TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

UNIVERSITY EXAMINATION FOR:

SMA 2175: COMPUTER PROGRAMMING I

END OF SEMESTER EXAMINATION

SERIES: JULY 2017

TIME: 2HOURS

Instructions to Candidates

You should have the following for this examination

-*Answer Booklet, examination pass and student ID*

This paper consists of **five** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question one (30 marks)

   (a) State any four characteristics of a C program   {4 marks}

   (b) Briefly explain how to compile a C program   {4 marks}

   (c) Distinguish between a module and a function   {4 marks}

   (d) Differentiate between *void* main() and *int* main()   {2 marks}

   (e) Write a program to read two floating point numbers using **scanf()** statement assign their sum to an integer variable and then output the values of all the three variables.   {6 marks}

   (f) Explain the three types of programming languages   {6 marks}

   (g) Explain 4 advantages of using a pseudo code in programming   {4 marks}

Question two (20 marks)

   (a) Explain the following types of operators as used in C language

      - Arithmetic operators

      - Logical operators

      - Relational operators

      - Conditional

      - Increment and decrement   {10 marks}

   (b) What will be the output of the following segment when executed   {5 marks}

```
int x = 50, y = 30;
if (x>y) {
If (y>10) }
printf("%d", y);
else
printf("%d", x);
 }
```

(c) Using a C program example explain the difference between While loop and Do-While loop statements   {5 marks}

Question three (20 marks)

(a) Identify syntax errors in the following program. After corrections, what output would you expect when you execute it.
```
#define PI 3.142
Main
{
Int R, C
Float perimeter
Float area;
C = PI
R = 10;
Perimeter = 2.0*C*R;
Area = C*R*R;
Printf("%f" "%d", &perimeter, &area)
}
```
                                                                                             {10 marks}

(b) Describe the format of a C program   {10 marks}

Question four (20 marks)
(a) Distinguish between putchar() and getchar() functions   {4 marks}

(b) Write a C program that converts a character from a uppercase to lowercase   {6 marks}

(c) Explain the if else control structure and write a C program to illustrate the it   {10 marks}

Question five (20 marks)
(a) Define the following terms

- Functions

- Arrays

- Pointers   {3 marks}

(b) Using functions write a program to perform addition and subtraction of two variables.

{6 marks}

(c) Explain and illustrate the two types of arrays {4 marks}

(d) Write a pseudo code and draw a flowchart for a program to find even numbers between 1 to 100

{7 marks}