1. **What are the popular Mobile operating systems?**

Ans. Android, IOS, Blackberry OS, Windows OS(not in use nowadays) , BADA (SamsungPhone's OS)

2. **Five key challenges in mobile application testing?**

Ans.

1.User Experience & Issues with App Performance

Mobile applications that are free of faults and errors provide a better user experience which has a direct impact on the business sources of the application. Moreover, user grades the quality of the mobile application mainly based on their user experience.

2. Touch Screen

It is also a major source of user interaction today and these touch screens enable the display and input of data. The signals or the signs which form an indication in the process of data input also cause a challenge in the testing process wherein the testing of touch screens needs to be more intricate and stable.

3. Device Based Testing Approach

Under the device based approach, there should be a testing laboratory set up which also involves purchase of real time mobile devices. It seems to be more costly than the emulation method as it takes care of verification of device based functions, and other QoS parameters. But, this method has to cope with the rapid changes in the ever changing mobile devices and platforms

4. Lack of Access to Multiple Devices

At times, it may be possible that two or more testers might need the same device at the same time, wherein one tester is left out waiting until the other tester completes their work. In case of procuring multiple devices involves cost incurring, which could also involve additional time. Moreover, it would be more a problem if testers are placed across continents.

5. Variations of Mobile User Interfaces

Different mobile operating systems like Android, ,iOS etc. have different user interfaces, in turn guided by specific rules and guidelines. The usage and layout of elements is checked in the verification process when publishing the mobile applications in the markets. Non-compliance with rules and guidelines can delay the publishing process; in turn impacting increase in the cost of development and testing.

3. Two categories of Mobile Testing and the difference between them?

Ans. 1. Functional Testing

Functional software testing ensures that the application is, well, functioning, correctly. This type of testing focuses on the main purpose and flow of the app. In addition to the mobile app's specific functionality, there are other scenarios one should test for to limit errors, including but not limited to:

A. The application installs and launches correctly
B. The users can sign-up and login
C. Text boxes and buttons function properly
D. Push notifications render correctly

2. Usability Testing

Known as user experience testing, usability testing checks how user-friendly the app is in terms of ease of use and intuitiveness. Ideally, usability testing revolves around the entire app-driven customer experience with insights that include the identification of bugs and recommendations for ways to improve the customer experience, both in and out of the app.

Keep in mind the following:

1. Good layout and design
2. Intuitive
3. Response time

4. What are the extensions for the Android and iOS executable files?

Ans. Android - .apk (Android Application package)

iOS - .ipa (iPhone Application Archive)

5. What are the Pros and Cons of Hybrid, Native and Web app?

Ans.

Web Apps	Native Apps	Hybrid Apps
Web apps are not real applications; they are actually websites that open in your smartphone with the help of a web browser. Examples : - https://m.facebook.com	A native app is developed specifically for one platform. It can be installed through an application store (such as Google Play Store or Apple's App Store). Example − Whatsapp, Facebook**.**	Hybrid Apps are a way to expose content from existing websites in App format. They can be well described as a mixture of Web App and Native App. Example − Instagram,Uber.
Pros: ● Easy access. ● Easy Development ● Easy update ● No installation required, as compared to native or hybrid app	**Pros :** ● Native Apps live on the device and are accessed through icons on the device home screen. ● They can take full advantage of all the device features − they can use the camera, the GPS, the accelerometer, the compass, the list of contacts, and so on. They can also incorporate gestures. ● Native apps can use the device's notification system and can work offline. ● Redistribution is easy, as it is found in app store.	**Pros:** ● Maintenance is simple, as there are not many versions to be maintained. ● It can take advantage of a few features available in the device. ● It can be found in the App Store, which makes the distribution easy. ● It has a browser embedded within the app only.
Cons: ● Mobile websites cannot use some of the features. ● Many existing websites don't support offline capabilities. ● Users won't have the app's icon on their home screen as a constant reminder	**Cons :** ● High cost for building the app ● Even though you might publish native Apps, you'll want to keep the mobile website well maintained, as mobile brings more traffic. So **maintenance is higher**.	**Cons :** ● Graphics are less accustomed with the operating system as compared to Native Apps. ● Hybrid Apps are slower than Native Apps.

6. List down the types of testing we perform for mobile apps?

Ans.

1. Compatibility Testing

Compatibility testing is a critical QA task. It assures that a given application works as intended with selected operating systems, selected devices with different screen sizes resolutions, and internal hardware (memory size, processor speed, and button/input differences). It defines the feasible compatibility combinations of devices and interfaces for a specific testing assignment, in concurrence with the customer's requirement.

2. Installation Testing

Mobile phones come with different types of mobile apps like Native and Web and Hybrid.
Installation testing is a type of testing that is done at the initial stage of mobile app life span or maybe it is the first impression on the users, in other words. Installation testing checks whether the mobile app installs, uninstalls and updates properly without any interruption.

