

Sample Exam - Answers

Foundation Level

Mobile Tester

September 2015



American Software Testing Qualifications Board

Sample Exam Answers – Foundation Level– Mobile Tester

MOB-1.2.1 (K2) Explain the expectations for a mobile application user and how this affects test prioritization

1. What types of testing are particularly important for mobile applications based on the user's expectations?
 - a. Suitability and Accuracy
 - b. Usability and Performance
 - c. Portability and Usability
 - d. Performance and Security

B is correct. While all of these are important, the user has particularly high expectations for the usability and performance of a mobile application.

MOB-1.3.2 (K2) Summarize the different types of mobile applications

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

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.

MOB-1.5.1 (K2) Explain how equivalence partitioning can be used to select devices for testing

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

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.

MOB-1.6.1 (K2) Describe how some software development lifecycle models are more appropriate for mobile applications

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

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!

MOB-2.1.1 (K2) Explain why use cases are a good source of testing requirements for mobile applications

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

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.

MOB-2.2.1 (K2) Describe different approaches to risk analysis

6. In a project that is feature-rich but time-poor, which is the most reasonable approach to risk analysis?
 - a. Conduct a full risk analysis, including weighted likelihood and impact ratings for each item
 - b. Use a lightweight approach and assign relative importance of each identified item
 - c. Skip the risk analysis step and proceed to test execution based on experience
 - d. Concentrate on the functional capabilities and disregard the physical capabilities of the device since those should be tested by the manufacturer

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.

MOB-2.5.1 (K2) Describe how test analysts should take the device and application into consideration when creating test conditions

7. If you are testing a mobile banking application, is it important to test the interaction between the software and the device?
 - a. No, it is not necessary to extend the functional testing to cover interaction with the device
 - b. Yes, using the physical device is how the user interacts with the application and how the application interacts with the Internet
 - c. 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
 - d. Yes, each feature of the device should be tested to verify if it interacts with the application

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.

MOB-3.2.1 (K3) For a given mobile testing project apply the appropriate test design techniques

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 equivalence partitioning test technique?
 - a. List with 47 items
 - b. 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
 - c. List with 0 items, List with 25 items, List with 51 items, 3 lists saved

- d. List with 0 items, List with 12 items, List with 58 items, 0 lists saved, 3 lists saved, 7 lists saved

D is correct as it tests each condition with invalid too low, valid and invalid too high values. A is incorrect because it doesn't consider the list save capabilities and it doesn't test the invalid values for the list. B is incorrect because it is doing BVA which results in too many tests for minimum coverage with EP. C is incorrect because it does not sufficiently test the save feature.

9. 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?
- a. List with 47 items
 - b. 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
 - c. List with 0 items, List with 25 items, List with 51 items, 3 lists saved
 - d. List with 0 items, List with 12 items, List with 58 items, 0 lists saved, 3 lists saved, 7 lists saved

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.

MOB-3.2.2 (K1) Recall the purpose of testing for the correctness of an application

10. Correctness can be defined as a combination of which two quality characteristics?
- a. Suitability and accuracy
 - b. Usability and performance
 - c. Portability and interoperability
 - d. Security and usability

A is correct per the syllabus. The others are quality characteristics, but are not components of correctness.

MOB-3.2.3 (K2) Explain the important considerations for planning security testing for a mobile application

11. When conducting security testing on a mobile application, which is the correct set of basic areas to cover?
- a. Access, data protection, documentation
 - b. Code, functionality, documentation, security policy
 - c. Data creation, data storage, data transfer
 - d. Access, data storage, data transfer, security policy

D is correct per the syllabus. The others are incorrect.

MOB-3.2.4 (K2) Summarize the concepts of perspectives and personas for use in mobile application testing

12. Which of the following types of testing might consider the user's age?
- a. Scenario-based testing
 - b. Use case testing
 - c. User story testing

d. Persona-based testing

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.

MOB-3.2.5 (K2) Summarize how device differences may affect testing

13. 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?
- Geolocation
 - Telephony
 - Magnetometer
 - Altimeter

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.

MOB-3.2.6 (K2) Explain the use of Teststorming for deriving test conditions

14. What is the primary use of teststorming?
- Load and stress testing from multiple locations
 - Testing the device's ability to deal with weather conditions
 - Deriving test cases and test scenarios
 - Creating masses of test data

C is correct.

MOB-3.3.1 (K3) Create a test approach that would achieve stated performance testing goals

MOB-3.3.4 (K3) For a given mobile testing project, select the appropriate criteria to be verified with usability testing

15. You have information from production that the previous version of your product has had a high rate of abandonment after the initial download. In fact, it appears people download the application and never use it. Poor performance is thought to be the main problem that is causing people to give up the application. Which of the following aspects of the application should be specifically targeted for testing to help determine if this is really the problem?
- User interface delays
 - Irregular performance
 - Resource usage
 - Application launch time

D is correct since it appears that people download it and never use it, perhaps because it takes so long to complete the download and the initial launch. This may not be the real problem, but it is certainly the first area to look at during testing. A and B are incorrect because the users are not actually using the software and wouldn't see these issues. C might be a problem leading to D being a symptom.

