

061006T4ICT

ICT Technician Level 6

ICT/OS/IT/CR/10/6/A

Develop Computer Program

Nov. /Dec. 2022



THE KENYA NATIONAL EXAMINATIONS COUNCIL

WRITTEN ASSESSMENT

Time: 3 hours

INSTRUCTIONS TO CANDIDATES

Maximum marks for each question are indicated in brackets ().

*This paper consists of **TWO** sections: A and B.*

Answer questions as per instructions in each section.

You are provided with a separate answer booklet.

This paper consists of 4 printed pages

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

SECTION A (40 MARKS)

(Answer all the questions in this section)

1. List any **three** features of fourth generation languages. (3 Marks)
2. Explain **two** types of documentation used in computer program (4 Marks)
3. What is the purpose of comments in a program? (2 Marks)
4. Explain **four** basic data types associated with C? (4 Marks)
5. Describe static function with its usage in C programming? (2 Marks)
6. Differentiate between server side and client side of a website (2 Marks)
7. Differentiate between encapsulation and abstraction as used in Object Oriented Programming. (4 Marks)
8. Describe **two** importance of acceptance testing for a program. (4 Marks)
9. Discuss any **three** differences between interpreters and compilers (6 Marks)
10. Outline any **five** rules when naming identifiers in C programming (5 Marks)
11. Mary intends to carry out user training on a new developed system. Describe **two** methods she could use for training. (4 Marks)

SECTION B (60 MARKS)

(Answer any **THREE** questions in this section)

12. a) Define the term source code as used in programming. (2 Marks)
- b) Explain any **two** importance of generating a user manual for a program. (4 Marks)
- c) i) Explain **two** functions of a compiler in C programming. (4 Marks)
- ii) Differentiate between imperative and declarative programming languages. (4 Marks)
- d) Write a program in C language that prompts a user to enter Marks for five subjects, Computes the average and displays the result as a two decimal point value. (6 Marks)
13. a) Outline **four** rules for naming identifiers in C language. (4 Marks)
- b) Distinguish between instance and class variables as used in Java. (4 Marks)
- c) Write a program in Java that prompts for entry of **two** integers. The program should provide methods to enter, add, subtract, multiply and print the results. (6 Marks)
- d) James an ICT technician implemented a system in a company. He is tasked to develop a maintenance schedule.
- i) Describe **two** maintenance tools he is likely to use; (4 Marks)
- ii) In case bugs are detected in this system, explain the process of rectifying the bugs. (2 Marks)
14. a) Outline **four** characteristics of a constructor function. (4 Marks)
- b) Explain the try – catch method of exception handling in Java. (2 Marks)
- c) Write a program in C language that prompts a user to enter time taken in minutes or hours. Based on the units given the program should convert to hours or minutes respectively using a function? (8 Marks)
- d) Write a program in Java to display the following pattern. (6 Marks)

```
1   2   3   4
1   2   3
1   2
1
```

15. a) i) Define an abstract class as used in Java. (2 Marks)

ii) Leila was hired by a company to develop for them tailor-made software.

Describe TWO program development approaches she could use. (4 Marks)

b) AngiTech company intends to add a new program module to their existing system.

Explain the type of maintenance they need to carry out to this system. (2 Marks)

c) A student accesses their reports through a portal. A student logs in by using registration number and a password. This is verified against a registration database. The portal then opens and the student can view their exam report or the fee balance by specifying the course and the module.

Represent this logic using a structured chart. (6 Marks)

d) The following program segment is written using IF statements in Java programming.

```
Public class Vowel {  
    Public static void main (string [] args){  
        Char letter ='o';  
        If (letter =='a')  
            System.out.println (letter+" is a vowel");  
        Else if (letter =='e')  
            System.out.println (letter+"is a vowel");  
        Else if (letter =='i')  
            System.out.println (letter+ "is a vowel");  
        Else if (letter =='o')  
            System.out.println (letter+"is a vowel");  
        Else if (letter =='u')  
            System.out.println (letter+"is a vowel");  
        Else  
            System.out.println (letter+"is NOT a vowel");  
    }  
}
```

Re-write the segment using a switch structure. (6 Marks)