MACHAKOS UNIVERSITY

University Examinations 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

2920/103: STRUCTURED PROGRAMMING

DATE: 3/12/2021 **TIME: 8.30-11.30 AM**

INSTRUCTIONS

Answer any five questions

1 a) State the *differences* between the following terms.

i. Constant and Variable.

ii. Identifier and Keywords.

iii. High level languages and Low level languages.

iv. Monolithic programming and imperative programming (12 marks)

b) Explain any three programming tools that can be used during program development life cycle (6 marks)

c) Explain the meaning of the term *data type* as used in C programming. (2 marks)

2. a) Write a C program that will accept two values through the keyboard and calculate their product. (6 marks)

b) Explain any **three** C programming variable Formatters. (6 marks)

c) Explain the meaning of the following terms as used in C programming

i. compiler

ii. Interpreter

iii. Executable code (6 marks)

d) Identify the difference between the following expressions

i. =

ii. = = (2 marks)

3. a) Table1 shows the criteria used by a certain college to ward grades to students in an examination. Use it to answer the question that follows

Average	**Grade**
From 70 to 100	A
From 60 to 69	B
From 50 to 59	C
From 40 to 49	D
Less than 39	F

Table 1

Write a C program that would prompt a user to enter three subject marks for a student, the program should then calculate the average and using it determine and output the grade. Use the *multiple if else* statement. (6 marks)

b) Outline the methods of *declaring* a constant. (4 marks)

c) State the reasons why the following identifiers are *invalid*

i. Value$sum

ii. Exit flag

iii. 3lotsofmoney

iv. Char (4 marks)

d) Explain any four factors one should consider before buying a programming Language (4 marks)

e) Explain the meaning of the term ***Program*** (2 marks)

4 a) Explain the *top down* and the *bottom down* approach . (4 marks)

b) Explain any **four** qualities of a *good program*. (4 marks)

c) Write a C program will accept a value representing the radius of a circle. The program should the calculate and display the area and perimeter of the circle

NB use pie as 3.14 (6 marks)

d) Write a pseudo code for a program that will accept a value then display the value, and a Message indicating whether the value is an *even* number or an *odd* number. (4 marks)

e) Define the term *identifier* as used in programming. (2 marks)

5 a) Write a C program that will accept a value then determine if the value entered is an even number or an odd number (5 marks)

b) Study the statement below

scanf("%d",&number)

Explain the purpose of the & sign and %d in the statement above. (3 marks)

c) A module I student intents to create a program that would accept the amount of money spent in a supermarket in Kenya shillings. The program should then calculate the equivalent of the amount in either dollars or pounds and out put the results.

i. Draw a flow chart to represent the program logic. (4 marks)

ii. Write a Pseudo code for the design in (i). Use the rates: 1 dollar= Ksh 85 and 1 pound= Ksh 130. (4 marks)

d) Distinguish between *or* and *not* logical operators as used in Structured programming. (4 marks)

6. a) Describe any four types of maintenance done on a computer system (4 marks)

b) State the meaning of the following *escape codes*

i. \n.

ii. \t.

iii. \v.

iv. \a. (4 marks)

c) Distinguish between *simple* and *compound* statements as used in Structured programming. (4 marks)

d) List the different types of *control structures* (4 marks)

e) Describe the differences between initialization and declaration (4 marks)

7 a) Explain **two** advantages and **two** disadvantages of using a flowchart in program design. (4 marks)

b) Johnson is in a process of testing a program for a client. As a Computer Systems expert, explain to him the different types of test data to be used in the program (4 marks)

c) Using an example, explain the conditional operator (6 marks)

d) Write a C program that will accept three values through the keyboard, the program should output the largest value among the three (6 marks)

8 a) Outline **four** benefits of program documentation to the end user. (4 marks)

b) Table 1 shows the main menu of a management information system. Use it to answer the question that follows.

	Menu Activity
1	Capture a New Student
2	Edit Record
3	Check Balance
	Close Record

Table 1

Write a flow chart for a program that would prompt a user to enter an option. The program then outputs the menu activity. (6 marks)

c) Distinguish between program *execution* and *deployment* as used in programming. (4 marks)

d) Explain **three** stages in program development. (6 marks)