



# UNIVERSITY EXAMINATIONS

**SECOND SEMESTER 2023/2024 ACADEMIC YEAR**

**THIRD YEAR EXAMINATION FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN (ICT) AND BACHELOR OF  
COMPUTER SCIENCE**

**COMP 314/BICT 316: MOBILE APPLICATION DEVELOPMENT**

***STREAM: R***

***TIME: 2 HRS***

***DAY: TUESDAY [2.30 – 4.30 P.M]***

***DATE: 16/04/2024***

**THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES**

**PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.**

**INSTRUCTIONS**

- i. Question One is COMPULSORY.**
- ii. Attempt any other TWO Questions from the remaining section.**
- iii. Do not write on the question paper**
- iv. Show your working clearly**

**SECTION A: (30 MARKS)**

**QUESTION ONE (30 MARKS)**

- a) Briefly define the following; **(6 Marks)**
  - i. Android
  - ii. Open Handset Alliance
  - iii. Fragments
- b) What are the key components of android architecture **(3 Marks)**
- c) Outline four advantages of using android as a platform for application development **(4 Marks)**
- a) Using a code example explain how you can launch an Activity within your application? **(5 Marks)**
- b) Discuss **four** restrictions that come with mobile devices. **(4 Marks)**
- c) Explain the functionalities of four main Android components: Activity, Service, Broadcast Receiver and Content Provider. **(8 Marks)**

**SECTION B: (ANSWER ANY TWO QUESTIONS 40 MARKS)**

**QUESTION TWO: (20 MARKS)**

- a) Sketch and discuss main lifecycle states and transitions of an Android Activity. **(8 Marks)**
- b) Discuss any **THREE** types of layouts found in android application. **(6 Marks)**
- c) Explain in brief the important folders in an android application. **(4 marks)**
- d) Briefly describe the android activity XML file in detail. **(2 Marks)**



**QUESTION THREE: (20 MARKS)**

- a) What is the role of Intent and Intent Filters in Android OS? (4 Marks)
- b) Write down the type of menu accessible in Android applications? (2 Marks)
- c) Outline four features of Android (4 Marks)
- d) What methods have we to override, to implement such Menus? (4 Marks)
- e) Using Diagrams explain the Android Software Stack (6 Marks)

**QUESTION FOUR: (20 MARKS)**

- a) Differentiate between match parent and wrap content in android layouts attributes (4 Marks)
- b) Explain AndroidManifest.xml file in detail. (8 Marks)

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.careerride" android:versionCode="1"
android:versionName="1.0">
<uses-sdk android:minSdkVersion="8" android:targetSdkVersion="18" />
<application android:allowBackup="true" android:icon="@drawable/ic_launcher"
android:label="@string/app_name" android:theme="@style/AppTheme">
<activity android:name="com.example.careerride.MainActivity"
android:label="@string/app_name">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

- c) Use an example to show how you can send an SMS in an android application (5 Marks)
- d) Explain the different types of exceptions in Android (3 Marks)

**QUESTION FIVE: (20 MARKS)**

- a) Explain briefly **TWO** strategies used to ensure that your app's user interface adapts effectively to different screen sizes and resolutions. **(4 Marks)**
- b) Provide a comprehensive analysis of using SharedPreferences and SQLite databases for data storage in Android apps.
- i. Explain **TWO** benefits and **TWO** drawbacks of using SharedPreferences method for data storage in Android apps. **(4 Marks)**
  - ii. Describe **TWO** strengths and **TWO** weaknesses of using an SQLite database for data storage. **(4 Marks)**
- c) Discuss **FOUR** security best practices in Android app development, especially when handling sensitive user data. **(4 Marks)**
- d) Explain **FOUR** steps that Android application developers employ to maintain user data privacy and security throughout the app's lifecycle. **(4 Marks)**

