



Sri Lanka Institute of Advanced Technological Education (SLIATE)

Higher National Diploma in Information Technology

Assignment Title

2016 – 2018 Past paper Answer

Assignment - 1

Lecture Name :

Mr.N.Mayooran

Subject :

Rapid Application Development

Subject Code :

HNDIT 2311

HNDIT – 2018 (ATI Batticaloa)

Group Members

Name	Registration No
T.Dilani	BAT/IT/2018/FT/0053
T.Axsayah	BAT/IT/2018/FT/0048
S.Katheeshkumar	BAT/IT/2018/FT/0030
K.Nimalaprasath	BAT/IT/2018/FT/0032
S.Saseenthiran	BAT/IT/2018/FT/0027

ANSWERS -2016

Q1)

- a) Explain the term “Rapid Development”.
- Usable systems are built within a short period of time (as little as 2-3 months)**
- b) “RAD methodology attempts to overcome certain issues in traditional software development methodologies”. State and briefly explain three (03) of such issues.
- **Cost and schedule overruns**
 - **Product not fit for business**
 - **High workload**
 - **Projects get cancelled**
 - **Friction among managers, developers and customers**
- c) Briefly explain two (02) types of Classic Mistakes.
- **People related**
 - **Product related**
 - **Technology related**
 - **Process related**
- d) Mention three (03) productivity tools that are used in rapid development.
- **Visual studio dot net**
 - **NetBeans**
 - **EasyEclipse**
 - **JBuilder**
- e) “Rapid Application Development is known as a Customer Oriented Methodology”. Justify this statement.
- The developments are time boxed, delivered and then assembled into a working prototype. This can quickly give the customer something to see and use and to provide feedback regarding the delivery and their requirements. Users have to be involved in the development. Which means system is more likely to meet their requirement. Therefore RAD is customer oriented.**

Q2)

- a) Give six (6) relational operators with examples.
- > Greater than
 - < Less than
 - = Equal to
 - <> Not equal to
 - >= Greater than or equal to
 - <= Less than or equal to
- b) Give four (4) logical operators in their precedence order (highest to lowest).
- Not
 - And
 - Or
 - Xor

- c) Write Visual Basic code to accept two integer values using input box and to obtain the positive difference using message box.
[For example if the inputs are 4 and 7 the output should be 3. If the inputs are 7 and 4 also output should be 3]

Dim a As Integer

Dim b As Integer

Dim t As Integer

Dim d As Integer

a = InputBox("Enter first number:")

b = InputBox("Enter second number:")

If (a > b) Then

t = a

a = b

b = t

End If

d = b - a

MsgBox("The positive difference is " & d)

- d) Answer the questions given below considering the following electricity charge rates and runtime interface.

Unit Range	Unit Price
30 and below	Rs. 5.00
31 – 60	Rs. 7.50
61 – 90	Rs. 11.00
91 and above	Rs. 15.00

- i. Give the names for each of the above controls according to the Visual Basic naming convention.

lblUnits, txtUnits

btnCalculate

lblAmount, txtAmount

- ii. Write visual basic codes to calculate the amount after entering the units as shown in the interface

Private Sub btnCalculate_Click(...) ...

Dim units As Integer

Dim amount As Double

units = txtUnits.Text

If (units <= 30) Then

amount = units * 5

ElseIf (units <= 60) Then

amount = 30 * 5 + (units - 30) * 7.5

ElseIf (units <= 90) Then

amount = 30 * 5 + 30 * 7.5 + (units - 60) * 11

Else

amount = 30 * 5 + 30 * 7.5 + 30 * 11 + (units - 90) * 15

End If

txtAmount.Text = amount

End Sub

Q3.

a) Write the differences of following control structures.

i. Do While loop Vs Do until loop

The while loop is run until condition is true once condition false loop is terminate. Until loop is run until condition is false and once condition become true loop is terminate.

b) Write visual basic code to print prime numbers between 1 to 100.

```
Dim p, n, i As Integer
p = 1
Print("Prime Numbers 1-100 are : ")
For n = 1 To 100
For i = 2 To n - 1 If n Mod i = 0 Then
p = 0
Exit For
Else
p = 1
EndIf
Next
If p = 1 Then
    TextBox1.Text = TextBox1.Text & n & vbCrLf
EndIf
Next
```

c) Write the output of following code segments.

```
For i = 1 To 6 Step 1
For j = 1 To i Step 1
    TextBox1.Text = TextBox1.Text & "*"
Next j
    TextBox1.Text = TextBox1.Text & vbCrLf
Next i
```



i)

```
PublicClassForm1
Public a AsInteger = 25
Public b AsInteger = 30
Friend total AsInteger

PrivateSub Button1_Click(ByVal sender As System.Object, ByVal
e As System.EventArgs) Handles Button1.Click
Dim a AsInteger = 10
Dim b AsInteger = 20
    total = a + b
        TextBox1.Text = total
EndSub

PrivateSub Button2_Click(ByVal sender As System.Object, ByVal
e As System.EventArgs) Handles Button2.Click
    total = a + b
        TextBox2.Text = total
EndSub
EndClass
```

Out put:-

textbox1 =>30

textbox2=>55

Q4.

- a) What is the difference between a function and a sub procedure? Write the VB.NET syntax for above.

A set or block of code statements, used for repeated or shared task that is given a name so that it can be invoked by another part of the program.

- b) Give (04) four access modifiers and describe them.

