

01

Q.P. code 36248

(2 ½ Hours)

[Total Marks: 75]

- N.B.
- 1) All questions are compulsory.
 - 2) Figures to the right indicate marks.
 - 3) Illustrations, in-depth answers and diagrams will be appreciated.
 - 4) Mixing of sub-questions is not allowed.

Q.1 Attempt All (Each of 5Marks) (15M)

(a) **Multiple Choice Questions**

- 1) Java SE (Correct Answer)
- 2) `publishProgress()` (Correct Answer)
- 3) `findViewById(int id)` (Correct Answer)
- 4) Manifest file (Correct Answer)
- 5) Starts an activity (Correct Answer)

(b) **Fill in the blanks. Use following pool to answer questions. [apk, ListView, NotificationManager, Adapter, Cursor]**

- 1) ListView is a view group that displays a list of scrollable items.
- 2) Adapter connects data to RecyclerView.
- 3) Queries always returns cursor object.
- 4) apk is a zip file containing everything that the application needs to run on user's device.
- 5) NotificationManager is the type of service provided by android that shows messages and alerts to user.

(c) **Answer in 1 - 2 sentences**

- 1) **Answer:**
To select only one choice among many.
- 2) **Answer:**
Compiled images
- 3) **Answer:**
using key -value pair
- 4) **Answer:**
sequence of operations performed as a single unit of work
- 5) **Answer:**
Protection given to app.

Q.2 Attempt the following (Any THREE) (15M)

(a) **Develop an android application to help a Telephone company to compute bill using the following data:**

- Accept number of calls made by the user.

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- Accept number of SMS sent by the user.

[Assume per call rate is 0.5 and SMS rate is Rs. 1. The final bill should take care of 18%GST.] (Write only Java code).

1M GUI and 4M for coding.

- (b) Define android and discuss the advantages of android.

1M definition and 1M each for any 4 advantages

- (c) What is the purpose of TextView? Explain the following attributes of TextView control:

- id
- textColor
- text
- textStyle

TextView: used to display data like a label [1M]

[1M each]

id: unique id

text: text to display

textColor: for color

textStyle: bold, Italic, underline

- (d) Write a note on the following controls. Give suitable example.

- CheckBox
- ToggleButton

2.5 M for each

- (e) Discuss following callback methods with respect to activity:

- onCreate()
- onStart()
- onResume()
- onStop()
- onDestroy()

1M for each

- onCreate() :activity is created
- onStart() :start the activity
- onResume() : activity is running
- onStop() :activity is not visible to user

- onDestroy() : destroyed the activity

(f) Develop an android application to print Toast message like in the example using DatePicker and TimePicker. Example: "Hi! Your cab booking is done as per your request 3 June 2018 at 9AM". (Write only Java code).

5M for correct program with proper implementation of DatePicker and TimePicker.

Q. 3 Attempt the following (Any THREE) (15M)

(a) Consider you have a menu consisting of items red, green, blue. Write a method or provide a menu item click listener to change the background color respectively. [Write XML code for menu and the appropriate methods in Java.]

2M for XML and 3M for method code in Java

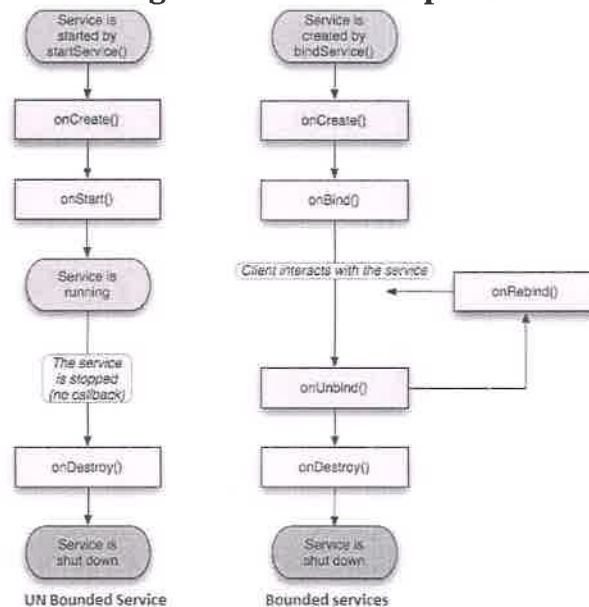
(b) Write a note on notification with respect to the following:

- Definition
- To create a notification builder
- To set properties like content text, icon, title
- Attaching actions
- Issuing a notification.

