Time: 2½ hrs.   **Marks:75**

Note: 1. All questions are compulsory with internal choice.
              2. Draw neat diagrams wherever necessary.
              3. Figures to the right indicate full marks.

Q.1   Answer the following (any four)   **(20)**
(a) What are different forms of for loop in Kotlin? Explain any one in detail.
(b) Explain the activity life cycle with diagram.
(c) Explain different features of Kotlin Language.
(d) What are types of constructors in Kotlin? Explain any one with example.
(e) Explain default argument and named argument in Kotlin function with suitable programming example.
(f) Explain Android Virtual Device in detail

Q.2   Answer the following (any four)   **(20)**
(a) Briefly explain about Android menu.
(b) Write a note on Intents in Android.
(c) Write a note on User Interface.
(d) List and explain features of firebase real time database
(e) Explain Progress Bar with its important attributes and method.
(f) Write a note on external storage.

Q.3   Answer the following (any four)   **(20)**
(a) What are the steps involved to publish your Android App on Play Store?
(b) Explain touch gestures with example.
(c) Write a note on different types services in Android.
(d) Define Resources. Explain any four drawable resources.
(e) Write a note on camera features.
(f) What is service explain in detail.

Q.4   Answer the following (any five)   **(15)**
(a) Explain Broadcast Receiver in Android.
(b) Write a note on Kotlin visibility modifiers.
(c) Explain MediaPlayer class with any three methods.
(d) Explain any three value resources.
(e) Write a Kotlin program to demonstrate method overriding.
(f) Explain any three drawable resources.

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