Keyword	Definition
Public	Accessible everywhere.
Private	Accessible only within the type itself.
Friend	Accessible within the type itself and all namespaces and code within the same assembly.
Protected	Only for use on class members. Accessible within the class itself and any derived classes.
Protected Friend	The union of Protected and Friend .

- c) Explain the differences between following two keywords

a. *ByVal*

b. *ByRef*

***ByVal* - Pass only the value of original variable**

***ByRef* - Pass a reference to original variable**

- d) Write private VB.net functions for followings.

a. To calculate total marks of three Subjects.

```

PrivateFunction TotalMarks(ByVal sub1 AsInteger, ByVal sub2 AsInteger, ByVal
sub3 AsInteger) AsInteger
Dim tot as integer
Tot=sub1+sub2+sub3
Return tot
End Function

```

b. To return average marks of three subject.

```

PrivateFunction AverageMarks(ByVal sub1 AsInteger, ByVal sub2 AsInteger,
ByVal sub3 AsInteger) AsInteger
Dim avg as integer
avg=(sub1+sub2+sub3)/3
Return avg
End Function

```

Q5.

- a) Briefly explain the terms 'class' and 'object'.

A class is a blueprint that describes an object and defines attributes and operations for the object.

An object is an instance of a class.

- b) Mention three (03) qualities of an object.
- **Identity: Objects are distinguishable from one another**
 - **Behavior: Objects can perform tasks**
 - **State: Objects store information that can vary over time**
- c) Briefly describe overloaded methods of a class.
- **You can define method or property multiple times with different argument list**
 - **Derived Class Can Override an Inherited Property or Method**

Example:-

```

Btn1_click
    Dim alerter As New alertclass
        alerter.alert("No Problem")
    //alerter.alert()
        // 'alerter.alert("No Problem", MsgBoxStyle.Exclamation)
End Sub

Public Class alertclass
    Public Sub alert(ByVal text As String)
        MsgBox(text)
    End Sub

    Public Sub alert(ByVal text As String, ByVal icon As MsgBoxStyle)
        MsgBox(text, icon)
    End Sub

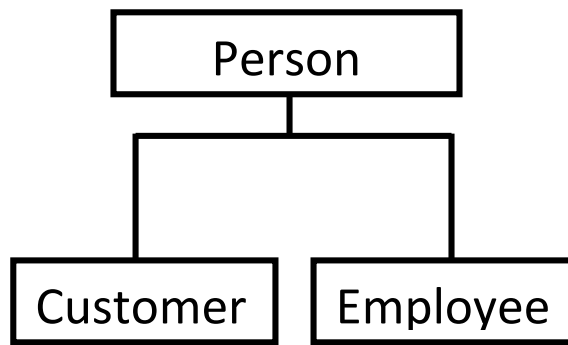
    Public Sub alert()
        MsgBox("no message")
    End Sub
End Class

```

- d) Briefly explain inheritance.
- **Inheritance specifies an “is-a-kind-of” relationship**
 - **Multiple classes share the same attributes and operations, allowing efficient code reuse**
 - **Examples:**
 - A customer “is a kind of” person**
 - An employee “is a kind of” person**

Base Class

Derived Classes



- **Derived Class Inherits from a Base Class**
- **Properties, Methods, Data Members, Events, and Event Handlers Can Be Inherited (Dependent on Scope)**

f) What is the output of the following code segment?

```
Public Class BaseClass
    Public Overridable Sub OverrideMethod( )
        MsgBox("Base OverrideMethod")
    End Sub
    Public Sub OtherMethod( )
        MsgBox("Base OtherMethod – not overridable")
    End Sub
End Class

Public Class DerivedClass
    Inherits BaseClass
    Public Overrides Sub OverrideMethod( )
        MsgBox("Derived OverrideMethod")
    End Sub
End Class

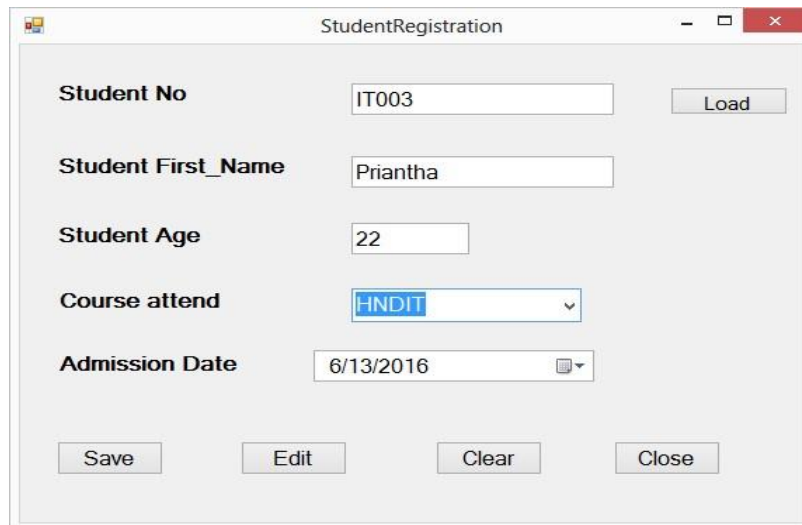
Dim x As DerivedClass = New DerivedClass( )
x.OtherMethod
x.OverrideMethod
```

Base OtherMethod – not overridable

Derived OverrideMethod

Q6)

The following interface was created using VB.Net to facilitate student registration activities of ATIs. The back end for the system has been created using Microsoft SQL Server.



