

**061006T4ICT**  
**ICT TECHNICIAN LEVEL 6**  
**IT/OS/ICT/CR/10/6**  
**DEVELOP COMPUTER PROGRAM**  
**July/August 2024**



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

**WRITTEN CANDIDATE TOOL**

**TIME: 3 HOURS**

**INSTRUCTIONS TO CANDIDATE**

1. This paper consists of **TWO** sections: **A and B**.
2. Answer **ALL** questions in sections A and any **THREE** questions in section **B** in the answer booklet provided.
3. Marks for each question are indicated in the brackets.
4. **Do not** write on the question paper
5. Answer all questions in English.

**This paper consists of THREE (3) printed pages.**

**Candidate should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.**

**SECTION A: 40 MARKS**

*ALL the questions to be answered in this section*

1. As a program developer which FOUR rules would you observe when coming up with a variable in a C programming language? (4 marks)
2. A data flow diagram maps out flow of information for any process. List FOUR advantages of using data flow diagrams. (4 marks)
3. Jacob prefers writing a pseudocode before developing a program code. As an ICT expert, outline FOUR reasons for his preference. (4 marks)
4. A C program effectively demonstrates basic input and output operations. Write a program that prompts the user to enter the length and width of a rectangle. (4 marks)
5. Juma was engaged by Marafiki Youth Group to develop a simple program that keeps track of the group's financial collections. State FOUR approaches he could use to come up with the program. (4 marks)
6. Different activities take place during program development. Enumerate any FOUR of these activities (4 marks)
7. Joseph has hired you to use Java language in developing a program that will aid in teaching. As an expert state FOUR reasons why you will employ the use of references. (4 marks)
8. Inheritance is a characteristic of Object-Oriented Programming that allows a class to inherit properties and behaviors from another class. Mention FOUR forms of inheritance. (4marks)
9. After designing a new program, Pauline was directed by her trainer to test the program and detect any errors that she may have generated while coding. Which FOUR methods will she used to detect errors in her program? (4 marks)
10. Write a Java program that prompts the user to enter a non-negative integer  $n$  and calculates its factorial ( $n!$ ). (4 marks)

**SECTION B: (60 MARKS)**

*Answer Any THREE the questions in this section*

11.

- a) Kidogo Sacco has opened a branch in Kitale town. It has plans to install a computer program that will be used by its customers in carrying out its daily transactions. Mike being a new graduate of ICT Technician Level 6 sought your advice as an experienced computer programmer on the stages he should follow. Explain to him SIX stages that he should follow in order to develop a computer program. (12 marks)
- b) Edith is a programmer at Abacus Software Solutions. Discuss FOUR activities and practices that she isn't expected to do, either because they fall outside her professional scope or could negatively impact her work and the project. (8 marks)

12.

- a) Write a program in Java that prompts for entry of TWO integers. The program should provide methods to enter, add, subtract, multiply, divide and print the results (10marks)
- b) Computer programming involves several distinct phases that guide the development of software from initial conception to deployment and maintenance. Discuss FIVE phases involved in computer programming. (10 marks)

13.

- a) During your mentorship session, you have been requested to train users of ABC Company on a newly installed program. Describe FIVE methods of user training you can employ (10 marks)
- b) Testing is a crucial phase in program development that ensures the software functions correctly, meets requirements, and is free from defects. Describe FIVE methods that can be used for testing a newly designed program (10 marks)

14.

- a) In the process of program development, the principles of structured programming play a crucial role. Explain FOUR essential principles relevant to the C programming language. (8 marks)
- b) During your last computer programming class, Madam Namachanja required you to perform the following tasks.
- i. Write a pseudo code to calculate the area of a circle (5 marks)
  - ii. Write a C program based on the pseudo code to calculate the area of a circle (7 marks)

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