# EMBU UNIVERSITY COLLEGE

**(A Constituent College of the University of Nairobi)**

**2015/2016 ACADEMIC YEAR**

**SECOND SEMESTER EXAMINATION**

**SECOND SEMESTER EXAMINATIONS 2015/2016**

**FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN STATISTICS**

**STA 121: PROGRAMMING METHODOLOGY**

**DATE: APRIL 11, 2016** **TIME: 02:00-04:00**

**INSTRUCTIONS:**

**Answer Question ONE and ANY Other TWO Questions**

## QUESTION ONE

a) Explain the role of the following escape sequences in C Language (4 Marks)

i) \t

ii) \n

iii) \\

iv) \"

b) Explain the meaning of the following words as used in programming (4 Marks)

i) Functions

ii) Comments

iii) Compiler

iv) Constants

c) Using examples discuss any **two** methods of passing parameters to a function in C language (4 Marks)

d) Discuss the **two** types of computer software. (4 Marks)

e) Write a simple program in C language that will print the numbers 10 to 1 in descending order as shown below: (4 Marks)

10 9 8 . . . 1

f) Compare and contrast computer main memory and secondary memory. (5 Marks)

g) Convert the following as stated: (5 Marks)

i) $2341_8$ into decimal number system

ii) $431_{10}$ into hexadecimal number system

## QUESTION TWO

a) Create a simple program that when given an integer as input will rewrite it in a reverse manner e.g. 5231134 would be rewritten as 4311325

(10 Marks)

b) A computer without an operating system is just but a collection of electronic components. Discuss the **five** main functions of a computer operating system

(10 Marks)

## QUESTION THREE

a) Briefly discuss the following terms (6 Marks)

i) Keywords

ii) Variables

iii) Header Files

b) Write a program to display sum of all numbers between 1 and 200 using the **for loop** statement

(6 Marks)

c) Using simple programs differentiate between **while loop** and **do while loop** (8 Marks)

## QUESTION FOUR

a) Explain the **six** phases involved in creating a program in C language (12 Marks)

b) Create a simple program that will take as input a number (between 1 and 12) and return the name of the month represented by that number e.g when 3 is provided it will return March. Ensure you provide necessary warning for wrong input. (8 Marks)

## QUESTION FIVE

a) Explain the following computing concepts (6 Marks)

   i) Multiprocessing

   ii) Multiprogramming

   iii) Timesharing

b) Demonstrate your understanding of functions by creating a function in C that asks the user to enter two numbers and displays their modulus. Show how the function is invoked by writing the main program (6 Marks)

c) Write a simple program that accepts a radius from the keyboard calculates and then displays the area and perimeter of a circle. Use a constant called PI (3.14). (8 Marks)

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