N.B 1) All questions are compulsory.
2) Figures to write 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 5 marks)   (15)
(a) Multiple choice Questions:
i) Which configuration file holds the permission to use the internet?
A. Layout file   B. Property file
C.Java Source file   D. Manifest file

ii) ----------- is represents a single screen.
A. An Activity   B. A view
C. Intents   D. Fragments

iii) Android content provider architecture, component that does not resides on data layer is
A. Internet   B. SQLite
C. Files   D. content provider

iv) Android calculates pixels density of mobile using unit of measurement
A. CP   B. SP
C.DP   D. GP

v) In android studio, a service that is started and cannot be stopped even calling activity is destroyed is
A. startService()   B. onStop()
C. onDestroy()   D. bindService()

(b) Fill in the blanks:
(Custom, anim,navigation bar, resource,cursor)
i) For specialized layout elements, palette element used is_____
ii) In android studio, currently open file location can be shown by_____
iii) Android component that controls external elements of file is called_____
iv) Queries always returns _____ Object.
v) _____is the recourse folder which contains XML files and defines animations.

(c) **Answer in 1-2 sentence.**

i) State the need of Alarm manager in android application.

ii) List the types of menus.

iii) Explain Hierarchical navigation.

iv) List different connect method for connecting to the internet.

v) Define the term security with respect to android.

Q.2 Attempt the following (Any Three) (15)

(a) Explain the Android Architecture.

(b) Explain Linear Layout in detail.

(c) Explain the Activity Life Cycle.

(d) Write a note on button control with suitable example.

(e) Develop an Android application which calculates Factorial of a given Number.

(f) Develop an android application to accept username as "admin" and password as "system" in suitable control and if it is valid then display a message "Welcome" else display a message "Invalid Login".(Write only java code)

Q.3 Attempt the following (Any Three) (15)

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

(b) Explain life cycle of service in Android.

(c) Explain Snackbar in android with example.

(d) Explain in brief broadcast receiver.

(e) Explain Popup Menu with suitable example.

(f) List different layout managers.Explain any one in detail.

Q.4 Attempt the following (Any Three) (15)

(a) Explain ACID properties in detail.

(b) List and explain various methods of content provider.

(c) Write short note on permissions in android.

(d) What is Firebase? List various features of the same.

(e) Explain the term security for android devices.

(f) state and explain various features of SQLite database.

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

(a) Explain EditText Control with suitable example.

(b) Explain TableLayout in detail.

(c) Explain the term Async Task with various methods.

(d) Explain Notification manager class along with example.

(e) List and explain various ways to store data in android.