3. Interruption Testing

Interrupt testing is a process to replicate abrupt (Unexpected) interrupt to the application. It is done to understand how the app behaves under certain interruptions before resuming to its original state. This can be achieved in various ways and techniques depending on the application under test.

4. Localization Testing

This type of testing is a technique in which we check whether the mobile app adheres to the local cultural settings, customizing the apps according to target country and language and also according to the linguistic aspects.
Also, regional language speakers can't get many games in their own language, so they turn to race games, which are easy to understand. We must have noticed in these examples, language is the common issue.

5. Performance Testing

Performance testing is to test the performance of the mobile application in expected workload scenarios and to eliminate the performance hurdles. It checks whether the response of the app is quick, the ability of the app to tale load, and app stability in those load situations. Performance is very critical because if the app is malfunctioning, it is more possible that the user might uninstall the app and might shift to a competitor's app which is better.

6. Usability Testing

Usability testing is a type of testing which is performed to check how user-friendly the mobile application is in terms of the navigation, ease to use the app, flexible app controls, etc. It is also known as user experience testing.

7. Security Testing

80 percent of users would “uninstall an app due to security”. As such, it’s imperative you understand and respect security testing. From Tinder to travel apps, some applications ask for user’s personal information. If yours does, too, you absolutely must guarantee confidentiality, authenticity, and integrity of the app.

8. Manual Testing

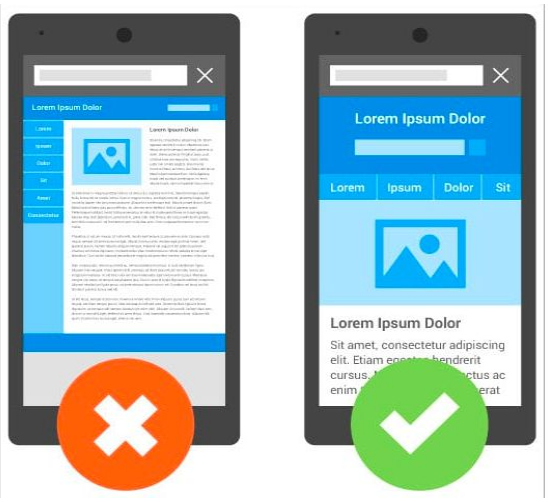
Mobile app testing is a complex process. Sometimes, real human experience can deliver the results you want. QA teams use manual testing to ensure that the final product really works as intended. With a specific role to play, manual testing is used to explore use-cases that may not be all that obvious.

7. What is the best way to test different screen sizes of the devices?

Ans. Compatibility testing (Compatibility testing is a critical QA task. It assures that a given application works as intended with selected operating systems, selected devices with different screen sizes resolutions..)

8. What is meant by Responsive testing in Mobile sites?

Ans. In today's mechanized world, the websites are not just viewed on a laptop nor a desktop but also on a tablet and a smartphone as well.



Gone are the days when we used to sit in front of our desktops or laptops to do shopping or internet surfing or emailing. Now it’s the mobile era and people access the internet while walking on the streets, sitting in a park, and anywhere they wish according to their comfort

Mobile-friendly websites need to give the same experience to the users on a mobile as it does on a laptop or a desktop. It needs to be tested for different browsers, different screen sizes, modes – landscape or portrait, etc.

We will run the URL in our mobile’s browser and check that the orientation,text,buttons,alignment of the page is accurate as shown on the laptop and desktop. So ,the way to check that how website is working in different resolution or mobile devices is called as Responsive Testing in mobile sites.

9. **What do you understand by usability? Why it is more important to be taken care? Give 3 points of usability from real-time apps you have in your phones.**

Ans . Usability is part of the broader term "user experience" and refers to the ease of access and/or use of a product or website. A design is not usable or unusable *per se*; its features, together with the context of the user (what the user wants to do with it and the user's environment), determine its level of usability.

It is more important to be taken care because :

- It should be easy for the user to become familiar with and competent in using the user interface during the *first* contact with the website. For example, if a travel agent's website is a well-designed one, the user should be able to move through the sequence of actions to book a ticket *quickly*.
- It should be easy for users to achieve their objective through using the website. If a user has the goal of booking a flight, a good design will guide him/her through the *easiest* process to purchase that ticket.
- It should be easy to recall the user interface and how to use it on subsequent visits. So, a good design on the travel agent's site means the user should *learn* from the first time and book a second ticket *just as easily*.

3 Usability points from real time apps in my phone:

1. **Whatsapp** :
    i. Easy to register your phone number
    ii. Easy To find contact on whatsapp
    iii. Easy to chat with desired contact
2. **Instagram** :
    i. Easy to Sign Up with mobile or google.
    ii. Easy to follow the user
    iii. Easy to view the activities happened on the instagram and perform like,comment,share,save and so on.
3. **Gmail :**
    i. Easy to Sign up by filling the form.
    ii. Easy to view the inbox,sent and drafts mails
    iii. Easy to reply to the mails

10. Should the user use their own devices or provided devices to perform usability testing? Give the reasons for “Yes/“No” or both “Yes and No” together.