16. 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

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.

17. 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.

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.

MOB-3.3.2 (K1) Recall aspects of the application that should be tested during performance testing

18. 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

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.

MOB-3.3.3 (K2) Explain why real devices are needed when simulators are used for testing

19. You have been doing your mobile application performance testing on a simulator. Why would you need to do some testing on a real device?
- a. Because a simulator is not an exact replica of the real device and may give different performance results
 - b. Because it is not possible to thoroughly test a simulator to ensure it is working correctly
 - c. Because simulators cannot be cloned to provide enough devices to generate a realistic load
 - d. Because simulators cannot run concurrent applications

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.

MOB-3.3.5 (K2) Explain the challenges for portability and reliability testing mobile applications

20. Which of the following is a requirement for portability testing for the future of a mobile application?
- Knowing how the application works today with today's devices
 - Anticipating which devices will be popular and how they will be used
 - Predicting how personas will change
 - Creating new devices via emulators and testing the application on those emulators

B is correct. A is only helpful for today, not the future. C might help to understand future usage, but won't tell you which devices will be popular. D would be a lot of work and the accuracy would depend on your creativity and ability to predict the future.

geolocation, Teststorming™

21. For a navigation application on a smart phone, which is the most importance device capability?
- Telephony
 - Camera
 - Email
 - Geolocation

D is correct.

MOB-4.1.1 (K1) Recall the expected capabilities for mobile application testing tools

22. 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

B is correct. The other three are referring to application types rather than devices.

MOB-4.1.2 (K2) Explain the use of generic tools in testing mobile applications

23. Which of the following is a generic tool that would be useful for a mobile application testing project?
- A simulator
 - An emulator
 - A defect tracking system
 - A performance testing tool

C is correct. This is a generic testing tool that would still be useful in a mobile 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 mobile applications because of their inability to work with simulators and provide the variability in network connections.

MOB-4.2.1 (K1) Recall the sources of data for a mobile application

24. In what way might a mobile device itself supply data to the mobile application?
- By providing location information by using its geolocation capability

- b. By gathering input from the user
- c. By communicating with a backend system
- d. By connecting to another device

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.

MOB-4.3.1 (K2) Explain the differences between browser-based and native device applications

25. Which of the following is true about a browser-based application?
- a. It is designed to exercise capabilities of a particular device
 - b. It runs on the device
 - c. It is portable to any device that can run the supported browser
 - d. It is generally faster than a native application

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.

MOB-4.4.1 (K2) Explain why testing is not conducted entirely on real devices

26. Which of the following is a reason to use simulators for testing?
- a. Simulators give more accurate performance than real devices
 - b. Real devices can be difficult and expensive to procure in large quantities
 - c. Simulators can interact with users to provide feedback on usability
 - d. Real devices can be quickly configured to provide new testing scenarios

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.

MOB-4.4.2 (K3) For a given mobile testing project, determine how and when to use simulators/emulators during testing

MOB-4.4.4 (K3) For a given mobile testing project, determine how and when to use cloud-based testing

27. You have just been assigned to test a native mobile application for a delivery recording device used by mail and package couriers. This is a new version of a product that is already in production. The production version of the product has had issues with the hardware particularly with capturing signatures entered on the device and with associating photo images to the proper delivery addresses. This has resulted in a problem with reconciling the package delivery information. You need to test the application on a network with 1000 of these devices sending information back to the main office. Budget is limited as is the ability to obtain 1000 devices. What should you do?
- a. Find or develop a simulator that can simulate the network interaction of many devices
 - b. Find or develop an emulator that can emulate the application running on the hardware and OS of the device
 - c. Implement crowd-source testing to get a large number of people to use their own devices to test the network
 - d. Obtain the real devices because any other testing will not be representative of the real behavior of the device

Given this scenario, B is the correct answer. An emulator will allow testing to be conducted to verify the interaction between the hardware/OS and the application and that's where the main problems have been. A is not correct because a simulator will not be able to simulate the interaction between the application and the hardware and that is identified as a key issue with the current production product. C is not correct because this is not a device that most people would have access to – it's a business device rather than a

personal device. D is not correct because a good emulator should be able to provide the needed test environment. And, the question states that budget is limited and devices are hard to get.

28. 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. This information will be used to send information to the user indicating the change in their "safe limit" for alcohol consumption. You expect your highest usage of the system to be on New Years 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?
- Clone simulators to create 5000 users and conduct the test with those simulators
 - Clone emulators to create 5000 users and conduct the test using the emulators
 - Use a mix of simulators and emulators to give the most realistic results
 - Use crowd-sourcing and real users to get accurate results from real devices

A is correct. Simulators are the best approach for this testing because a large number are needed and 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. The altitude information can be programmed into the simulator. C is not correct because that would just complicate the tests and simulators alone will be sufficient. D would be difficult to manage and getting 5000 concurrent users before New Years Eve might be impossible.

