



MACHAKOS UNIVERSITY

University Examination for 2023/2024

DIRECTORATE OF TVET

DEPARTMENT OF BUSINESS

**FIRST YEAR FIRST TERM EXAMINATION FOR
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY**

UNIT CODE: 2920/103

UNIT NAME: STRUCTURED PROGRAMMING

Date: _____

Time: _____

INSTRUCTIONS

Answer any five questions

SECTION ONE

- 1 a) State the *differences* between the following terms.
 - i) Top down Approach and Bottom Up Approach
 - ii) Constant and Variable
 - iii) Procedural and Event driven Programming.
 - iv) Compiler and Interpreter (8 marks)
- b) Explain any **three** programming tools that can be used during program development (6 marks)
- c) Write a C program that will accept one value representing the radius of a circle through the keyboard. The program should then calculate the area and perimeter of the circle and display the results. Use **Pie** as 3.14 (6 marks)
- 2 a) With the Aid of a diagram, Describe the different parts of a decision table. (6 marks)
- b) Explain any four Disadvantages of Flowcharts. (4 marks)
- c) Describe the general syntax of the main input file. (4 marks)
- d) State the meaning of the following *escape codes*
 - i) **\n**.

- ii) \t.
- iii) \v.
- iv) \a.

(4 marks)

e) Identify the difference between the following expressions

- i) =
- ii) ==

(2 marks)

3 a) ABC company wants to establish a programming unit, as a computer programming expert explain to the management any **four** factors they should consider when choosing a programming language (4 marks)

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

c) Explain the different methods of initializing a variable (4 marks)

d) Write a c program that will accept two values through the keyboard, the program should the determine and output the sum and the difference between this values. (6 marks)

e) Outline the two types of comments (2 marks)

4 a) The Table below shows the criteria used by the Bursary Committee in a certain County. Use it to answer the question that follows.

Category	Amount
P – for Poor Household	30,000
S- for Single parent	25,000
A- For Affirmative Action	19,000
	0

Construct a Flowchart that would accept a student's category, the program then outputs the amount the student qualifies for. (6 marks)

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

c) Explain any four *data types* used in C programming (4 marks)

d) Explain the different types of test data as used in System testing (4 marks)

- e) List any **two** examples of programming languages under the fifth Computer Language generations (2 marks)
- 5 a) Explain the differences between the following terms.
- i. Executable code and Source code
 - ii. Programming Language and a Program
 - iii. Imperative programming technique and monolithic technique (6 marks)
- b) Explain **two** advantages of modular programming. (4 marks)
- c) Write a *decision table* for a program that will accept the **age** of a student and the display the appropriate message. If the student's age is *above 35* then the system should display **very old**, if age is *above 20* then the system should display **old** otherwise the system should display **very young**. (6 marks)
- d) John a business man was going through a program development proposal and could not understand the purpose of system design. As an expert, explain to him the different types of system designs (4 marks)
- 6.a) Explain any four file Specifiers used in C programming (4 marks)
- b) Write a Pseudo-code for a program that accepts the total number of words in a book and the number of words per page. The program then computes the number of pages and displays the results. (6 marks)
- c) Explain any **Four** types of Feasibility studies conducted during program development life cycle (4 marks)
- d) Explain the Four types of System Maintenance (4 marks)
- e) Explain any four rules for creating identifiers (4 marks)
- 7 a) Explain **two** advantages and **two** disadvantages of using a Algorithms in program design. (4 marks)
- b) Explain the different types of errors encountered during the debugging stage in Program development life cycle (6 marks)
- c) Using examples, explain the logical operators (4 marks)
- d) Write a c program that will accept height and the radius of a cylinder, the program Should the determine and display its volume.
Hint $\text{volume} = \pi r^2 h$ (6 marks)

- 8 a) Outline **four** benefits of program documentation to the end user. (4 marks)
- b) Explain the differences between the following terms
- i. White box testing and Black box testing
 - ii. Curative maintenance and adaptive maintenance
 - iii. Object code and source code
 - iv. System analyst and Programmer
- (8 marks)
- c) Outline the different types of testing in Program development. (4 marks)
- d) Explain the different types of program Implementation