

1920/203
STRUCTURED PROGRAMMING
July 2017
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
CRAFT CERTIFICATE IN INFORMATION TECHNOLOGY

MODULE II

STRUCTURED PROGRAMMING

3 hours

INSTRUCTIONS TO CANDIDATES

This paper consists of TWO sections; A and B.

Answer ALL the questions in section A and any FOUR questions in section B in the answer booklet provided.

Candidates should answer the questions in English.

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* questions in this section.

1. The following is a program code written in one of the programming languages:
- ```
LDA 34
ADD #1
STO 34
```
- (a) Identify the generation of programming language. (1 mark)
- (b) State **three** benefits of using the generation language. (3 marks)
- 2 Distinguish between a *program* and *programming* as used in software development. (4 marks)
- 3 Given that the value of a variable X is 90. State the output when each of the following statements is executed in C programming language. (4 marks)
- (a) X += 25;
- (b) X \*= 2;
- (c) X -= 42;
- (d) X %= 3
- 4 State the difference between *putchar(a)* and *putchar a[0]* statements as used in C programming. (2 marks)
- 5 With the aid of a syntax statement, describe the **three** parts of a *for loop* as used in C programming language. (4 marks)
- 6 (a) Describe the term *white space* as used in C programming language. (2 marks)
- (b) State **two** examples of white space characters as used in C programming. (2 marks)
- 7 Distinguish between *call by value* and *call by reference* as used in programming. (4 marks)
- 8 (a) Outline **three** places in a C program where a variable can be declared. (3 marks)
- (b) Outline the function of each of the following statements in a C program: (3 marks)
- (i) int mult(int x,int y)
- (ii) Scanf(“%d%d”,&a&a)
- (iii) Scanf(“%s”,t(i))
- 9 State the difference between r+ and w+ file commands as used in C programming. (4 marks)
- 10 Describe **two** parts of a pointer declaration as used in C programming. (4 marks)



SECTION B (60 marks)

Answer any **FOUR** questions in this section.

- 11 (a) Outline **four** operations that can be performed on a linked list. (4 marks)
- (b) Andrew would like to develop a system using one of the programming languages. Explain **three** factors that he should consider when selecting the appropriate language. (6 marks)
- (c) Write a C program code that would prompt a user to enter 10 integer numbers. The program should then sum up the numbers and display the results. Use a *while loop*. (5 marks)
- 12 (a) Explain each of the following terms as used in programming:
- (i) Interpreter;
- (ii) editor. (4 marks)
- (b) Explain **two** factors to consider when declaring *formal parameters* in C programming. (4 marks)
- (c) Write a C program code that would prompt a user to enter two numbers. The program should then use a function to compute the sum of the two numbers and display the results. (7 marks)
- 13 (a) Outline the function of each of the following printf () format specifiers used in C programming. (3 marks)
- (i) %c
- (ii) %e
- (iii) %f
- (b) (i) Describe the term *technical documentation* as used in programming. (2 marks)
- (ii) Annet would like to include information in the program documentation that would assist users of the system. Outline **four** types of information that she should include in the document. (4 marks)
- (c) Write a C program code that would prompt a user to enter two integer values. The program should then compute the product of the two numbers and display the output. (6 marks)
- 14 (a) Outline **three** reasons for declaring variables in a program. (3 marks)
- (b) Distinguish between a *bubble sort* and a *selection sort* as used in data structures. (4 marks)

- (c) Write an algorithm that would be used to add an element into a stack. (4 marks)
- (d) Write a C program code that would initialise variable *num* to 10. The program should then display the value and address of variable *num*. (4 marks)
- 15 (a) Explain the use of a flowchart in program design. (2 marks)
- (b) Distinguish between *decision tree* and *decision table* as used in program design. (4 marks)
- (c) Explain each of the following terms as used in data structures:
- (i) queue;
  - (ii) linked list. (4 marks)
- (d) Write a C program code that accepts two strings of not more than 30 characters. The program should then join the two string values and display the output. (5 marks)

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