

**A-1148**

Total Pages : 4

Roll No. ....

**BCA -ED**

**Introduction to Mobile Architecture**

Examination February, 2026

Time : 2:00 Hrs.

Max. Marks : 70

*Note :-* This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

**Section-A**

**Long Answer Type Questions** (2×19=38)

*Note :-* Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

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P.T.O.

1. Explain in detail the overall architecture of a mobile application. Describe its main layers and explain how these layers interact to provide a complete mobile solution.
2. With a neat diagram explain the architecture of the Android operating system. Describe the role of each layer, including the Linux kernel, libraries, and application framework.
3. What is continuous integration and continuous deployment (CI/CD) in the context of mobile app development ? How do these practices enhance quality and delivery speed ?
4. Discuss the importance of app signing and versioning before publishing on Google Play. What are the different types of app signing keys and their significance ?
5. What are the main features of Android Studio ? How does it support app design, coding, debugging, and testing in the Android development process ?

### **Section–B**

#### **Short Answer Type Questions** (4×8=32)

**Note** :- Section ‘B’ contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Describe how native applications interact with device hardware and operating system components. Discuss the advantages of native architecture in terms of performance, and security.
2. Discuss deployment and security considerations in mobile web application architecture. How do caching, authentication, and responsive design impact the architecture ?
3. Explain the importance of secure coding practices, permission handling, and SSL/TLS encryption in mobile application security.
4. Describe Layer 2 of a mobile OS architecture. Discuss its role in providing application frameworks, APIs, and user interfaces.
5. Explain how Siri is working as a voice-based intelligent assistant in iOS. Also discuss how does it integrate with the mobile operating system and user applications ?
6. Describe how volatile memory interacts with the processor during mobile app execution. Discuss factors that influence speed and power consumption.

7. What are the major security challenges in mobile application development ? Explain how authentication, encryption, and secure APIs protect user data.
8. Discuss the app development process in iOS. How does the iOS SDK, Xcode, and Interface Builder contribute to application development ?

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