AFRICA UNIVERSITY
A United Methodist-Related Institution

"Investing in Africa's Future"

COLLEGE OF BUSINESS PEACE LEADERSHIP AND GOVERNANCE

PROGRAMMING 2-CIS 203

END OF SECOND SEMESTER EXAMINATIONS

APRIL/MAY 2018

LECTURER: Mr.Timothy Makambwa

DURATION: 3 HOURS

INSTRUCTIONS

Answer **ALL** the questions in **Section A** and any **Three questions from Section B** and each question has **20** marks. Total possible mark is **100.**

Start **each** question on a new page on your answer sheet.

The marks allocated to **each** question are shown at the end of the section.

All codes should in C# Programming language

Section A (40 Marks)

Answer all questions in this Section

1. How many Bytes are stored by 'Long' Datatype in C# .net?

a)8

b)4

c)2

d)1

2. Choose ".NET class" name from which datatype "UInt" is derived ?

a) System.Int16

b) System.UInt32

c) System.UInt64

d) System.UInt16

3. Correct Declaration of Values to variables 'a' and 'b'?

a) int a = 32, b = 40.6;

b) int a = 42; b = 40;

c) int a = 32; int b = 40;

d) int a = b = 42;

4. Select error in the given program :

```
Static Void Main(String[] args)
{
    const int m = 100;
    int n = 10;
    const int k = n / 5 * 100 * n ;
    Console.WriteLine(m * k);
    Console.ReadLine();
}
```

a) 'k' should not be declared constant

b) Expression assigned to 'k' should be constant in nature

c) Expression (m * k) is invalid

d) 'm ' is declared in invalid format

5. Arrange the following datatype in order of increasing magnitude sbyte, short, long, int.

a) long < short < int < sbyte

b) sbyte < short < int < long

c) short < sbyte < int < long

d) short < int < sbyte < long

6. Which datatype should be more preferred for storing a simple number like 35 to improve execution speed of a program?

a) sbyte

b) short

c) int

d) long

7. Which Conversion function of 'Convert.TOInt32()' and 'Int32.Parse()' is efficient?

1) Int32.Parse() is only used for strings and throws argument exception for null string

2) Convert.Int32() used for datatypes and returns directly '0' for null string

a) 2

b) Both 1,2

c) 1

d) None of the mentioned

8. Correct way to assign values to variable 'c' when int a=12, float b=3.5,int c;

a) c = a + b;

b) c = a + int(float(b));

c) c = a + convert.ToInt32(b);

d) c = int(a + b);

9. Correct Set of Code for given data 'a' and 'b' to print output for 'c' as 74 ?

a)

```
int a = 12;

float b = 6.2f;

int c;

c = a / b + a * b;

Console.WriteLine(c);
```

b)

```
int a = 12;
```

```
float b = 6.2f;
int c;
c = a / convert.ToInt32(b) + a * b;
Console.WriteLine(c);
```

c)

```
int a = 12;
float b = 6.2f;
int c;
c = a / convert.ToInt32(b) + a * convert.ToInt32(b);
Console.WriteLine(c);
```

d)

```
int a = 12;
float b = 6.2f;
int c;
c = convert.ToInt32(a / b + a * b);
Console.WriteLine(c);
```

10. Does the output remain same or different for both cases?

1)

```
char l ='k';
float b = 19.0f;
int c;
c = (l / convert.ToInt32(b));
Console.Writeline(c);
```

2)

```
char l ='k';
float b = 19.0f;
int c;
c = Convert.ToInt32(l / b);
```

```
console.writeline(c);
```

a) Yes

b) No

11. Default Type of number without decimal is ?

a) Long Int

b) Unsigned Long

c) Int

d) Unsigned Int

12. Correct output for code is?

```
static void Main(string[] args)
{
    float a = 10.553f;
    long b = 12L;
    int  c;
    c = Convert.ToInt32(a + b);
    Console.WriteLine(c);
}
```

a) 23.453

b) 22

c) 23

d) 22.453

13. Predict the output for the following set of code.

```
static void Main(string[] args)
{
    float a = 16.4f;
int b = 12;
float c;
c =  a * ( b + a) / (a - b) ;
Console.WriteLine("result is :" +c);
```

```
        Console.ReadLine();
    }
```

a) 106
b) 104.789
c) 105.8546
d) 103.45

14. Predict the solution for the following set of code.

```
static void Main(string[] args)
{
    int a, b, c, x;
    a = 90;
    b = 15;
    c = 3;
    x = a - b / 3 + c * 2 - 1;
    Console.WriteLine(x);
    Console.ReadLine();
}
```

a) 92
b) 89
c) 90
d) 88

15. Predict the solution for the following set of code .

```
static void Main(string[] args)
{
int a, b, c, x;
a = 80;
b = 15;
c = 2;
```

```
        x = a - b / (3 * c) * ( a + c);
        Console.WriteLine(x);
        Console.ReadLine();
    }
```

a) 78
b) -84
c) 80
d) 98

16. Correct order of priorities are :

a) '/' > '%' > '*' > '+'
b) '/' > '*' > '%' > '+'
c) '*' > '/' > '%' > '+'
d) '%' > '*' > '/' > '+'