- a) Write the code segment for connecting above interface with the SQL Database.
Hint: Data Source=ATI; Initial Catalog=StudentReg;Integrated Security=True (Indicate any relevant libraries/packages/etc., required to create the connection)

Imports System.Data.SqlClient

```
Dim connection As SqlConnection = New SqlConnection()  
connection.ConnectionString = "Data Source=ATI;  
Initial Catalog=studentReg;Integrated Security=True"
```

- b) Write the code segment to save the information displayed on the form into the database.(Save Button)

Assume that the database contains a table with the following structure:
StudentReg (StNo, StFname, Age, Course, DoA)

connection.Open()

```
Dim cmsql As New SqlCommand  
cmsql.Connection = connection  
cmsql.CommandText = "INSERT INTO VALUES ('" & txtStNo.Text  
& "','" & txtStFName.Text & "','" & val(txtAge.Text)& "','" &  
cboCourse.SelectedValue.ToString & "','" & cboDoA.Value.Date & "')" &  
cmsql.ExecuteNonQuery()  
MsgBox("Data inserted")
```

- c) Write the code segment to modify the course of a student who has already registered (Edit Button).

connection.Open()

```

Dim cmsql1 As New SqlCommand
    cmsql1.Connection=connection
    cmsql1.CommandText= "UPDATE StudentReg SET Course='" +
cboCourse.SelectedItem + "' WHERE StNo='" + txtStNo.Text + "'"
    cmsql1.ExecuteNonQuery()
    MsgBox("Data updated")

```

- d) Write the code segment to view the record according to the given student number (Load Button)

```

connection.Open()
Dim cmsql2 As New SqlCommand
cmsql2.Connection=connection
cmsql2.CommandText="SELECT * FROM StudentReg WHERE
StNo='" + txtStNo.Text + "'"
adaptor = New OleDbDataAdapter(cmsql2)
dataset = New DataSet()
adaptor.Fill(dataset, "ST")
txtStFname.Text= dataset.Tables(0).Rows(0).Item("stFname")
txtAge.Text = dataset.Tables(0).Rows(0).Item("Age")

cmbCourse.Text = dataset.Tables(0).Rows(0).Item("Course")
cboDoA.Value = dataset.Tables(0).Rows(0).Item("DoA")
cmsql2.ExecuteNonQuery()

```

Answer 2017

1)

- a) Give four (04) characteristics of rapid application Development. [04 Marks]

- **RAD uses hybrid teams**
- **RAD Uses specialized tools**
- **RAD uses “Timeboxing”**
- **RAD uses iterative, evolutionary prototyping**

Or Any acceptable answers

- b) Briefly explain the term “Classic Mistakes”. [03 Marks]

Some ineffective development practices have been chosen so often, by so many people, with such predictable, bad results that they deserve to be called "classic mistakes.

Or Any acceptable answer

- c) Give four (04) categories of “Classic Mistakes”. [04 Marks]

- **People related**
- **Product related**
- **Technology related**
- **Process related**

- d) What do you mean by term “Commercial Off-the-Shelf” (COTS) based development. Give the advantage of COTS based development rather than other traditional development. [05 Marks]

COTS mean software or hardware products that are ready-made and available for sale to the general public. For example, Microsoft Office is a COTS product that is a packaged software solution for businesses.

COTS based approach reuses components that are complete application systems.

A prototype can be created by linking a database, a word processor, a spreadsheet, and written code to find relationships between the requirements

Advantage of this approach:

A lots of application functionality can be implemented quickly at a very low cost.

03 Marks for explanation , 02 Marks for the advantage

- e) Briefly explain when it is more suitable to use rapid application development.

How well the customer and the client understand the requirements at the beginning

Level of awareness about the system architecture

Amount of reliability
Less time

[04 Marks]
[Total Marks 20]

2)

a) Write three (03) properties of variable. [03 Marks]

- **Name** - reference to the location - **cannot be changed**
- **Value** - the information that is stored - **can be changed** during program execution, hence the name “variable”
- **Data Type** - the type of information that can be stored - **cannot be changed**

b) Give three (03) rules you follow when you define a variable? [03 Marks]

- **Variable MUST be declared prior to the code where they are used**
 - **Variable should be declared first in the procedure (style convention)**
 - **Declaring an initial value of the variable in the declaration statement is optional**
 - **Variable must be a single word**
- Or any acceptable answer**

c) What is the difference of implicit type conversion and explicit type conversion? [04 Marks]

A value of one data type can be assigned to a variable of a different type

- **An implicit type conversion is an attempt to automatically convert to the receiving variable’s data type**
- **VB provides a set of functions that perform data type conversions. These functions will accept a literal, variable name, or arithmetic expression. That is explicit type conversion.**

d) Following interface has been created to register student for SLIATE examination.

The screenshot shows a web application window titled "SLIATE Examination Form". Inside, the header reads "SLIATE Examination 2017" and "Application Form". The form is divided into two main sections. The left section contains input fields for "Name" (filled with "C.K. Fernando"), "ATI/ATI Section" (a dropdown menu showing "Ampara"), "Sex" (radio buttons for "Male" and "Female", with "Male" selected), "Date of Birth" (a date picker showing "Tuesday, January 10"), "Age" (a text box with "28"), and "Reg.No" (a text box with "AMP/IT/2017/F/0003"). Below these fields is a blue "Submit" button. The right section, titled "Student Information", displays the entered data: "Student Name :C.K. Fernando", "ATI/ATI Section :Ampara", "Sex :Male", "Date of Birth:1/10/1989", "Age :28", and "Reg Number :AMP/IT/2017/F/0003".

