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| **SESSION** | **APRIL 2025** |
| **PROGRAM** | **BACHELOR OF COMPUTER APPLICATIONS (BCA)** |
| **SEMESTER** | **VI** |
| **COURSE CODE & NAME** | **DCA3201 MOBILE APPLICATION DEVELOPMENT** |
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**Set-I**

**Q1. Draw the Android architecture diagram and discuss the role of various layers available in android architecture framework. 5+5**

**Ans 1.**

**Understanding the Android Architecture**

Android, an open-source operating system for mobile devices, is structured in a layered architecture that facilitates modular development and efficient system management. This architecture is built on the Linux Kernel and includes multiple layers that interact with one another to provide comprehensive support for application execution and hardware control. The architecture ensures high performance, security, and portability across a wide range of hardware platforms.

**Linux Kernel Layer**

At the base of the Android architecture is the Linux Kernel, which provides essential system-level functionalities such as memory management, process management, power management, device

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**Q2. Discuss the importance of main thread in handling UI events in Android. Explain consequences of blocking the main Thread. 5+5**

**Ans 2.**

**Significance of the Main Thread in Android UI Operations**

In Android, the main thread, also known as the UI thread, is the central thread where all user interface-related tasks occur. Every time a user interacts with the app—whether it is tapping a button, scrolling through a list, or entering text—these interactions are processed through the main thread. The Android platform enforces this design to maintain consistency and prevent race conditions in the UI. This means that only the main thread is permitted to update the UI

**Q3. Describe the role of Media recorder class in audio and video recording with all the required steps. 5+5**

**Ans 3.**

**MediaRecorder in Android**

The **MediaRecorder** class in Android is a powerful API used for recording audio and video. It acts as a high-level interface for developers to configure, control, and manage the entire recording process. MediaRecorder provides essential support for multimedia applications where capturing real-time audio and video is required. It is most commonly used in applications like voice recorders, camera apps, surveillance systems, and social media platforms that allow content

**Set-II**

**Q4. What are Layout Managers. Discuss their importance in android UI design with View and ViewGroups. 5+5**

**Ans 4.**

**Understanding Layout Managers in Android**

In Android, Layout Managers are the backbone of User Interface (UI) design. They define how UI elements are arranged and displayed on the screen. A layout manager is responsible for organizing child components—referred to as Views—within a container called a ViewGroup. Android provides several predefined layout managers that serve as templates for arranging UI components in various patterns such as linear, relative, grid-based, or constrained formats. Each layout offers

**Q5. Discuss how Broadcast Receivers work in Android and provide an example scenario where they might be useful 5+5**

**Ans 5.**

**Broadcast Receivers in Android**

Broadcast Receivers in Android are components that allow applications to register for and respond to system-wide or app-specific broadcast events. They act as event handlers for communication between the Android system and applications, or between applications themselves. When an event occurs—such as a change in network connectivity, a low battery warning, or the receipt of an SMS—the system broadcasts an Intent. Broadcast Receivers listen for these broadcast Intents and react accordingly, allowing apps to perform appropriate actions even if they are not actively

**Q6. Describe the fundamental CRUD operations in database management. How are they executed in Android's SQLite? 5+5**

**Ans 6.**

**CRUD Operations**

CRUD is an acronym that stands for Create, Read, Update, and Delete—the four basic operations for managing persistent data in any database system. These operations form the foundation of database management by allowing developers to add new records, retrieve existing data, modify records, and remove obsolete entries. In Android, these operations are most commonly implemented using the built-in SQLite database engine, which provides a lightweight and efficient