Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sanshiva 12 of 2011) University under section 2(f) of UGC Act, 1956

End Term (Odd) Semester Examination November 2025

Roll no.....

Name of the Course and semester: III
Name of the Paper: Mobile Application Development
Paper Code: TMC 302

Time: 3 hour Maximum Marks: 100

Note:

(i) All the questions are compulsory.
(ii) Answer any two sub questions from a, b and c in each main question.
(iii) Total marks for each question is 20 (twenty).
(iv) Each sub-question carries 10 marks.

Q1. (2X10=20 Marks)
a. Interpret the Android system architecture and evaluate the functional purpose of each architectural layer through real-world scenarios. CO1
b. Critically compare Activities, Services, Broadcast Receivers, and Content Providers, focusing on execution model, memory usage, and lifecycle behavior. CO1
c. Examine the Activity lifecycle and justify how lifecycle callbacks maintain UI stability during configuration changes such as rotation. CO1
Q2. (2X10=20 Marks)
a. Develop a notification mechanism using standard and custom Toasts and justify their usability in mobile apps. CO2
b. Construct an interactive UI using LinearLayout and RelativeLayout and compare performance, flexibility, and nesting impact. CO2
c. Construct an activity-to-activity communication system using Bundles via intents and justify techniques for secure data transfer. CO2
Q3. (2X10=20 Marks)
a. Implement SharedPreferences, file handling, and SQLite storage in a single mini-application and justify the use-case for each layer. CO4 CO4
b. Construct a SQLite database using SQLiteOpenHelper and evaluate your table schema design. CO4
c. Demonstrate custom graphics rendering and animations, and evaluate their effect on app performance. CO 4
Q4. (2X10=20 Marks)
a. Develop a RecyclerView using ViewHolder, Adapter, and Model Class and examine performance optimization strategies. CO4
b. Construct a simple Android mini-project and justify each directory, resource file, and Gradle script used. CO5
c. Implement audio and video playback modules and analyze the constraints of using MediaPlayer and VideoView. CO5
Q5. (2X10=20 Marks)
a. Design GUI-based test cases using Espresso/UI Automator and interpret how UI test automation enhances reliability. CO6

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b. Evaluate testing tools (JUnit, Espresso, MonkeyRunner) and determine which testing levels they best support.	CO6
c. Construct a test strategy for UI, unit, and integration testing for an Android application.	CO6

Note For the question paper setters:

- Question paper should cover all the COs of the course.
- Please specify COs against each question.