University of Fort Hare
Together in Excellence

DEGREE EXAMINATIONS: NOV 2018

CSC 123F

ELEMENTARY COMPUTER PROGRAMMING

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Time: 3 HOURS **Marks: 100**

Internal Examiner

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Instructions

- This paper consists of 6 pages including cover page
- There are Four(4) questions ,you have to answer all
- Take $\pi = 3.1415$ where it has to be used
- Use the numbering system used in the question paper for your answers

QUESTION 1 **[25 Marks]**

1.1. Study the code snippets below and give the expected output from each code.

1.1.1.
```
Dim x, y, z As Single
x =8
y =9
z = x+3
x =  z+y
ListBox1.Items.Add(x & vbTab & y & vbTab & z)
```
(2)

1.1.2.
```
For k =1 To 2
        For j = 1 To k
                ListBox1.Items.Add(j*k)
        Next j
Next K
```
(2)

1.1.3.
```
Dim x As Single
For x = 1 To 5
        If x mod 2 <> 0 then
                ListBox1.Items.Add(x)
        End if
Next x
```
(2)

1.1.4.
```
Dim str1, str2 As String
Str1 = "Hello World"
Str2 = "Hello"
TextBox1.Text = Len(Str1)*Len(Str2)- InStr(1, Str1, "World")
```
(2)

1.1.5.
```
Dim x, y, z As integer
x= 4.34
y= 30.23
z= 70.25
ListBox1.Items.Add(x+y & vbTab & y+z & vbTab & x+z)
```
(2)

1.2. For each of the following, write <u>one line</u> of code that will do what is required.

1.2.1. Print the last two characters of the string str.
1.2.2. Read the value of the number n from an input box
1.2.3. Print out a random number x in range 0 <= x < 10
1.2.4. Print out the character with ASCII number 53
1.2.5. Print the last digit of the integer n (2X5)

1.3. Explain the function of each <u>one line</u> code given below.

1.3.1. *WebBrowser1.Navigate(TextBox1.Text)*
1.3.2. *NameList.Items.RemoveAt(NameList.SelectedIndex)*
1.3.3. *Dim FileReader As StreamReader*
1.3.4. *NameList.Items.Add("Robert")*
1.3.5. *Now.ToString ("d")* (1X5)

QUESTION 2 **[25 Marks]**

2.1. In mathematics there are n! ways to arrange n objects in a sequence i.e. *n! = n(n-1)(n-2)(n-3)...* such that *4! = 4*3*2*1 = 24.*

2.1.1. Write a VB function that takes one argument as an integer and returns the factorial value of that number. (5)

2.1.2. Create a calling procedure to the factorial function in (2.1.1.) above, that accepts an integer as an input from the user and compute the factorial value of that number. (5)

2.2. At a certain institution students obtain a fee waiver if they get distinctions on a particular course. The waiver is staggered as follows: 95- 100% -> full waiver, 75-94 % -> 75% of the course fee. Write a VB 2010 function that computes the fee waiver for students based on the conditions above. (5)

2.3. A file contains an unknown number of student names and their associated degree programmes. Write a VB2010 application that reads the context of the file and display the results of a text file. (5)

2.4. Write a program that declares an array of ten strings and then reads the strings into the array from input boxes. The program should then search the array and print out whether the string "John" is present in the array. (5)

