flashes an indicator when the temperature is too high
- c. A home security system that sounds an alarm when an intrusion is detected
- d. A sensor on a dog collar that can detect and report to a smart phone application when a dog has crossed over an invisible fence line

**29. Which of the following is an example of a "wearable"?**

- a. A ring that records when a cigarette is lit, based on a smoke filter, and reports this to an online application
- b. A pair of glasses that automatically changes tint based on the light
- c. A prosthetic knee
- d. A pair of gloves that is both waterproof and insulated



- 30. Which of the following is an example of a connected system?**
- A system that includes sensors to detect impact and the ability to contact emergency authorities if an accident has occurred
  - The anti-lock braking system that detects skidding and adjusts the braking
  - A parallel parking system that can control the car to complete the parallel parking activity without manual intervention
  - A system of sensors that can determine if a car is following too closely and slow it to maintain a safe distance
- 31. Which of the following should be considered to be part of the IIoT?**
- A smart metering application for an energy company
  - A self-driving car
  - A home security system
  - A smart phone
- 32. What is driving the tendency to keep data on local devices or on a local network?**
- The data is becoming too large to transmit efficiently
  - The data stream is too fast for most networks to handle
  - The response time requirements are getting more and more difficult to fulfill on public networks
  - The data itself has a higher need for security, such as a retina image used to access a secure site
- 33. For an IoT protocol such as MQTT, what is the expectation for the supported network type?**
- Wi-Fi only
  - Cellular only
  - 4G or 5G only
  - Any network type
- 34. For IoT devices, which of the following helps to alleviate the need for large amounts of data to be transmitted to the cloud before processing?**
- Positive processing
  - Edge computing
  - Frog hopping
  - Cloud servicing
- 35. You are working with a company that is developing a wearable heart rate monitor. This monitor will be used to track the heart rates of Olympic runners throughout the day, including during their workout sessions. The information gathered from the monitors will be uploaded to a web service that will then process the data and produce reports. The upload will occur at night over the cellular network while the runner is sleeping.**



**You are responsible for testing the heart rate monitor and its ability to upload the data to the web service. Should headless testing be used for this monitor?**

- a. Yes, headless testing should be paired with usability testing to get the best coverage of the interface
- b. Yes, headless testing should be used to drive the testing since there is no UI to access for the testing
- c. No, headless testing is not needed because testing can be performed through the application that receives the data to verify if it is accurate
- d. No, headless testing will not allow any performance measurements and those will be critical for this device

**36. You are testing an IoT device that communicates via APIs to a web service over the Internet. You are concerned about testing the error recovery capability of the APIs, particularly when connections are dropped. Which of the following is the best tool for this testing?**

- a. Wireshark
- b. Grasshopper
- c. Locust
- d. SoapUI

**37. In the future, what is the expectation for device capabilities?**

- a. They will decrease as devices get smaller
- b. They will increase as demand increases
- c. They will stay the same
- d. They will stay about the same but expand across a greater range of devices

**38. When building a flexible testing framework, how does the short product lifecycle affect the test approach and tool decisions?**

- a. The framework must support long-term maintainability
- b. The framework should utilize stable and reliable tools from known vendors
- c. The framework must provide a good ROI
- d. The framework should leverage a formal risk analysis

**39. Your organization has just hired a test automation architect who has previously worked on medical software with strict regulatory requirements. His test automation framework is very solid and will allow the staff to build maintainable data-driven test cases. His tool choice is the top of the line tool that has been used for many years for traditional test automation. You are concerned that this is a very expensive tool and may not have the flexibility needed in your environment, particularly since the connected device applications your company develops are intended to exist in the market for only six months before being re-worked to add new features and change the user interface. The software development lifecycle is iterative**

**and the team uses continuous integration to provide testable software faster.**

**Given this information, what should you recommended for the test approach?**

- a. Search for other tools that are more suited for the connected device environment and consider creating test automation with keyword-driven tests rather than data-driven.
- b. Go with the proven framework and seek high coverage in the test automation software to ensure good reuse.
- c. Bypass test automation and go with crowd-sourcing to get a high amount of testing done in a short period of time. Test repeatability is not an issue with this software.
- d. Use test automation for performance testing and conduct the functional testing manually since the product has a short life expectancy.

**40. What type of testing methodologies should connected device applications testers seek?**

- a. Leaner and more efficient
- b. Faster and more reliable
- c. Secure and more usable
- d. Documented and more repeatable