Category	Control	Property	Value
Label	lblName	Name	lblName
		Text	Name
	lblAti	Name	lblAti
		Text	ATI/ATI Section
	lblSex	Name	lblSex
		Text	Sex
	lblDob	Name	lblDob
		Text	Date of Birth
	lblAge	Name	lblAge
		Text	Age
Text box	txtName	Name	Lblregno
		Text	Reg.No
MaskedTextBox	masktxtRegno	Name	masktxtRegno
		Mask	\A\MP/IT/2\0\17/F/0000
DateTimePicker1	dtpDob	Name	dtpDob
Radio Button	radMale	Name	radMale
		Text	Male
		checked	True
	radFemale	Name	radFemale
		Text	Female
		checked	False
Combo Box	cmbAti	Name	cmbAti
		Items	Ampara Anuradhapura Badulla Bataloa
List Box	lstDetails	Name	lstDetails
		text	
Button	btnSubmit	Name	btnSubmit
		Text	Submit

Fill in the blanks (1 to 10) of following source code considering above form and table.

```

Dim name As String
Dim ati As String
Dim sex As String
Dim dob As (1)Date [01 Marks]
Dim age As (2)Integer [01 Marks]
Dim regno As String

name = (3)txtName.text [01 Marks]
ati = (4)cmbAti.SelectedItem [01 Marks]
If radMale.(5)Checked=true Then [01 Marks]
    sex = "Male"

```

```

ElseIf RadFemale.(6) Checked=true Then    [01 Marks]
    sex = "female"
End If
dob = (7)dtpDob.text                        [01 Marks]
age = (8)txtAge.text                        [01 Marks]
regno = (9) masktxtRegno.Text               [01 Marks]
(10) lstDetails.Items.Add ("Student Information") [01
Marks]
..... ("-----")
..... ("Student Name :" & name)
..... ("ATI/ATI Section :" & ati)
..... ("Sex :" & sex)
..... ("Date of Birth:" & dob)
..... ("Age :" & age)
..... ("Reg Number :" & regno)
                                           [Total Marks 20]

```


- e) Give four (04) control structures available in VB.NET for repetitions. [04 Marks]

Do while, Do until, For, While

- f) Write a Visual Basic code (Windows Application) to find the factorial value of any given number using input box and display in textbox. [05 Marks]

Hint : factorial of 4 is $4 \times 3 \times 2 \times 1 = 24$

```
Dim a, f As Integer
f = 1
a = Val(TextBox1.Text)
For i = 1 To a
    f = f * i
Next i
TextBox2.Text = f
End Sub
```

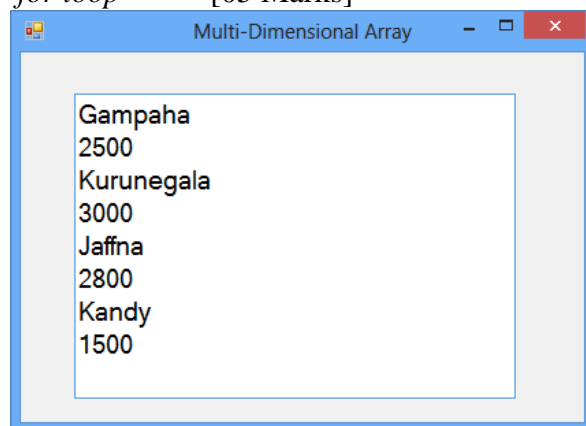
- g) Write VB.Net array declaration for a multi-dimensional array to keep following data.

[04 Marks]

ATI Name	No of Student
Gampaha	2500
Kurunegala	3000
Jaffna	2800
Kandy	1500

```
Dim ati(,) As String = {{ "Gampaha", 2500}, {"Kurunegala", 3000}, {"Jaffna", 2800}, {"Kandy", 1500}}
```

- h) Write a VB.Net code segment to display the content of above multidimensional array in a textbox as shown in following figure. *Hint: use for loop* [05 Marks]



```
Dim m,n As Integer
m = 0
```

```
n = 0

For m = 0 To 3 Step 1
    For n = 0 To 1 Step 1

        TextBox1.Text = TextBox1.Text & ati(m, n) & vbCrLf
    Next n
Next m
```

- i) What is the method available in VB.NET to take total number of elements in all dimensions? [02 Marks]

Arrayname.length

[Total Marks 20]

3)

- a) Write the syntaxes for VB.NET function and sub procedure. [04 Marks]

Public Sub *SubName* (*parameterName* As *DataType*)

/*procedure code

End Sub

Public Function *FunctionName* (*parameterName* As *DataType*)

As returnType

/* function code

Return Value /* OR FunctionName = Value

End Function

- b) What is the difference between passing by Value and passing by reference? Give an example for each. [04 Marks]

Arguments are usually passed *ByVal*

A copy of the value of the argument is stored in the parameter location

Any changes in that value made by the called procedure are made only to the parameter location – original argument from calling procedure will not change

Public sub add (byval a, byval b)

End sub

Arguments (variables) can also be passed *ByRef*

The reference (memory location) of the variable used as the argument is stored in the Parameter location

