

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2014/2015

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**

**ICS 2102 : INTRODUCTION TO COMPUTER PROGRAMMING IN C**

**DATE: APRIL 2015 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND**

**ANY OTHER TWO QUESTIONS.**

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**QUESTION ONE (30 MARKS)**

(a) Discuss the steps that are followed when executing a C program.

[5 marks]

(b) The basic structure of a C program comprises of the different elements. Discuss these elements: [5 marks]

1. Preprocessor statements.
2. Main ()
3. A pair of curl braces { }
4. Declaration and statements.
5. User defined functions.

(c) Explain any five characteristics of a C program. [5 marks]

(d) What are the rules for construction variable names? [4 marks]

(e) Differentiate between the following set of programming terms:

[4 marks]

1. Variable and identifier.
2. Operand and operator.

(f) List and explain the various types of functions. [4 marks]

(g) In order to write an efficient user defined function the programmer needs some elements. Name and explain. [6 marks]

(h) What is the difference between the call by value and the call by reference argument passing conventions in the C programming language? [2 marks]

**QUESTION TWO (20 MARKS)**

(a) Contrast the features of a compiler and interpreter as used in high level languages. [4 marks]

(b) List at least an advantage and disadvantage of machine language, and thereafter go ahead and give one advantage of introducing assembly language. [3 marks]

(c) What is a variable? [1 mark]

(d) Write a C program to calculate sum of 5 subjects and find their percentage. [6 marks]

(e) Write a program in C to convert the temperature from Celsius to Fahrenheit. Given formula as f = ((1.8\*c) + 32). [6 marks]

**QUESTION THREE (20 MARKS)**

(a) What do the character combinations below mean: [4 marks]

1. ‘\t’
2. ’\n’
3. ‘\f’
4. ‘\a’

(b) C characters are grouped into various categories, list and give examples for each of them. [4 marks]

(c) Use the If then else statement to write a program to read a given year, and find whether the given year is a leap year or not.

[6 marks]

(d) Given student registration number, their marks in 3 subjects, write a C program to accept this and calculates total, average and prints it. [6 marks]

**QUESTION FOUR (20 MARKS)**

(a) What are the steps taken in the execution of the (for) statement?

[3 marks]

(b) Use the (for) loop to write a C program to display 20 natural numbers and their sum. [6 marks]

(c) Write a program in C language to accept a number and print mathematical table of the given number. [6 marks]

(d) Use the (switch) statement to write a program that accepts 5 single digit numbers and prints them in words. [5 marks]

**QUESTION FIVE (20 MARKS)**

(a) What are the rules for writing the (switch) statement? [5 marks]

(b) Pointers are used for a number of reasons, state them briefly.

[5 marks]

(c) Why do we need user defined functions in C programming?

[4 marks]

(d) Write a program to accept two numbers and prints the sum of two numbers using functions. [6 marks]