



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA CIVIL ENGINEERING

COMPUTER PROGRAMING

DATE: 26/10/2020

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) State the *differences* between the following terms.
 - i. Syntax and source code
 - ii. Variable and Constant
 - iii. Compiler and Interpreter
 - iv. High level languages and Low level languages (8 marks)
- b) Explain the meaning of the term *data type* as used in C programming. (2 marks)
- c) Write a C program that will accept **two** values through the keyboard and calculate their product. (5 marks)
- d) List any four benefits of using functions in a program (4 marks)
- e) Describe any **three** C programming variable Formatters. (6 marks)
- f) Mary went through a C program and met the **&** sign in the scanf statement. Explain to her it's purpose. (2 marks)
- g) Differentiate between the following expressions
 - i. =
 - ii. == (2 marks)

QUESTION TWO (20 MARKS)

- a) Explain the methods of *declaring* a constant. (4 marks)
- b) State the reasons why the following identifiers are *invalid*
 - i. value\$sum
 - ii. exit flag
 - iii. 3lotsofmoney
 - iv. Char (4 marks)
- c) Write a C Program that will accept the *radius* of a circle and then calculate the *area* and the *perimeter* of a circle. (4 marks)
- d) Using a flow chart, explain the differences between a while loop and a do..while loop as used in structured programming (6 marks)
- e) Distinguish between *or* and *not* logical operators (2 marks)

QUESTION THREE (20 MARKS)

- a) Explain the purpose of # sign in the include statement in C programming. (2 marks)
- b) Describe the *conditional operator* giving an example. (4 marks)
- c) Write a C program that will printout numbers *1 to 10* use the for() loop (4 marks)
- d) Explain the different types of parameters. (4 marks)
- e) Write a C program that will accept the item code of a product and display the respective product name using the table below. Use the *Switch case* statement.

<u>Code</u>	<u>Item</u>
A	Pencil
B	Book
C	Pen
D	Rubber

(6 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the meaning of *control flow* as used in C programming. (2 marks)
- b) List any **two** examples of programming languages under the third computer programming language generations. (2 marks)
- c) Ufanisi Company limited uses the following information to compute its employees net pay,
Rate of pay= Ksh 1000 per hour

Rate of taxation 11%

Write a C program that accepts an employee's name and number of hours worked then computes the net pay and outputs the name, hours worked, gross pay and net pay

Hint:

Gross pay= hours worked *rate of pay

Taxation = gross pay * taxation

Net pay= gross pay – taxation

(5 marks)

- d) The following is a C program segment. Use it to answer the question that follows

main()

{

int a,b,c,y;

b=++a;

c=b++;

y=b+c;

}

Give that the value of a is 6, evaluate the value for y.

(4 marks)

- e) Explain any **four** benefits of using functions in a program

(4 marks)

- f) State the differences between *continue* and *break* as used in C programming.

(3 marks)

QUESTION FIVE (20 MARKS)

- a) Using appropriate examples illustrate the **two** types of *comments* used in C

(2 marks)

- b) Outline any **three** rules that must be followed when creating an identifier

(3 marks)

- c) Write a C program that will *prompt* the user to enter **five** marks for **five** Subjects using the keyboard. It should then calculate the *average* of the **five** Subjects and award the appropriate *grade* using the following grading system

AVERAGE

GRADE

>= 75

A

>= 60

B

>= 50

C

>= 40

D

<40

E

(7 marks)

- d) Write a C program that accepts an *integer* number and calculates its *Squire Root* using an in-built function (5 marks)
- e) The following is a C program. Use it to answer the question that follows

```
#include<iostream.h>
{
    Interger I, j, y;
    for(i=1; i<n; i++)
        Y:=i*y;
}
```

Identify **three** errors in the program

(3 marks)