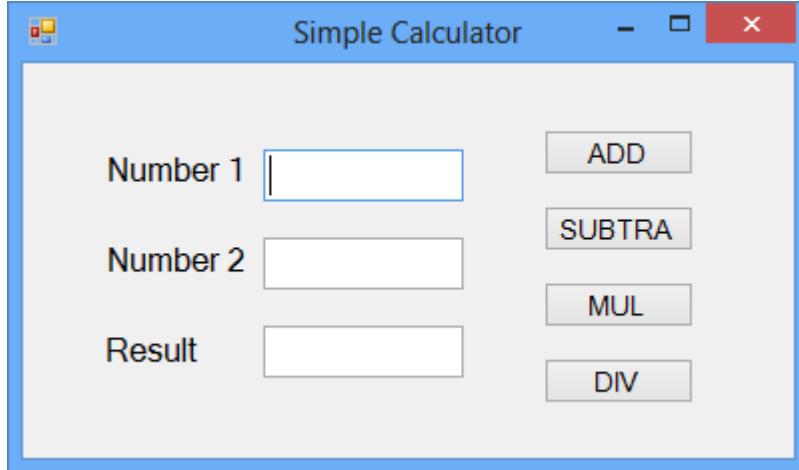
Parameter references (points to) the original variable's (argument's) memory location

Any changes made by the called procedure are made to the original variable (argument) from calling procedure

Public sub add (byref a,byref b)

End sub

c) Write suitable VB.NET functions or sub procedures for the following interface.

A screenshot of a Windows application window titled "Simple Calculator". The window has a blue title bar with standard minimize, maximize, and close buttons. The main area is light gray and contains three text boxes on the left and four buttons on the right. The text boxes are labeled "Number 1", "Number 2", and "Result". The buttons are labeled "ADD", "SUBTRA", "MUL", and "DIV".

i. Addition of two numbers.

[03 Marks]

```
Friend Function add(ByVal a As Integer, ByVal b As Integer)
    Dim c As Integer
    c = a + b
    Return c
End Function
```

ii. Subtraction of two numbers.

[03 Marks]

```
Public Function subtract(ByVal a As Integer,
    ByVal b As Integer)
    Dim c As Integer
    c = a - b
    Return c
End Function
```

iii. Multiplication of two numbers.

[03 Marks]

```
Public Function mul(ByVal a As Integer, ByVal b As Integer)
    Dim c As Integer
    c = a * b
    Return c
End Function
```

iv. Division of two numbers.

[03 Marks]

```

        Public Function div(ByVal a As Integer, ByVal b
As Integer)
            Dim c As Integer
            c = a / b
            Return c
        End Function

```

[Total Marks 20]

4)

a) Consider the following two programs and answer the questions given below.

Program A

```

Public Class Form4

    Private Sub Button1_Click(ByVal sender As
System.Object, ByVal e As System.EventArgs) Handles
Button1.Click
        Dim objv As New Toyota
        objv.drive("Driving a Toyota Car....")

    End Sub
End Class

Public Class vehicle
    Public Sub drive()
        MsgBox("Driving a Car .....")
    End Sub
End Class

Public Class Toyota
    Inherits vehicle
    Public Overloads Sub drive(ByVal text As String)
        MsgBox(Text)
    End Sub
End Class

```

Program B

```

Public Class Form4

    Private Sub Button1_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles Button1.Click
        Dim objv As New Toyota
        objv.drive()

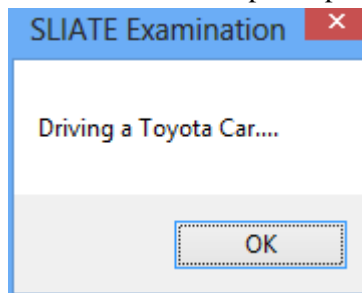
    End Sub
End Class

Public Class vehicle
    Public Overridable Sub drive()
        MsgBox("Driving a Car .....")
    End Sub
End Class

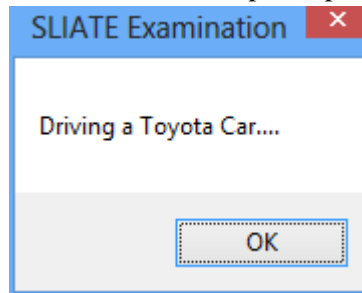
```

```
Public Class Toyota
    Inherits vehicle
    Public Overrides Sub drive()
        MsgBox("Driving a Toyota Car....")
    End Sub
End Class
```

- i. What will be the output of program A? [02 Marks]



- ii. What will be the output of program A? [02 Marks]



- iii. What are the object oriented concepts use in above programs? Briefly explain
it.

[04 Marks]

Inheritance
Polymorphisem

- iv. Briefly explain the difference of overloading methods and overriding methods.

[04 Marks]

Overloading occurs when two or more methods in one class have the same method name but different parameters.

Overriding means having two methods with the same method name and parameters (i.e., method signature). One of the methods is in the parent class and the other is in the child class.

- b) Write a class called “Cal” for calculate followings. [08 Marks]
- Take addition of two numbers
 - Take power (x^2) of a number
 - Take reminder of two numbers

Public Class cal

```

    Friend Function add(ByVal a As Integer, ByVal b As
Integer)
        Dim c As Integer
        c = a + b
        Return c
    End Function
    Public Function power (ByVal a As Integer, ByVal b As
Integer)
        Dim c As Integer
        c = a ^ b
        Return c
    End Function
    Public Function reminder(ByVal a As Integer, ByVal b
As Integer)
        Dim c As Integer
        c = a Mod b
        Return c
    End Function
End class

```

5) Consider following interface and answer the following interface.