29. You have a need to test network connectivity in a variety of environments to determine if your web site will respond fast enough and reliably enough to the requests from your mobile web-based application. You don't have the ability to create these environments within your test facilities. What is the best option to use to conduct this testing?
- Find or develop a simulator that can simulate the network interaction of many devices on varied networks
 - Find or develop an emulator that can emulate the network interaction of many devices on varied networks
 - Find a cloud-based network simulator that can generate network traffic from a variety of different networks
 - Implement crowd-source testing to get a large number of people to use their own devices to connect via various networks

C is correct. Cloud-based network simulators are commonly used for this purpose. A and B are not ideally suited for the problem and D would be too unreliable to control.

MOB-4.4.3 (K1) Recall how to verify the reliability of a simulator/emulator

30. What is the best way to verify that a simulator is giving reliable results?
- Read the requirements
 - Test the simulator
 - Compare the results to the results from a real device
 - Compare the results from the simulator to the results from an emulator

C is the best way to verify the reliability of the simulator. A as we all know may not tell us how the simulator really works. B would require knowing how the simulator should behave, which might be information we don't have. D would not make sense as you'd be comparing information from two different developed products.

MOB-4.5.1 (K2) Explain how the cloud can be used to support performance testing

31. Which cloud capability is most beneficial for performance testing?
- 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

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.

MOB-4.5.2 (K2) Explain the types of data a performance tool needs to be able to create and track.

32. Which of the following is a type of data that a mobile performance testing tool should be able to monitor, track and generate?
- a. Bursts of activity
 - b. Usability information
 - c. Navigation flow data
 - d. Secure data transactions

A is correct. B and C deal with usability, not performance. While D should be verified as part of security testing, it's not normally considered part of performance testing.

MOB-4.x.1 (K3) For a given mobile testing project, select the appropriate tools and environments for testing

33. 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

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.

34. 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 the second version of this application. The first version was web browser-based and was quite slow to start up. The new version is a native application with all the same functionality. It is expected that this application will have wide usage across a large set of networks with varying speeds and reliability.

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 devices, 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

A is correct. Because this is a native application, it needs to be tested on the devices that it is intended for. The question doesn't say how many different devices are supported, but for each supported device it makes sense to use the remote device lab that device manufacturers can supply. B is not correct because the focus needs to be on the device compatibility rather than the location distribution. C is not correct because a wide variety of devices is not needed. A good simulator for the family of devices supported might be a good alternative though. D is not correct because the testing across devices is not needed. Like C if D provides a good simulator of the right device family, it might be a realistic alternative, but that information is not supplied.

MOB-5.1.1 (K1) Recall ways in which the mobile application and device market will expand

35. 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

B is correct. Capabilities are expected to grow and will also expand across more devices and new devices.

MOB-5.1.2 (K1) Recall areas in which user expectations will increase

36. What will the future user expect in terms of application performance?
- a. They will expect it to be slower because they will understand that adding more features will necessarily compromise the speed of existing features
 - b. They will expect it to be slower because devices will become smaller
 - c. They will expect it to stay constant
 - d. They will expect it to continue to increase

D is correct. User expectations continue to grow and that includes the expectations for high performance.

MOB-5.2.1 (K2) Summarize the considerations for building a flexible testing framework

37. 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

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.

MOB-5.2.2 (K4) Analyze a given mobile testing project and determine the appropriate activities to reduce maintenance costs while enabling wide product adoption

38. 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 mobile 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?
- Search for other tools that are more suited for the mobile environment and consider creating test automation with keyword-driven tests rather than data-driven.
 - Go with the proven framework and seek high coverage in the test automation software to ensure good reuse.
 - 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.
 - Use test automation for performance testing and conduct the functional testing manually since the product has a short life expectancy.

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 for the functional testing and needs to be done early in the lifecycle to ensure good product development and continuous integration testing.

MOB-5.3.1 (K2) Explain how lifecycle models are likely to change and how this will affect testing

39. As lifecycle models adapt to meet the needs of the mobile application market, how will the interaction between the developers and testers change?
- The interaction will become more formal
 - Detailed requirements documentation will replace stand up meetings
 - Developers and testers will return to more traditional, separate roles
 - Collaboration between developers and testers will increase

D is correct. Developers and testers will work more closely together as the lifecycle shortens and the need for good testing is pushed to the left in the development cycle.

MOB-5.4.1 (K1) Recall the ways in which testers will need to adapt

40. What type of testing methodologies should mobile applications testers seek?
- Leaner and more efficient
 - Faster and more reliable

- c. Secure and more usable
- d. Documented and more repeatable

A is correct per the syllabus.