MACHAKOS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

UNIT NAME: EVENT DRIVEN PROGRAMMING
UNIT CODE: SCO 202
SEMESTER: …………………..

DATE: TIME: 2 HOURS

INSTRUCTIONS: **Answer Question ONE and Any Other TWO Questions.**

Question 1 (30 Marks)

a) There are 3 control structures in computer Programming. List and explain them.

For each control structure, give at least 2 statements used to implement it in VB.NET
(9 Marks)

b) Re-write the code snippet below using a select case statement:

```
Dim selection As Integer
        selection = InputBox("please input a number:")

If selection = 1 Then

MessageBox.Show("You selected 1.")

 ElseIf selection = 2 Then

MessageBox.Show("you selected 2.")

ElseIf selection = 3 Then

 MessageBox.Show("You selected 3.")

ElseIf selection = 4 Then

MessageBox.Show("You selected 4.")

 Else

 MessageBox.Show("too good with numbers, eh?")

End If
```
(5 Marks)

c) Explain the difference between the following terms as used in computer programming:

    i.   Syntax and semantics   **(2 Marks)**

    ii.   Design time and runtime   **(2 Marks)**

    iii.   Variable and constant   **(2 Marks)**

d) An Array is an indexed variable that is very vital in computer programming, more so if you need to capture or manipulate data values of the same data type

    i.   Write down the syntax used in array declaration. **(1 Mark)**

    ii.   Write VB.NET code to fill your array with data from the user.

                                                                 (2 Marks)

    iii.   Write VB.NET code to calculate the average/mean of the values in the array.

                                                                   (3 Marks)

    iv.   Write VB.NET code to display the largest value in the array   **(2 Marks)**

    v.   Write VB.NET code to display the smallest value in the array.   **(2 Marks)**

Question 2 (20 Marks)

1) The .NET framework is made up of 2 main components: The Common Language Runtime (CLR) and the .NET framework class library.

   Required: Explain the above components. **(8 Marks)**

2) The Data Access model used for the .NET framework is called ADO.NET. ADO.NET enables a programmer writing code in VB.NET, C#, Visual C++ etc to access data sources. It is made up of 3 major components: **Dataset**, **Data provider** and **DataTable**

   Required: Explain as thoroughly as possible the 3 components listed above

                                                    (10 Marks)

3) ADO.NET is said to provide a disconnected data access model. Explain

                                                    (2 Marks)

Question 3 (20 Marks)

1) Functions and sub procedures are used to break down code into functional components.

   a) Explain the difference between Functions and Sub procedures as used in VB.NET. **(4 Marks)**

   b) Explain the major benefits of using Functions and Sub procedures while writing programs. **(2 Marks)**

   c) Write a function that accepts two numeric values and then returns there sum.

                                                    (4 Marks)

2) Write a VB.NET program that allows a user to input 2 decimal numbers via an inputbox. The program should then calculate the multiplication of the 2 numbers if the second number is greater than or equal to the first number. Otherwise the program should calculate the division of the first number by the second number.

                                                    (6 Marks)

3) Using examples, discuss the **THREE** types of errors a computer programmer can make.

                                                    (4 Marks)

Question 4 (20 Marks)

a) Write the output of the three textboxes below:

```
Dim test As String="It is there"

Textbox1.text= test.Substring(3,4)
Textbox2.text= test.Replace("is-", "was")
Textbox3.text= (StrReverse(test).ToLower)
```
(6 Marks)

b) Rewrite the code shown in Question 4 (1) above in a try...Catch...Finally block. The finally part should assign a value **done** to the variable **test**

(3 Marks)

c) Using a loop, write a program that reads the string declared in Question 4 (1) above and outputs one character at a time on a message box

(4 Marks)

d) Write code to show how you can search for the text **is** in the string in Question 4 (1) above by going through the whole string and give feedback to the user whether it was found or not.

(4 Marks)

e) Assign the value **got it** to the third element in the array **Dim MyValues(52) As String**

(2 Marks)

f) Which two operators can be used to concatenate strings?

(1 Mark)

Question 5 (20 Marks)

a) Using examples, explain what you understand by the following terms as used in computer programming
   i. Compiler
   ii. Comments
   iii. Infinite loop
   iv. High level programming language
   v. Low level programming language

(10 Marks)

b) Write a VB.NET program that allows one to input 3 integer numbers arrange them in descending order and then display them to the user.

(6 Marks)

c) Write down the output of the following code segment

```
Dim j As String = " "
    For i = 0 To 6
        j = j + i.ToString & " "
        ListBox1.Items.Add(j)
    Next I
```
(4 Marks)