

061006T4ICT

ICT TECHNICIAN LEVEL 6

IT/OS/ICT/CR/11/6

DEVELOP MOBILE APPLICATION

July/August 2024



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. The paper consists of two sections: A and B
2. Answer ALL questions in Section A and any THREE from section B
3. Marks for each question are indicated in the brackets
4. A separate answer booklet will be provided
5. Do not write on the question paper
6. Candidates should answer the questions in English

**This paper consists of FOUR (4) printed pages
Candidates should check the question paper to ascertain that
all pages are printed as indicated and that no questions are missing**

SECTION A (40 Marks)

Answer ALL the questions in this section

1. During introduction to mobile application development unit, you come across various terms in the introduction stage. Define the following terms:
 - i. Activity. (2 marks)
 - ii. Service. (2 marks)
2. Mobile application navigation patterns are critical for providing a smooth user experience. Highlight FOUR common patterns used in mobile app design. (4 marks)
3. Lucy wants to upgrade her phone and has been advised to get one with an android application system. Highlight FOUR features she will have on her phone. (4 marks)
4. Android development environment uses several terms in its operations. What do you understand by the terms JDK and IDE? (4 marks)
5. You are tasked to develop and test a mobile application to perform mathematical calculations, List FOUR essential tools you will need for testing. (4 marks)
6. Layouts and Fragments are part of the terms used in mobile application development process, explain your understanding on the two terms. (4 marks)
7. With the knowledge acquired in class, explain strings.xml file with an example in mobile application. (4marks)
8. Debugging is an essential part of any development, and several techniques help identify and fix issues in your code. State FOUR debugging techniques in android development. (4 marks)
9. You are an application developer working on a project using Android Studio. Your task is to write code by utilizing various operators. During a code review session, your team encounters multiple instances where the “??” and “?” operators are used. Differentiate between the two Operators. (4 marks)
10. Safaricom Ltd is carrying out a routine upgrading on their mobile applications. List FOUR advantages this exercise will have. (4 marks)

SECTION B: 60 Marks

Answer any THREE questions in this section

11.

- a) XYZ enterprises just hired you as their new system developer, your first task is to develop a mobile application. Identify any FIVE layouts you might use during your development process. (5 marks)
- b) Beatrice your Classmate has been given a task to develop a mobile application to be used by computing department to monitor students' attendance, Highlight FIVE steps she will use in the development process. (5 marks)
- c) The android manifest connects the application with the operating system. Write an example of a simple manifest file. (5 marks)
- d) Sylvester just trained you on how to write various simple programs. He gave you an assignment to come up with a program to demonstrate a click event handler for a button in mobile application. Write the code you will submit. (5 marks)

12.

- a) In Android development, Intents are a fundamental component of the operating system, Using examples describe TWO types of intents. (10 marks)
- b) While developing a layout in android studio environment, you come across several controls. Identify any FIVE controls you encountered. (5 marks)
- c) When running your Android application, the buttons appear with the specified background color and rounded corners. Develop a simple xml file showing how you would style a button. (5 marks)

13.

- a) Peter wanted to develop a mobile application for his poultry business, identify any SIX requirements he will use when developing the application. (6 marks)
- b) Managing application-wide styles in a separate file, offers several benefits in Android development. Discuss FIVE benefits of this style on different files. (10 marks)
- c) With the added flexibility and efficiency provided by Flutter's widget-based approach, explain the following functions.
 - i. `main()` (2 marks)
 - ii. `runApp()` (2 marks)

14.

- a) The `AndroidManifest.xml` file is a vital component of any Android application. Explain FOUR significance of this crucial component. (8 marks)

b) The lifecycle of a Service is managed by the Android system, and it includes several states and callback methods. Describe the following methods used in the lifecycle of an Android Service.

(10 marks)

- i. `startService()`
- ii. `bindService()`
- iii. `onCreate()`
- iv. `onStartCommand()`
- v. `onBind()`

c) Explain the role of the `SQLiteOpenHelper` class in managing an SQLite database in an Android application.

(2 marks)

THIS IS THE PRINTED PAGE.