Q.P. Code : 20236

[Time: 2½ Hours]   [Marks: 75]

Please check whether you have got the right question paper.

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 in **not allowed**.

Q.1   Attempt the following (any THREE):   15
    a) Write a note on mobile computing devices.
    b) Write a note on mobile platforms.
    c) Briefly describe the android architecture.
    d) Explain the use of activities in an android application with its life cycle.
    e) Briefly explain different types of intents with suitable example.
    f) Write a note on use of styles and themes in android application.

Q.2   Attempt the following (any THREE):   15
    a) Differentiate between linear and relative layout.
    b) What is ToggleButton view? Write java code to describe implementation of ToggleButton in the Activity file. **(Hint: Display message whenever ToggleButton is used)**
    c) Write a note on intercepting touch events.
    d) Explain the concept of data binding in Android.
    e) What is the purpose of WebView class? Create an activity file that shows "Enter url" text filed and then "Go" button in the Web View Activity.java file to launch the application.
    f) Write a note on different options available for data storage in Android.

Q.3   Attempt the following (any THREE):   15
    a) Write the code to show the latitude and longitude.
    b) Write the CheckingConnection.java class to check the network of the Android device.
    c) List and explain methods for working with audio/video files in Android.
    d) Explain how you can send SMS in Android. Explain in brief.
    e) Write a note on support for sending E-mail in Android.
    f) Write a note performing Geocoding in Android.

Q.4   Attempt the following (any THREE):   15
    a) What is Bluetooth? What is the permission tag for Bluetooth in Android?
    b) What is the purpose of AsyncTask class? Explain the steps for using it.
    c) Write a note on ShapeDrawable Object for working with graphics based application in android.
    d) Briefly explain about publishing the Android App.
    e) Write a note on Messaging using Google Firebase Cloud Messaging.
    f) Briefly describe working with Animations in Android.

Q.5   Attempt the following (any THREE):   15
    a) Write a note on Google Map API.
    b) Describe use of concept of threads and Worker Threads.
    c) What are web services? Explain two web services used by Android for exchanging information between applications.
    d) What is Image View? What are the methods to use Image View?
    e) What is the use of Toast in Android? How can we create them? Explain.
    f) Write a note on working with Content Providers in Android.

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