- a) Write the code segment for creating a database connection for above form with the SQLServer Database. [05 Marks]

Hint: Data Source=SLIATE; Initial Catalog=Lecturer(database name);Integrated Security=True

Table Name :lecturerTB

```
Dim cn As New SqlConnection("data source=jeeecom;initial
catalog=lecturer;integrated security=true")
Dim da As New SqlDataAdapter("SELECT * from lecturerTB", cn)
Dim ds As DataSet = New DataSet("lecturerTB")
```

- b) Write the code segment to insert a record into the database. (Add Button) [05 Marks]

```
Dim name As String
Dim nic As String
Dim sex As Char
Dim status As String
Dim age As integer
Dim dob As Date
Dim dateofbirth As String
Dim course As String
name=textbox1.text
nic=Cint(tectbox2.text)

If RadioButton1.Checked = True Then
    sex = "M"
```



```

ElseIf RadioButton2.Checked = True Then
    sex = "F"
End If
Age=Cint(textbox3.text)
status = ListBox1.SelectedItem

dob = CDate(DateTimePicker1.Text)
course=comboBox1.SelectedItem

cn.Open()
Dim cmsql As New SqlCommand
cmsql.Connection = cn
cmsql.CommandText = "INSERT INTO lecturerTB VALUES ('"
& name & "'," & nic & "'," & sex & "'," & status & "'," & age
& ", " & dob & "'," & course & "')"

cmsql.ExecuteNonQuery()
da.Fill(ds)
cn.Close()

```

- c) Write the code segment to update the status of a lecturer who has NIC number 80818448. (Update Button). [05 Marks]

```

Dim name As String
Dim nic As String
Dim sex As Char
    Dim status As String
    Dim age As integer
    Dim dob As Date
    Dim dateofbirth As String
Dim course As String
name=textbox1.text
nic=Cint(textbox2.text)

If RadioButton1.Checked = True Then
    sex = "M"

ElseIf RadioButton2.Checked = True Then
    sex = "F"
End If
Age=Cint(textbox3.text)
status = ListBox1.SelectedItem

dob = CDate(DateTimePicker1.Text)
course=comboBox1.SelectedItem

```

```

cn.Open()
    Dim cmsql As New SqlCommand
    cmsql.Connection = cn
    cmsql.CommandText = "update lecturerTB SET name='" &
name & "'," & "sex='" & sex & "',status='" & status &
"',age=" & age & ",dob=" & dob & ",course='" & course & "'
where nic=" & Val(TextBox2.Text)
    cmsql.ExecuteNonQuery()
    da.Update(ds)
    da.Fill(ds)
    cn.Close()

```

d) Write the code segment to view the first record of the table. (First Button).

[05 marks]

```

Dim n as integer
n = 0

With ds.Tables(0).Rows(n)
    TextBox1.Text = .Item("name")
    TextBox2.Text = .Item("nic")

    If .Item("sex") = "F" Then
        RadioButton2.Checked = True
    ElseIf .Item("sex") = "M" Then
        RadioButton1.Checked = True
    End If

' .....
' .....
    If .Item("status") = "Married" Then
        ListBox1.SelectedItem = "Married"
    ElseIf .Item("status") = "Single" Then

        ListBox1.SelectedItem = "Single"
    ElseIf .Item("status") = "Venerable" Then
        ListBox1.SelectedItem = "Venerable"

    End If

' .....
    TextBox3.Text = .Item("age")

' .....
' .....
    DateTimePicker1.Text = .Item("dob")

' .....

```

```
        Combobox1.SelectedItem = .Item("course")  
    End With  
End Sub
```

Answer 2018

Question 01

- a) Explain the term “Rapid Application Development” and state any two key objectives of RAD.

Usable systems are built within a short period of times (as little as 2-3 months)

[04 Marks]

- b) “Traditional software development methodologies have certain issues”. State and briefly explain three (03) of such issues.

High workload

Product not fit for business

Product get cancelled

[06 Marks]

- c) Briefly explain two (02) types of classic mistakes.

People related

Product related

Technology related

[04 Marks]

- d) Justify the following statements.

i) “Rapid application development tools support the effective development”

Cost effective.

Earlier usage

Higher user involvement

[03 Marks]

ii) “Rapid application development is not suitable for all type of software”?

Not suitable to following type projects

Research project,

large scale project, and innovative project

In some project project Higher accuracy expects in some project

Accuracy estimation required

[03 Marks]

[Total Marks 20]

Question 02

- a) Give two operators for the following types with examples.

i) Mathematical operators

+, -, *, /

ii) Relational operators

<, >, =, <=, >=

[2x2 Marks]

- b) i) Give four (4) logical operators in their precedence order (highest to lowest).

Not

And

OR

Xor

[4x1 Marks]

ii) $X = 2 * 4 + 6 - 8 / 4 + 2 * (7 \bmod 4)$

What is the value of X after execution of above statement?

18

[02

Marks]

- c) Write Visual Basic code to accept an integer values using input box and to display the square value of using message box.

Sub Button1_click()

Dim x,y as integer

x=InputBox("Please input number")

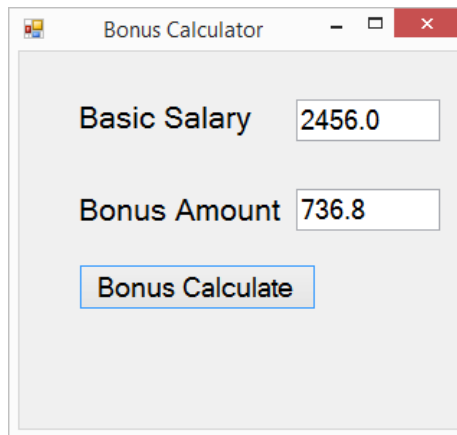
y=x*x

End sub

[04 Marks]

- d) Answer the questions given below by considering the following rate of bonus in basic salary and user interface.

