



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR
BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

EMM 201/EEE201: INTRODUCTION TO COMPUTER PROGRAMMING

DATE: 23/9/2019

TIME: 11.00-1.00 PM

INSTRUCTIONS

Answer Question ONE and any other TWO Questions

QUESTION ONE (30 MARKS)

- a) i) State three merits of using a strongly typed language in application development. (3 Marks)
- ii) State four guiding rules for naming variables in C programs. (4 marks)
- iii) Explain the difference between signed and unsigned data type as used in C. (4 marks)
- b) i) Outline four categories of operators used in C giving an example in each case. (4 marks)
- ii) Outline three parts of a **for** loop as used in C programs. (3 marks)
- iii) Define the term escape sequence and list two examples. (4 marks)
- iv) What is type casting in C? (2 marks)
- v) Explain three types of errors in C. (6 marks)

QUESTION TWO

- a) Explain the difference between a recursive function and iteration used in C (4 marks)
- b) Write a C program that will prompt a user to input a number and check whether number is even or odd using **if else** (8 marks)
- c) Table 1 shows country codes. Write a C program that will prompt a user for the country code then the program outputs the name of the country. Use **switch** statement. (8 marks)

Country code	Country name
254	Kenya
255	Tanzania
256	Uganda
257	Burundi
258	Mozambique
Any other number	Invalid country code

QUESTION THREE

- a) Explain the difference between do.....while and while.....do as used in C. (4 marks)
- b) Explain the difference between function overloading and function prototype as used in C. use an example. (6 marks)
- c) By use of a function write a C program that will calculate the volume of a sphere and return the calculated result. The function should accept radius as an argument. Hint $V = \frac{4}{3} \text{Pie} \times r^3$. (10 Marks)

QUESTION FOUR

- a) Differentiate between local and global variable as used in programming. (4 marks)
- b) Explain each of the following statements as used in C programming language. (8 marks)
- i) switch;
 - ii) default;
 - iii) continue;
 - iv) break.
- c) Write a C++ program that would prompt the user to enter the choice of a fruit and display the message as shown in table 1. Use **if.....else** statement. (8 marks)

Character	Message
O,o	I love oranges
A,a	My best fruit is apple
B,b	Bananas are sweet
Any other	I don't know the taste

QUESTION FIVE

- a) i) Differentiate between an array and a structure as used as used in C programs. (4 marks)
- ii) Use C programming language to create a **structure** that can be used to store these details: *Name, IdNo, Gender, Age, Department, Salary*. (4 marks)
- iii) For the structure created in (ii), declare an appropriate variable that can be used to access the values. (2 marks)
- b) Write a program to find the factorial value of any number entered through the keyboard. Use for loop. (10 marks)