No of page-3

Unique Paper Code : 2344000026

Type of the Course : Generic Elective

Name of the Paper : Internet Technologies: Mobile App. Design and Development

Semester : VII

Time : **3 hours** Maximum Marks : **90**

**Instructions for Candidates:**

a) Write your Roll No. on the top immediately on receipt of this question paper.

b) Section-A is compulsory.

c) Attempt any **four** questions from **Section-B**.

d) Attempt **all** parts of a question together.

## Section A

Q1. a) Explain the following terms: 6

i) Emulator

ii) Intent

iii) User Interface Elements

iv) ScrollView

b) Describe the significance of SQLite database in Android application. 3

c) Explain Date and Time picker in Android application with its methods. 3

d) Draw the lifecycle of an activity. 3

e) List the different types of views in Android application. 3

f) Draw the hierarchical directory structure of an Android application. 3

g) Write a program to send an SMS from an Android application. 3

h) Differentiate between JVM and DVM. 3

i) Write steps to develop an Android application. 3

## Section B

Q2. a) Explain the Android architecture with a neat diagram, highlighting the function of each layer. 5

b) Write code to demonstrate the complete Activity lifecycle by overriding all lifecycle methods and logging their execution sequence. 5

c) Explain ADT (Android Development Tools) Plugins in detail by describing their purpose. 5

Q3. a) Implement SQLite database operations by creating a Student Management System with table: Students (id, name, roll_no, marks). Write methods for insertStudent(), getAllStudents(), updateMarks(), and display data in RecyclerView with delete option for each record. 5

b) Analyze the Activity Lifecycle by writing code that demonstrates state transitions. Create an application that logs each lifecycle method call to Logcat, saves and restores data using onSaveInstanceState(), and shows a Toast when the activity is destroyed. 5

c) Develop a custom dialog that appears when a button is clicked. The dialog should contain title as "Thanks", message as "Do you want to proceed?", two buttons "Yes" and "No". Write the code to handle button click events. 5

Q4. a) Create an Android application to design a Student Registration Form similar to the layout shown in Figure 1. 10

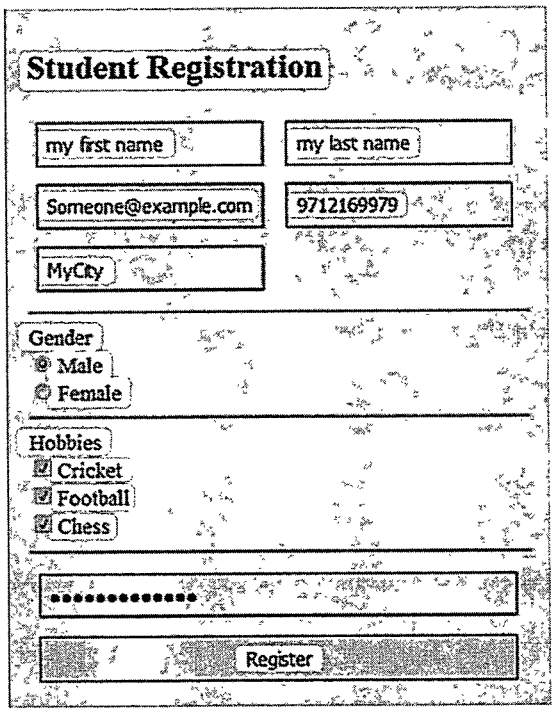


Figure 1

| | | | |
|---|---|---|---|
| | b) | Create a fragment-based application with MainActivity hosting two fragments. Fragment A should contain a ListView with five items, and Fragment B should display details when a list item is clicked. Implement fragment communication using interfaces. | 5 |
| Q5. | a) | Analyze Android application components by providing detailed explanation of Activities and Services. | 5 |
| | b) | Writing a complete AndroidManifest.xml file for a messaging application that requires permissions for SMS, Contacts, Internet, and Camera. | 5 |
| | c) | Explaining the significance of each element in the manifest file including <application>, <service>, <receiver>, <provider>, and <uses-permission> | 5 |
| Q6. | a) | Describe the layers of iOS architecture and their role in application development (with a neat diagram). | 5 |
| | b) | What is iOS SDK? Discuss tools, libraries, and APIs provided by the iOS SDK. | 5 |
| | c) | Discuss basic data types, constants, and variables in Swift. | 5 |
| Q7. | a) | Describe common controls UIButton, UILabel, UITextField, UISwitch, and UISlider with their uses. | 5 |
| | b) | Explain how MapKit is used to display maps, annotations, and routes in an iOS application. | 5 |
| | c) | Describe the working of Accelerometer and Gyroscope sensors in iOS. | 5 |