1M each

(c) Explain life cycle of service in android.

2M for diagram and 3M for explanation.





onStartCommand()
onBind()
onUnbind()
onRebind()
onCreate()

- (d) Write a note on Alarm Manager along with example.

2M for AlarmManager note and 3M for example.

To create alarms, you use the AlarmManager class. Alarms in Android have the following characteristics:

Alarms let you send intents at set times or intervals. You can use alarms with broadcast receivers to start services and perform other operations. Alarms operate outside your app, so you can use them to trigger events or actions even when your app isn't running, and even if the device is asleep.

When used correctly, alarms can help you minimize your app's resource requirements.

For example, you can schedule operations without relying on timers or continuously running background services.

There are two general types of alarms in Android: elapsed real-time alarms and real-time clock (RTC) alarms:

- (e) In order to implement two factor authentication, an organization needs to develop an android application which will accept mobile number from user. On click of submit button display a message with the help of Snackbar that "OTP is sent on your number".
[Write only JAVA code].
Also state the difference between Toast and Snackbar.

3M for correct program and 2M for difference.

A snackbar provides brief feedback about an operation through a message in a horizontal bar on the screen. It contains a single line of text directly related to the operation performed. A Snackbar can contain a text action, but no icons.

- (f) What do you mean by material design in android? Explain the concept in detail.

1M for 5 points

Q. 4 Attempt the following (Any THREE)

(15)



- (a) Write a short note on Shared Preferences.

Shared preferences: way of storing data, key-value pair

Example [5M]

- (b) Discuss the Google provided tools for advertisers the AdMob with respect to following points:
Concept, features and implementation.

AdMob

1M Concept, 2M features and 2M implementation.

- (c) Explain following with respect to database along with suitable example:

- Insert
- Select
- Update
- Delete
- Cursor

1M each

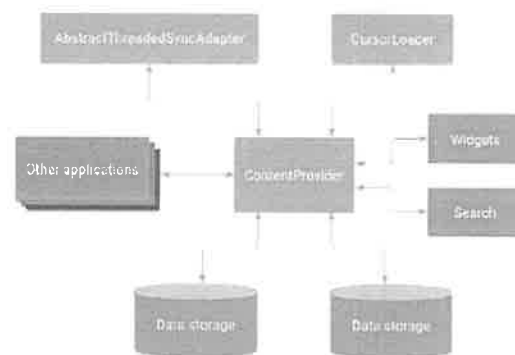
- (d) Discuss ACID properties of transaction.

ACID properties explanation 5M

- (e) What is a content provider? How does it work?

2M for diagram and 3M for explanation.

A content provider manages access to a central repository of data. A provider is part of an Android application, which often provides its own UI for working with the data. However, content providers are primarily intended to be used by other applications, which access the provider using a provider client object.



- (f) State the concept of performance. Discuss Memory monitor, CPU monitor, GPU monitor and Network monitor with respect to performance.

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1M each

Performance: 1M

Memory: reports about allocation of memory

CPU: CPU usage

GPU: graphical representation of how long GPU takes to render frames

Network: information of network, visually gives information on transferring data.

Q. 5 Attempt the following (Any THREE) (15)

- (a) Write XML code for the following GUI.
Name : [EditText] (Use textview for Name)
Password : [EditText] (Use textview for Password)
Buttons : Submit and Cancel.
Use Relative Layout with proper attributes.

5M for correct XML code.

- (b) How to perform back navigation in android? Provide one example.

5M for example.

- (c) Develop an application to play a music file. Provide necessary steps for the same. [Write only Java code.]

2M for correct steps and 3M for program.

- (d) Explain following terms in 2-3 lines.

- 1) gradle
- 2) layout
- 3) Floating Action Button
- 4) ANR
- 5) manifest file

1M each

Gradle: custom build tool used to build android packages

Layout: handles arranging the way its children appear on the screen

FloatingActionButton (FAB) is a circular button that triggers the primary action in your app's UI.

The **manifest** presents essential information about the application to the **Android** system

ANR: application not responding

- (e) Firebase, a set of tools for mobile and web app developers. Justify the statement and list some features of Firebase.

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1M for definition and 4M for any 4 features.

Firestore: tool provides to develop an app.

Integration with cloud

Authentication and security

Real time database

Storage support of file

Free from bug

High quality apps
