



MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN CAMPUS

ORDINARY UNIVERSITY EXAMINATIONS

2015/2016 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF BUSINESS INFORMATION TECHNOLOGY (BBIT)**

COURSE CODE: ICS2102

COURSE TITLE: INTRODUCTION TO COMPUTER PROGRAMMING

DATE: April 2016

TIME: 2 hours

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer Other Two (2) questions

MRUC observes ZERO tolerance to examination irregularities

This Paper Consists of 7 Printed Pages. Please Turn Over. ►

QUESTION ONE

a) Consider the code below. State the mistake(s) and rectify the mistake(s) by re-writing the program. [4 marks]

```
#include <stdio.h>
int main()
{

    printf( "Declare x next" );
    int x;

    return 0;
}
```

b) In the code below, write a comment describing the lines labeled 1, 2, 3, 4. [4 marks]

```
#include <stdio.h>

int main()
{
    /*1*/ int this_is_a_number;

    /*2*/printf( "Please enter a number: " );
    /*3*/scanf( "%d", &this_is_a_number );
    /*4*/printf( "You entered %d", this_is_a_number );
    getchar();
    return 0;
}
```

c) Using the *if else if...esle* statement, write a program in c that prompts the user to enter his age when the line “please enter your age”, has been displayed. If the age is below 100 years, the program displays the line “**you are pretty young**”. When the age is equal to 100 years, the program displays the line “**you are old**”. Finally, if the age is above 100 year, the program displays the message “**you are really old**”. [8 marks]

di) Outline the meaning of the following line segment found in a c program. [2 marks]
while x ==5 || v == 7;

ii) Use a while loop to write a program in c which outputs the following. [8 marks]

```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
```

e) Describe the two different ways how a programmer can define constants in c language.

4 marks

QUESTION TWO

ai) The program below uses the while loop structure. Comment the line labeled **1, 2, 3, and 4.**

4 marks

```
#include <stdio.h>

int main()
{
    /*1*/int x = 0;

    /*2*/while ( x < 10 )
    {
        /*3*/ printf( "%d\n", x );
        /*4*/ x++;
    }
    getchar();
}
```

ii) Re-write the program using the *for* conditional structure.

[6 marks]

b) Write the output of the following program after compiling and executing.

[10 marks]

```
#include <stdio.h>
main()
{
    int a = 21;
    int b = 10;
    int c ;
    c = a + b;
    printf("Line 1 - Value of c is %d\n", c );
    c = a - b;
    printf("Line 2 - Value of c is %d\n", c );
    c = a * b;
    printf("Line 3 - Value of c is %d\n", c );
    c = a / b;
    printf("Line 4 - Value of c is %d\n", c );
    c = a % b;
    printf("Line 5 - Value of c is %d\n", c );
    c = a++;
    printf("Line 6 - Value of c is %d\n", c );
    c = a--;
    printf("Line 7 - Value of c is %d\n", c );
}
```

QUESTION THREE

a) The C program below deals with logical operators. Critically analyze the program and write down its outcome. [8 marks]

```
#include <stdio.h>
main()
{
int a = 5;
int b = 20;
int c ;
if ( a && b )
{
printf("Line 1 - Condition is true\n" );
}
if ( a || b )
{
printf("Line 2 - Condition is true\n" );
}
/* lets change the value of a and b */
a = 0;
b = 10;
if ( a && b )
{
printf("Line 3 - Condition is true\n" );
}
else
{
printf("Line 3 - Condition is not true\n" );
}
if ( !(a && b) )
{
printf("Line 4 - Condition is true\n" );
}
}
}
```

b) Outline 4 storage classes in c and write a brief describe of how each is used. [12 marks]

QUESTION FOUR

a) The program below is written using a *for* loop and an array. Write the output displayed after execution of the program. [10 marks]

```
#include <stdio.h>
int main ()
{
```

```
int n[ 10 ]; /* n is an array of 10 integers */
int i,j;
/* initialize elements of array n to 0 */
for ( i = 0; i < 10; i++ )
{

n[ i ] = i + 100; /* set element at location i to i + 100 */
}
/* output each array element's value */
for (j = 0; j < 10; j++ )
{
printf("Element[%d] = %d\n", j, n[j] );
}
return 0;
}
```

- bi) Define a function prototype in c programming. [2 marks]
- ii) Describe two reasons of using a functional prototype in c programming. [4 marks]
- iii) Write the general format of the c function prototype. [4 marks]