17. Predict the output for the given snippet of code :

```
int i, j = 1, k;
for (i = 0; i < 3; i++)
{
    k = j++ - ++j;
    Console.Write(k + " ");
}
```

a) -4 -3 -2
b) -6 -4 -1
c) -2 -2 -2
d) -4 -4 -4

18. Predict the output for the given set of code correctly.

```
static void Main(string[] args)
{
    int b= 11;
    int c = 7;
```

```
int r = 5;

int e = 2;

int l;

int v = 109;

int k;

      int z,t,p;

      z = b * c;

      t = b * b;

      p = b * r * 2;

      l = (b * c) + (r * e) + 10;

      k = v - 8;

      Console.WriteLine(Convert.ToString(Convert.ToChar(z)) + " " +
Convert.ToString(Convert.ToChar(t)) + Convert.ToString(Convert.ToChar(p)) +
Convert.ToString(Convert.ToChar(l)) + Convert.ToString(Convert.ToChar(v)) +
Convert.ToString(Convert.ToChar(k)));

      Console.ReadLine();

  }
```

a) My Name
b) My nAme
c) My name
d) Myname

19. Predict the output for the following set of code :

```
 static void Main(string[] args)

 {

     int n = 5;

int x = 4;

int z, c, k;

for (c = 1; c <= n; c++)

{
```

```
    for (k = 1; k <= c; k++)
{
    z = 3 * x * x + 2 * x + 4 / x + 8;
    Console.Write(Convert.ToString(Convert.ToChar(z)));
}
        Console.WriteLine("\n");
    }
    Console.ReadLine();
 }
```

a) A
AA
AAA
AAAA
b) A
AB
ABC
ABCD
c) A
AA
AAA
AAAA
AAAAA
d) A
BC
DEF
DEFG

20. Predict the output for the following set of code :

```
 static void Main(string[] args)
{
    int n = 5;
    int x = 4;
    int z, c, k;
```

```
z = 3 * x * x + 2 * x + 4 / x + 8;
for (c = 1; c <= n; c++)
{
    for (k = 1; k <= c; k++)
    {
        Console.Write(Convert.ToString(Convert.ToChar(z)));
        z++;
    }
    Console.WriteLine("\n");
}
Console.ReadLine();
}
```

a) A
AA
AAA
AAAA
AAAAA
b) A
AB
ABC
ABCD
ABCDE
c) A
BC
DEF
GHIJ
KLMNO
d) A
AB
BC
BCD
BCDE

Section B
Answer any ***three*** questions from this Section

Question 21

a) Write an application that inputs from the user the radius of a circle and prints the circle's diameter, circumference and area. Use the following formulas (r is the radius): diameter = 2r, circumference = $2\pi r$, area= πr^2.

b) A class of ten students took a quiz. The grades (integers in the range 0 to 100) for this quiz are available to you. Determine the class average on the quiz.

[10+10]

Question 22

Write a C# statement or a set of C# statements to accomplish each of the following tasks:

a) Sum the odd integers between 1 and 99, using a ***for*** control structure. Assume that the integer variables sum and count have been declared.

b) Calculate the value of 2.5 raised to the power of 3, using the Math.Pow method.

c) Print the integers from 1 to 20, using a while loop and the counter variable x. Assume that the variable x has been declared, but not initialized. Print only five integers per line. [Hint: Use the calculation x % 5. When the value of this is 0, print a newline character; otherwise, print a tab character. Use the Console.WriteLine() method to output the newline character, and use the Console.Write('\t') method to output the tab character.]

d) Repeat part c, using a ***for*** control structure.

[20]

Question 23

a) Given a person's work hours for the week and regular hourly wage, calculate the total pay for the week, taking into account overtime. Hours worked over 40 are overtime, paid at 1.5 times the normal rate.

b) Often, the simplest way to solve "$ax^2 + bx + c = 0$" for the value of x is to factor the quadratic, set each factor equal to zero, and then solve each factor. But sometimes the quadratic is too messy, or it doesn't factor at all, or you just don't feel like factoring. While

factoring may not always be successful, the Quadratic Formula can always find the solution.The Quadratic Formula uses the "a", "b", and "c" from "$ax^2 + bx + c$", where "a", "b", and "c" are just numbers; they are the "numerical coefficients" of the quadratic equation they've given you to solve

[8+12]

Question 24

Write C # applications to perform the following

a) Calculate distance after inputting the speed and time
b) Convert degrees Fahrenheit to degrees Celsius using the formula:
   Celsius =5/9(Fahrenheit-32)
c) Converting feet in metres ; using the formula ,1foot =0.305m
d) Calculate the volume of a cube

[4x5]

Question 25

a) Write a C# Program to check whether a given Number is Armstrong or not. This C# Program is written to Check Whether the Entered Number is an Armstrong Number or Not. An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself.
b) Write a C# Program to check whether a given number is a palindrome or not .This C# Program Reverses a Number & Check if it is a Palindrome. Here first it reverses a number. Then it checks if given number and reversed numbers are equal. If they are equal, then it's a palindrome

[10+10]

Question 26

Consider the following problem statement:

A college offers a course that prepares students for the state licensing exam for real estate brokers. Last year, several of the students who completed this course took the licensing examination. The college wants to know how well its students did on the exam. You have been asked to write a program to summarize the results. You have been given a list of the 10 students. Next to each name is written a 1 if the student passed the exam and a 2 if the student failed the exam.

Your program should analyze the results of the exam as follows:

1. Input each test result (i.e., a 1 or a 2). Display the message "Enter result" on the screen each time the program requests another test result.

2. Count the number of test results of each type.

3. Display a summary of the test results, indicating the number of students who passed and the number of students who failed the exam.

4. If more than 8 students passed the exam, print the message "Raise tuition."

Write a C# program that solves the problem. [20]

END OF PAPER