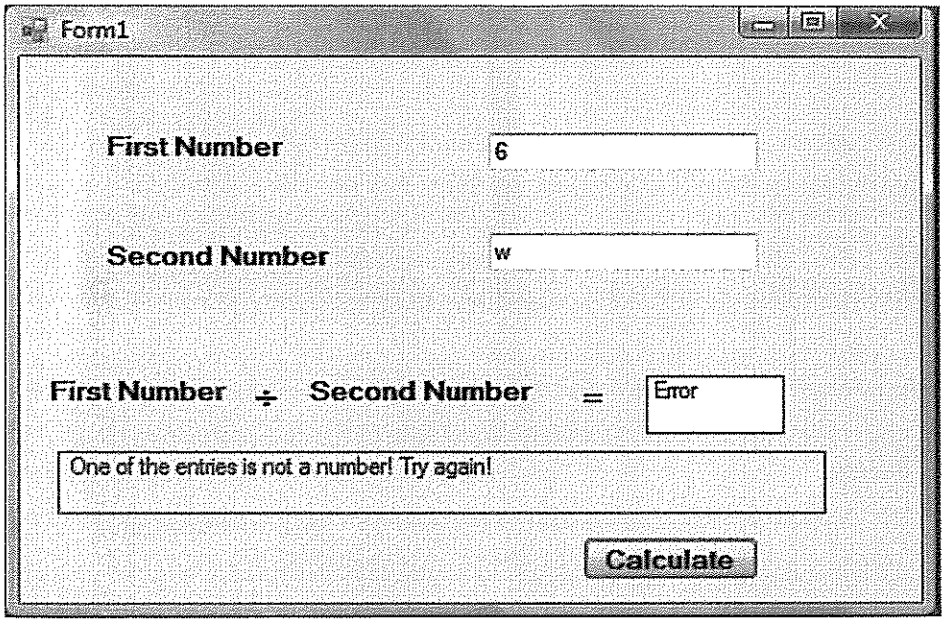
QUESTION 3 **[25 Marks]**

3.1. What is the difference between:

3.1.1 Combo box and List Box (2)

3.1.2. Radio button and Check Box (2)

3.2. Write down a visual basic code that read two numbers from text boxes and find their quotient as indicated in the following application. Your program should handle any errors that might occur as indicated it the application below. The message "One of the entries is not a number should set invisible if there is no error"



(10)

3.3. According to Pato a man should marry a woman whose age is half his age plus 7 years.

3.3.1. Write a VB 2010 function that returns the age of an ideal wife given the man's age. (3)

3.3.2. Write a calling procedure to the function Pato that accepts the man's age from text box and display the age of an ideal wife on a textbox. (3)

3.4. Write down a VB code that will draw for you a circle whose diameter = 100, and the top left corner of the containing rectangle is (20,20) (5)

QUESTION 4 **[25 Marks]**

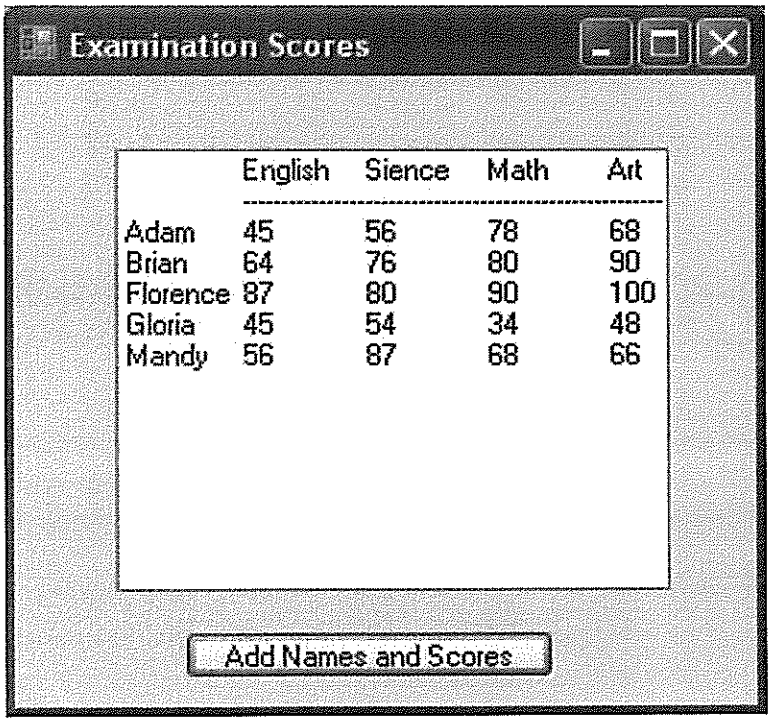
4.1. Study the following VB code and briefly explain what this code does (4)

```
Dim myPen As Pen
Dim A As New Point(10, 10)
Dim B As New Point(10, 50)
Dim C As New Point(50, 50)
Dim D As New Point(50,10)
Dim myPoints As Point() = {A, B, C,D}
myPen = New Pen(Drawing.Color.Blue, 5)
Dim myGraphics As Graphics = Me.CreateGraphics
myGraphics.DrawPolygon (myPen, myPoints)
```

4.2. How many items can be contained in the array declared below?

```
Dim list(12 To 30) As Single
```
(2)

4.3. Write a code to manage student's examination scores as illustrated in the figure below. In this question, we want to key in the examination marks for five students and four subjects from input boxes.



(10)

4.4. One of the important controls in VB is a timer, what is it used for? (2)

4.5. We may use a timer to create a stop watch that has start,stop and reset buttons. Write a code for the above mentioned buttons. (5)

4.6. Write a one line VB Code creating a downward motion by increasing the distance of the PictureBox 10 pixels from the top border. (2)

Grand Total = 100 Marks

Good Luck