University of Fort Hare
Together in Excellence

DEGREE EXAMINATIONS: JUNE 2023

CSC 113F

ELEMENTARY COMPUTER PROGRAMMING

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Time: 3 HOURS **Marks: 100**

Internal Examiner

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Instructions

- This question paper consists of 5 pages including cover page
- There are **FOUR(4)** questions , answer all
- Take π= 3.1415 where necessary

QUESTION ONE **[25 MARKS]**

1.1. Spot and correct errors from the following program codes

1.1.1. Dim x, y z As Single (1)
1.1.2. ListBox.Add(x) (1)
1.1.3. Mid(1, str, 2) (1)

1.2. Determine whether the following statements are True or false.

1.2.1. **If ...Then... Else Statement** is a control structure used when we want to consider more than two conditions (1)
1.2.2. 3 Mod 5 = 3 (1)
1.2.3. When you want to read the value of a declared variable n from the text box it is given by: **TextBox1.Text = n** (1)
1.2.4. **TextBox1.Text = Mid ("Alice",2)** ; will yield to an error since Mid function is supposed to have three parameters. (1)

1.3. Evaluate each of the following expressions if possible and show all your steps.

1.3.1. 16\ 4 * 3 (1)
1.3.2. 6*8^(1/3) Mod 2*(17\4+4) (3)
1.3.3. Math.Abs(- 8) \ Math.Sqrt(9) + Int(2.9) (2)
1.3.4. Fix(-2.6) + Len("Phrase") (2)
1.3.5. Microsoft.Visualbasic.Left("elephant",5) + Mid("elephant",6,3) (1)

1.4. When Windows Form Application is opened, there are three major widows that appear on the interface. Name **two.** (2)

1.5. What are the shortcut keys to stop the running program (1)

1.6. Write down a one line code to do the following :

1.6.1. Change background colour of the form to white using RGB coding (2)
1.6.2. Read a value for a declared variable n, from Text Box1 (2)
1.6.3. Write the string "Alice" in Text Box 2 (2)

QUESTION TWO **[29 MARKS]**

2.1. What is printed by the following code in the list box?

2.1.1.
```
Dim c,n As Integer
    For c = 1 to 2
        For n = 1 to c
                ListBox1.Items.Add(c*n)
        Next n
    Next c
```
(3)

2.1.2.
```
Dim counter As Integer
    For counter = 6 to 10 Step 2
        ListBox1.Items.Add(counter)
    Next
```
(3)

2.1.3.
```
Dim num, sum As Integer
    For num = 1 to 40 Step 10
        sum+=0
    ListBox1.Items.Add(sum)
    Next
```
(3)

2.1.4.
```
Dim n, c, sum As Integer
    n = 2
    Do While n <= 5
        ListBox1.Items.Add(n)
        n = n + 1
  Loop
```
(3)

2.2. Study the following code and re-write it using a **While....End** loop: (3)

```
Dim counter As Integer
For counter = 6 to 10 Step 2
    ListBox1.Items.Add(counter)
Next
```

2.3. Write a program that will read a string from a text box. Your program should count how many characters does the string have and print it on a list box. It must also print out the last 3 characters of the string on a list box. Lastly if the second last character is "e" or "E" the program must show up a message box with a message "The string nearly ends with E". (6)

2.4. The Body Mass Index (BMI) of a person is based on their body weight in kilograms and the body height in meter. BMI is calculated based on the formula weight/ $(\text{height})^2$.

You can refer to the following range of BMI values for your weight status:

Under weight : <18.5
Normal weight : 18.5 to 24.9
Over weight : 25 to 29.9
Obesity = 30 or greater

End Function

4.2.1. Given the above function called **Num**, explain what the function does. (3)

4.2.2. Evaluate: **Num(10).** (2)

4.3. Given the radius and height of a cone. Its volume is given by the following formula:
V = 1/3*π*r^2*h.

4.3.1 Write a Visual Basic **function** that accepts two arguments **radius** and **height** to calculate its **volume** using a formula: (4)

4.3.2 Write a calling procedure for the above function (in question 4.5.1) where radius and height are read from two text boxes. (2)