1. **Explain the Android Architecture and its key components?**

The Android architecture is a stack of technology that allows an application to

run on a android OS. There are 5 layers and 6 component

* 1. Linux Kernel - bottom layer
  2. HAL
  3. Libraries & ART
  4. Java framework API
  5. Application - top layer

1. **What is a Context and what is it used for?**

A context is an abstract class, from which Activity derived from - It gives you access to resources, allow components to communicate through messages and gives information about the app environment.

1. What is an Activity in Android? What is the activity lifecycle?

An Activity is one of the 4 key component of Android

- the component that the user interact with

- provides the UI elements

- It derived from the Context class and is

- the Controller component in MVC pattern

1. What are the differences between a list view and a recycler view?

The recycler view:

* 1. Material Design
  2. Animation
  3. Decoration
  4. Enforces view-holder design pattern
  5. layout manager

1. What is a ContentProvider and what is it typically used for?

Content providers is used in the management a set of shared application data. It is used for accessing information from other application, for example contacts.

1. How is automated testing done in android and what are the native tools?

unit testing and instrumental test with mocking using expresso

1. What is the relationship between the life cycle of an AsyncTask and an Activity? What problems can this result in? How can these problems be avoided?

When an activity is destroyed the AsyncTask continues to execute. The thread becomes and orphan thread and is a problem when the Asynctask wants to return the result. To avoid this problem, stop the running thread on the onDestroy or on onStop callbacks

1. What is an Intent? What are three common uses of an Intent?

Intent - allows a way for communicated between the 4 major android components. It can store extras and bundles to be passed between activities. It is also defined by its action and categories.

The 3 common applications are:

1. start and activity

2. start a service

3. receives a broadcast

1. What are the different types of Services?
   1. foreground service
   2. regular
   3. intent service
2. What is the difference between a fragment and an activity? Explain the relationship between the two?

The activity hosts the fragment, the activity can be used to communicate between multiple fragments. The lifecycle of the fragment is closely related to the activity lifecycle.

1. Explain the lifecycle of Services

There are 2 types of life cycles for Services, when it is bound an when it isn't. A regular service can live on indefinitely and a bound service is destroyed with its bound component.

1. What is new for developers in each of the following:
2. Lollipop - material design
3. Marshmallow - runtime permissions, recycler view
4. Nougat - data binding, multiple apps
5. If your instrumentation test is not running reliably, what might be the cause and how would you fix it?
6. Describe the use of resources in Android

Android studio can uses the resources to decided on the most appropriate display depending on the users preferences.

* 1. Different resources are used depending on the state of the phone, for example: landscape view, languages, left to right view

1. What is difference between Serializable and Parcelable ? Which should you use in Android?
   1. Serializable is a slower process that uses reflection, creating many temporary objects
   2. Paracelable is a faster method for marshaling objects, it is typically preferred over serializing
2. What is the difference between Service and IntentService? How is each used?

An intent service does not use the main thread, it uses worker thread to perform the operation

1. How would you make an app so that it displays well in all the different screens and device types?

Material design and using density independent pixels will help to standardize

the look and feel of all different devices and screen sizes.

1. Give me an example of when SQLite is typically used on an App?

SQLite is a lightweight database that that is typically use for simple, linear data. Storing the higher scores for each level for each player in a gaming app can use a SQLite.

1. What are some things you should avoid doing in a main thread?

Long running activities should be avoided such as:

- connection calls

- uploading/downloading data

1. What is inversion of control and what tools have you used for this purpose?
2. What is an adapter and when would you use it?

An Adapter is needed when using recycler or list view. It is used to bind

information from a list of objects to a view.

1. What are intent filters and how does Android use them?

intent filters are declared in the manifest and are used when an implicit intent

is made. When an intent filter is declared for an specific action it is saying that it is able to handle this type of action.

1. Why is it important to keep your Android key store safe?

for security reasons, and to keep the integrity of the application

1. What are the common HTTP verbs and what is each one used for
   1. POST - sending information
   2. GET - requesting information
   3. DELETE - deleting information
   4. PUT - changing information
2. How is HTTP structured? Explain.
   1. Header - the request
   2. Body - additional information - optional