Basic salary range	Percentage of Bonus
10000 and below	30%
10001-50000	20%
50001-100000	15%
More than 100000	10%



- i. Give the name for each of the above control according to the Visual Basic naming convention.

**Naming convention should be used for every control.
Mainly textboxes(2) and buttons(1) should be named.**

Example

Button -btnBonCal / bonCalBtn

Textbox-txtBasicSalary/basicSalaryTxt

[02 Marks]

- ii. Write visual basic codes to bonus calculate button click event shown in the interface

Sub bonCalBtn_click()

Dim BSalary As Double

BSalary =Val (bSalaryTxt.Text)

If BSalary <1000 then

Bonus = BSalary * 0.3

ElseIf BSalary<=10000 then

Bonus = BSalary * 0.15

Else

Bonus = BSalary * 0.1

EndIf

BAmountTxt.Text = Bonus

End sub

[04 Marks]

[Total Marks 20]

Question 03

- a) Write the differences of the following control structures with examples.

i. If Then Else VS Select Case

[04 Marks]

- b) Write Visual Basic code (between the range of 1-100) to find out whether a given number is prime or not ?

```
Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.  
EventArgs) Handles Button1.Click
```

```
Dim num, n As Integer
```

```
Dim prime As Boolean = True
```

```
n= 2
```

```
num = Val(txtNum. Text)
```

```
If num = 1 Then prime = False
```

```
If num = 2 Then prime = True
```

```
Do While n <= (num + 1) / 2 And prime
```

```
(Do While n <= 100 And prime)
```

```
If num Mod n = 0 Then
```

```
prime = False
```

```
End If
```

```
n=n+1
```

```
Loop
```

```
If prime Then
```

```
MsgBox(" is prime number)
```

```
Else
```

```
MsgBox(" is not prime number “)
```

```
End If
```

```
End Sub
```

[06 Marks]

- c) Write the output of the following code segments.

i)

```
For I = 1 To 4
```

```

        For j = 1 To I
        TextBox1.Text = TextBox1.Text & I
        Next j
    TextBox1.Text = TextBox1.Text & vbCrLf
    Next I

```

[04 Marks]

ii) Output of button1_click .

```

Public Class Form1
Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs)
Handles Button1.Click
Dim x As Integer = 10
Dim y As Integer = 15
Dim z As Integer = 2

Do While z < 5
    x += 1
    y += 1
    z += 2
Loop
Select Case x
    Case Is <= 5 :If y Mod 2 <> 0 Then y = y + 5
        x += 5

    Case Is <= 10 :If y Mod 2 <> 0 Then y = y + 10
        x += 10

    Case Is <= 15 :If y Mod 2 <> 0 Then y = y + 15
        x += 15

    Case Else :If y Mod 2 <> 0 Then y = y + 20
        x += 5
End Select

MsgBox(x & " " & y & " " & z)
End Sub
End Class

```

[06 Marks]

[Total Marks 20]

Question 04

a) Describe the followings

i. Procedure (sub)

Procedure is a block of Visual Basic statements inside Sub, End Sub statements.

Procedure do not return values

ii. Functions.

Functions are named block programs (procedures) that carry out a Specific task and also return a result or value. They are marked by the Function

and End Function statements

[2x2Marks]

- b) Write Visual basic code for a function fact (number), which returns the factorial value of number. (fact(5) returns 1x2x3x4x5=120)

**Function fact (by val n as
integer) Dim f as integer=1**

**For i=1 to
n**

**f=f*
i**

next i

**ret
urn
f**

**Endfunctio
n**

- c) Explain the deference of the following two keywords

i.) ByVal ii.)ByRef

**ByVal - Pass only the value of
original variable**

**ByRef - Pass a reference to
original variiable**

- d) Write the message box output of the following code segments button1_click event

i)

Public Class Form1

Private Sub Button1_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles Button1.Click

posDif(3, 9)

End Sub

```
Sub posDif(ByVal x As Integer, ByVal y As Integer)
Dim z As Integer
z = x - y
If z < 0 Then z = z * -1
MsgBox(" difference is " & z)
End Sub
End Class
```

Output : Difference is 6

[02 Marks]

ii)

```
Public Class Form1
Private a As Integer = 14
Private b As Integer = 16
Private Sub Button1_Click(ByVal sender As System.Object, ByVal e
As System.EventArgs) Handles Button1.Click
msgBox("result= " & Result(a,b) & "a= " & a & "b= " & b)
End Sub
function Result(ByVal x as integer, Byref y as integer) As integer
X=x+1
Y=Y+1
Return x+y
End sub
End Class
Output :
Result = 32
A = 14
B = 17
```

[04 Marks]

[Total Marks 20]

Question 05

- a) Briefly explain the terms 'class' and 'object'?

A class is a blueprint that describes an object and defines attributes and Operations for the object

An object is an instance of a class

- b) Write a VB code for the following scenarios.
- i. Create Dog class with attributes of name-String which is not accessible outside the class.

