

- 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) The DalvikVM core libraries are a subset of which of the following?
  - a. Java ME
  - b. Java SE
  - c. Java EE
  - d. JAX-WS
- 2) Which of the following AsyncTask methods is NOT executed on the UI thread?
  - a. onPreExecute()
  - b. onPostExecute()
  - c. publishProgress()
  - d. onProgressUpdate()
- 3) What Activity method you use to retrieve a reference to an Android view by using the id attribute of a resource XML?
  - a. findViewByIdReference(int id);
  - b. findViewById(int id)
  - c. retrieveResourceById(int id)
  - d. findViewById(String id)
- 4) Which configuration file holds the permission to use the internet?
  - a. Layout file
  - b. Property file
  - c. Java source file
  - d. Manifest file
- 5) What does the following line of code achieve?  
`Intent intent= new Intent(this, Success.class);`
  - a. Creates a hidden Intent
  - b. Creates an implicit Intent
  - c. Create an explicit Intent
  - d. Starts an activity

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

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

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**(c) Answer in 1 – 2 sentences**

- 1) State the purpose of radio button in android.
- 2) What do you mean by drawables?
- 3) How to store data using shared preferences?
- 4) Explain what you understand by the term transaction with respect to Database.
- 5) Define the term security with respect to android.

**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.
- 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).

- (b) Define android and discuss the advantages of android.
- (c) What is the purpose of TextView? Explain the following attributes of TextView control:

- id
- textColor
- text
- textStyle

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

- CheckBox
- ToggleButton

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

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

- (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).

**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.]

- (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.

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- (c) Explain life cycle of service in android.
- (d) Write a note on Alarm Manager along with example.
- (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.
- (f) What do you mean by material design in android? Explain the concept in detail.

**Q. 4 Attempt the following (Any THREE) (15)**

- (a) Write a short note on Shared Preferences.
- (b) Discuss the Google provided tools for advertisers the AdMob with respect to following points:  
Concept, features and implementation.
- (c) Explain following with respect to database along with suitable example:
- Insert
  - Select
  - Update
  - Delete
  - Cursor
- (d) Discuss ACID properties of transaction.
- (e) What is a content provider? How does it work?
- (f) State the concept of performance. Discuss Memory monitor, CPU monitor, GPU monitor and Network monitor with respect to performance.

**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.
- (b) How to perform back navigation in android? Provide one example.
- (c) Develop an application to play a music file. Provide necessary steps for the same.  
[Write only Java code.]
- (d) Explain following terms in 2-3 lines.
- 1) gradle
  - 2) layout
  - 3) Floating Action Button
  - 4) ANR
  - 5) manifest file
- (e) Firebase, a set of tools for mobile and web app developers. Justify the statement and list some features of Firebase.