Ans.

Usabilty testing is all about to test that how easily we can use the app so,I feel it can be **both** as if we are using an app in our phone then we can easily check and test the app anytime whenever we are free to see its usability and we are so handy and convenient with our phones so we can easily able to get the bugs.

And yeah If we have different phone then provided phone then it is more beneficial and effective for us to check it because we also have to check the user experience at different phones as well.

And If we work on provided devices we can work or test the app for a particular time or in our office time and Yes that can be the case that we can carry the provided phones with us but as humans we feel very lazy to switch the phones for just to test an app.

And I feel Normally **QA Team cannot test the apps in their phones** as that app might be unstable and error so It might affect our phone . So for the safer side we usually test the Usability in the provided devices.

11. What do you mean by Soft Keys and Hard Keys in mobile?

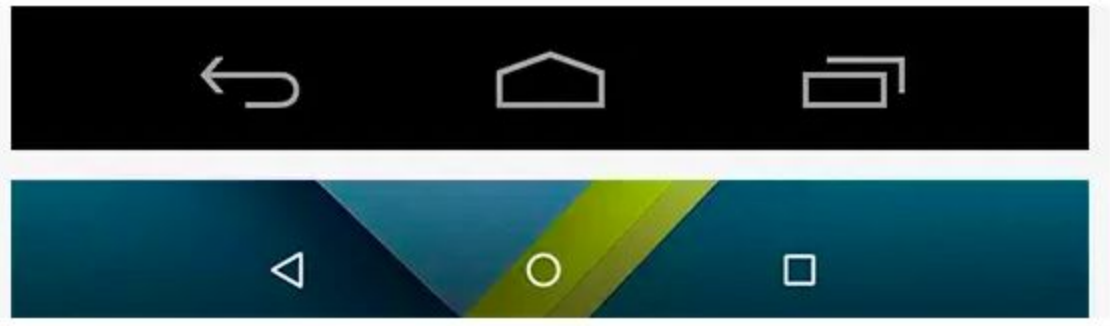
Ans.

Soft Keys

The Navigation Buttons on a device which are software oriented are called soft keys on Android Phones.

They are present on the screen as a part of the software.

Nowadays almost all devices house an on-screen navigation bar as the trend of 2018 Smartphones is 18:9 ratio displays and above because such a large display in a small chasis doesn't have a space for hardware navigation buttons.



These are soft keys. They are generally available in android phones.

Hard Keys :
A mobile key/buttons with a dedicated purpose.Earlier mobiles have only hard keys.

Like here in this mobile **Facebook** Button is a hardkey which is only used to open facebook in this phone.
Calling Button (Green) to call and pickUP the calls.

12.Difference between Mobile application testing and web application testing?

Ans.

Web Application Testing

- Cross browser testing and Compatibility Testing: For a web application, you have to ensure that your application having expected look and feel on all supportive browsers with has combinations of different operating systems. In parallel, you have to also make sure that the application should have the same look and feel in shorter screen resolution devices like mobile and tablets as well.
- Security Testing & Link checks: In terms of security testing, you have to make sure about the user session is working as expected but longer time duration. Your application must have broken links free. There are many online tools available that are too open source. You can use them to check the broken links in your application. Identify the broken links and try to avoid them.

- Cookies Testing: There are small files getting stores in your temporary folder that are called cookies which are used to maintain the user session of your application. You have to ensure the functionality by checking in both ways i.e. on and off cookies in your browser settings.
- We don't need to install any app in our system.
- No Icon would be available to go to the app.

Mobile App Testing:

When testing the mobile application, there are many constraints which you need to look at while testing. User experience is one of the major assets in your application. Your application may be the bug-free but if the user experience is not good, that does not worth. Some of the major areas we have to look into mobile app testing which does not make much importance in web application testing.

- **Installation/Un-installation testing:**
  This kind of testing you can cover in smoke testing. You need to make sure that you can be able to install and uninstall the application in all supportive devices and application is useful and not having any upfront crashing. You have to also make sure that when you uninstall the application, your app folder should also get deleted from the file manager when working with Android operating system.
- **Network Testing:**
  You need to be very sure about the application's network performance. You need to test your application in all aspects like in 4G, 3G, Wi-Fi, and edge. Apply prevention checks on all required and security concerning modules that in a low network or no network, avoid fatal errors.
- **Device Compatibility:**
  Your application should be compatible with all kind of operating systems versions and device screen resolutions. For example, if you have an iOS application, the application should work appropriately on all supportive iPhone, iPad and with minimum supportive iOS version to the latest available iOS version.
- **Memory Testing:**
  In your testing, memory is one of the major aspects where most the application lacking in the industry. We have to be aware of the memory leaks and RAM consumption from your application. And also make sure to reduce app size as lower as possible.