Class Dog

Private name as string

End class

[02 Marks]

ii. Dog class has Methods

- setName(name)- to assign a name to a dog.
- showName()-to display the name by message box.

```
Public sub setName(byval na as string) Name=na,  
End sub
```

```
Public sub show Name()  
Msgbox(name)  
End sub
```

[04 Marks]

c) Explain the following terms with a suitable example

i) Constructor of a class

Constructor is a method is executes during object initializing time

```
SubNew()  
Name = "no name"  
End sub
```

ii) Method overloading

You can define method *or* property multiple times with different argument list

```
Public sub setName(byval na as string)  
Name=na;  
End sub
```

```
Public sub setName()  
Nome="I am";  
End sub
```

[04 Marks]

d) What is the output of the following code segment?

[06 Marks]

```
Public Class Car  
Public Overridable Sub Accelerate ( )  
    System.console.writeline ("Speed increase by 10 km/h")  
End Sub  
Public Sub BreakFunction( )  
    System.console.writeline ("Speed reduced to 0 km/h")  
End Sub  
End Class
```

```

Public Class RaceCar
    Inherits Car
    Public Overrides Sub Accelerate ( )
        System.console.writeline("Speed increase by 20 km/h ")
    End Sub
End Class

```

```

Module Module1
    Sub main ( )
        Dim sc As RaceCar= New RaceCar ( )
        Dim c as Car=new Car()
        sc. Accelerate()
        c. Accelerate()
        sc. BreakFunction ( )
    End sub
End Module

```

output

Speed increase by 20 km/h

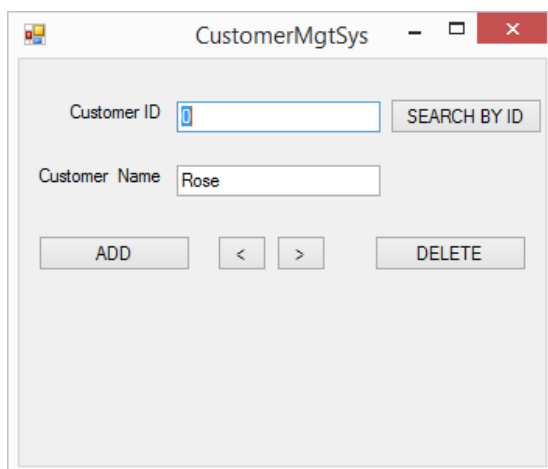
Speed increase by 10 km/h

Speed reduced to 0 km/h

[Total Marks 20]

Question 06

The following prototype interface was created using VB.Net. The back end of the system was created using MS Access.



- a) “ADO.NET is Disconnected Data Access Architecture” Explain the above statement?

By keep connections open for only a minimum period of time, ADO .NET Conserves system resource and provides maximum security for databases and also has less impact on system performance

[02 Marks]

- b) The following code segment is used to connect above interface with the MS Access and to load the first record of table to fill data into textboxes. Fill in the blanks with suitable term.

Public Class CustomerFrm

Private oledbCon As OleDb.OleDbConnection

Private oledbDADB As OleDb.OleDbDataAdapter

Private ds As DataSet

Private oleConString As String

Private rec As Integer = 0

Private Sub CustomerFrm_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load

oleConString = "Provider=Microsoft.Jet.OLEDB.4.0;

DataSource=C:\Users\Acer\Documents\customerData.mdb"

‘To initialize of connection String

Dim sql As String = "i_____"

‘sqlstatement to get whole data of table customer

oledbCon = New OleDb.OleDbConnection(ii_____)

‘To initialize oledb connection

oledbDADB = New OleDb.OleDbDataAdapter(iii_____, oledbCon)

‘To initialize oledb data adapter

ds = New DataSet

‘To initialize data set

Try

oledbCon.iv_____

‘To open a oledb connection

v_____.Fill(ds, "cust")

‘To fill the data into dataset

oledbCon.Close()

‘To clouse a oledb connection

Catch ex as exception

Msgbox("Problem in connection" & ex.message)

End Try

```
idTxt.Text = ds.Tables("cust").vi_____
nametxt.Text = ds.Tables("cust").vii_____
```

End Sub

End Class

1. "SELECT * FROM customer;"

2. oleConString

3. sql, oledbCon

4. open

5. oledbDADB

6. POWS g

7. rows(0).item(1)

[1x7 Marks]

c) Briefly explain the purpose of try catch used in the above code.

Provides a way to handle some or all possible errors that may occur in a given block of code, while still running code.

[02 Marks]

d) Write the code segment to save the information displayed in the form in the database.(Add Button)

Assume that the database contains a table with the following structure:

Customer (cId-integer, cName-text)

Customer	
cId	cName
0	Rose
1	Mery
2	Perera
3	Mohan
5	Ramesh

PrivateSubaddbtn_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles addbtn.Click

Dim insertsql As String = "INSERT INTO Customer VALUES(" & Val(i4Txt.Text) & ", 'nametxt.Text & " & ");"

Dim OLEDBCOM As New OleDbCommand(insertsql, oledbCon)

**oledbCon.Open()
OLEDBCOM.ExecuteNonQuery()
oledbCon.Close()**

Catch EXC As Exception

MsgBox(EXC.Message)

End Try

End sub

[05 Marks]

- e) Write the code segment to get the next record information of a customer. (> Button).

```
Private Sub nextBtn_Click((ByVal sender As System.Object, ByVal e As  
System.EventArgs) Handles nextBtn.Click  
If rec < ds.tables("cust").Rows().count - 1 then rec = rec+1  
Id txt.Text = ds.tables("cust").Rows(rec).Item(0).ToString  
name txt.Text = ds.tables("cust").Rows(rec).Item(1).ToString
```

End sub

[04
Ma
rks]

[Total Marks 20]