



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

2920/103: STRUCTURED PROGRAMMING

DATE: 24/4/2019

TIME: 8.30-11.30 AM

INSTRUCTIONS

Answer five questions at least two from section one and at least two from section two

SECTION ONE

- 1
 - a) State the *differences* between the following terms.
 - i. Functional programming technique and event driven programming.
 - ii. Modularity and Structured theorem.
 - iii. High level languages and Low level languages. (12 marks)
 - b) Explain any three programming tools that can be used during program development (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) Mary went through a program and met the **&** sign in the scanf statement. *Explain* to her it's purpose. (2 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) =
 == (2 marks)
- 3 a) Explain the meaning of the following terms as used in C programming
 i. compiler
 ii. Interpreter
 iii. Executable code (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) Outline the two types of comments (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 that accepts an *integer* number and calculates its square root (4 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) 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)

SECTION TWO

- 5 a) Define the term *identifier* as used in programming. (2 marks)
- b) Explain **two** advantages of modular programming. (4 marks)
- c) A module I student intends 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 Pascal program to implement the design in (i). Use the rates: 1 dollar= Ksh 85 and 1 pound= Ksh 130. (6 marks)
- d) Distinguish between *or* and *not* logical operators as used in Pascal programming. (4 marks)
6. a) i) Outline **two** advantages of using an interpreter to translate a program.(2 marks)
 ii) Explain **two** uses of comments in a Pascal program. (4 marks)
- b) Write a Pascal 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) Distinguish between *simple* and *compound* statements as used in Pascal programming. (4 marks)
- d) Explain each of the following terms as used in Pascal programming.
 i) selection
 ii) iteration. (4 marks)
- 7 a) Explain **two** advantages and **two** disadvantages of using a flowchart in program design. (4 marks)
- b) Study the following program and answer the questions that follow.
 Program get area (input,output)
 const rate := 0.1;
 var 2salary, pension, integer;
 writeln (Enter the basic salary of an employee);
 read(Bsalary);
 pension = rate*2salary,
 Nsalary = 2salary + pension
 writeln(=====)
 writeln(Your new salary is Nsalary)
 end.
- (i) Identify the errors in the program. (6 marks)
- (ii) Rewrite the program correcting the errors identified in (i). (5 marks)
- c) Write a program that could accept the name and age of a student. The program should the output either “_____You old enough to vote” if the age is greater than 18 years

or “ _____You can’t vote”) otherwise. The dashes should be filled with the name of the student. (5 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.

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

Table 1

Write a Pascal 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)