TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF SCIENCE IN CIVIL ENGINEERING
(BSCE 4A)

SMA 2175: COMPUTER PROGRAMMING I

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question One (Compulsory)

a) Give FOUR reasons for including comments in a C program **(4 marks)**

b) What is the purpose of the following components in a C computer **(4 marks)**
(i) Linker
(ii) Loader

c) State the differences between a WHILE and a DO-WHILE loop structures **(2 marks)**

d) Below is a C program:

```
# include <stdio.h>
main ( )
{
printf ("welcome to c\n");
```

Explain the different parts of the above program **(6 marks)**

e) Write the output of the following program:

```
# include <studio.h>
Main ( )
```

```
{
    int fib (24);
    int I;
    fib [0] = 0
    fib [0] = 1
    for (I = 2; I <24; i++)
    fib [i] = fib [I – 1] + fib [I – 2];
    for (I = 0; i<24; i++)
    printf (“% 6d\n” , fib [i];
    }
```
(4 marks)

f) Using nested for loop, write a program to ask user for an integer then print successive starts in either ascending or descending order. **(10 marks)**

```
* * * *   or        *
* * *               * *
* *               * * *
*               * * * *
```

Question Two

a) State the use of the following Escape sequences:
   \n
   \t
   \\
   \0 **(4 marks)**

b) State any FOUR reasons for declaring variables in C programs **(4 marks)**

c) Declare the following variables:
   (i) A pointer variable named jude and assign value 100 **(3 marks)**
   (ii) Array variable with 3 elements **(3 marks)**

d) In C(ii) above assign the array elements values for your own choice **(3 marks)**

e) State the general syntax for the DO-WHILE loop **(3 marks)**

Question Three

a) Define the following and give examples of each:
   (i) Variable
   (ii) Pre-processor directive
   (iii) Function **(6 marks)**

b) Describe the THREE main categories of CONTROL structures as used in C **(6 marks)**

c) Explain any FOUR rules for naming variables in C **(4 marks)**

d) Below is a C program containing errors point the errors and state their correct format **(4 marks)**

```
#include (std.c)
main [ ]
{
```

```
printf (“enter grade);
scanf (“%d”, grade);
if (grade < = 60);
printf (“passed \n”);
else
printf (“failed \n”);
}
```

Question Four

a) Write a program that uses the FOR LOOP to sum successive numbers between 1 and 10 **(10 marks)**

b) Write a program that will calculate the average of 6 days wages of casual employees. The program should request the user for the individual day’s wages before performing any calculations **(10 marks)**

Question Five

a) Using the switch statements, implement the traffic lights colour code. It should prompt the user to enter a letter and display the corresponding color e.g. R-RED, G-GREEN and Y-YELLOW **(10 marks)**

b) Write a program that needs in the radius (as a float) of a circle and prints the circle’s diameter circumference and area use the value pi = 3.142 and do your calculations inside the printf statements **(10 marks)**