

Please use the space provided on this exam to answer the questions. Clearly show your work for possible partial credit. Question point values are shown in parentheses.

1. (16) Given the following code, indicate what will be printed as a result of the four “Form1.Print” statements. Just focus on the value of the variable x in each case.

```
Dim a As Integer, b As Integer, c As Integer, d As Integer  
Dim x As Single
```

```
a = 5  
b = 100  
c = 3  
d = 10
```

```
x = b + d / a - c  
Form1.Print "A: " & x
```

```
x = a * c \ d  
Form1.Print "B: " & x
```

```
x = Fix(d / c) Mod 2  
Form1.Print "C: " & x
```

```
x = d * c + b / a / a  
Form1.Print "D: " & x
```

2. (16) Salesperson bonuses are paid based on a combination of total unit sales and the number of new accounts according to the following table:

Unit Sales	Number of New Accounts	
	1-10	>= 11
< 1000	\$2,000	\$4,000
1000-5000 (inclusive)	\$2,500	\$5,500
> 5000	\$3,500	\$8,000

Assume you have a variable named UnitSales (type Long) and NewAccts (type Integer) and that these variables have been set to appropriate values, e.g., UnitSales = 3500 and NewAccts = 13 should result in Bonus = 5500. Write a code **segment** that sets the variable Bonus (type Currency) to the proper value given the table above.

3. (16) When a VB program is running it is possible to show another form (such as a dialog or preferences box) as a modal form. After the second form is showing, it is possible to make it “go away” either by hiding it (using the Hide method) or unloading it (using the Unload statement.)

Briefly explain the difference between the Hide method and the Unload statement and explain why you would use one or the other.

4. (18) Write the logic for the body of the following KeyPress() event:

```
Private Sub txtQ4_KeyPress(KeyAscii As Integer)
    ' You fill in the code here
End Sub
```

The rules for this event are:

- a. Allow all digits (0-9).
  - b. Allow a backspace.
  - c. Allow both upper and lowercase letters.
  - d. Capital “O” (letter “oh”) should be replaced with lowercase “o”.
  - e. First character **MUST BE** a digit. If not, beep and reject key typed.
  - f. No other characters allowed (beep and reject key typed).
5. (18) Consider the following code found in a form module:

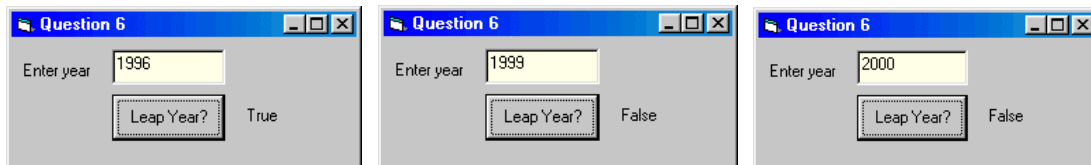
<pre>Option Explicit  Dim A As Integer, B As Integer  Private Sub cmdQ5_Click()     Dim B As Integer     Dim C As Integer     A = 10     B = 45     C = 70      One A, B     <b>Form1.Print A, B, C</b>      Two C, B     <b>Form1.Print A, B, C</b>      Three     <b>Form1.Print A, B, C</b>  End Sub</pre>	<pre>Private Sub One(ByVal X As Integer, Y As Integer)     Dim c As Integer     c = X     Y = 100     A = 33 End Sub  Private Sub Two(B As Integer, c As Integer)     Dim A As Integer     A = B     c = 75     B = 80 End Sub  Private Sub Three()     Dim c As Integer     A = 99     B = 16     c = 833 End Sub</pre>
---	--

Determine what is printed for the variables A, B, and C in the three Form1.Print statements in the cmdQ5\_Click() event procedure.

6. (16) A leap year is any year that is evenly divisible by 4 with the exception that century years (1900, 2000, etc.) are not leap years. Create a **complete** VB function procedure named **LeapYear** that determines if any given year is a leap year. This function should return a Boolean value (either True if the year is a leap year or False otherwise). An example click event that uses of this function follows:

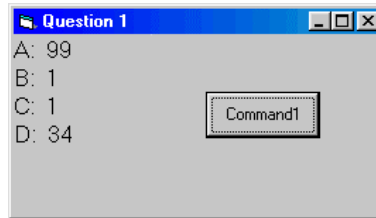
```
Private Sub cmdLeapYear_Click()  
    Dim yr As Integer  
    yr = txtYear.Text  
    lblAnswer.Caption = LeapYear(yr) ' Write this LeapYear() function  
End Sub
```

The screen shots below were produced by this click event.



The following are suggested answers. For code, alternative answers may be acceptable.

1.



2.

```
Select Case UnitSales
  Case Is < 1000
    If NewAccts < 11 Then
      Bonus = 2000
    Else
      Bonus = 4000
    End If
  Case Is <= 5000
    If NewAccts < 11 Then
      Bonus = 2500
    Else
      Bonus = 5500
    End If
  Case Else
    If NewAccts < 11 Then
      Bonus = 3500
    Else
      Bonus = 8000
    End If
End Select
```

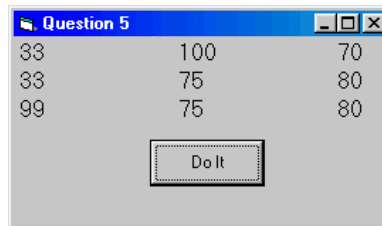
3. With the Hide method, the form remains in memory (it just cannot be seen). With the Unload statement, the form is removed from memory. You use the Hide method when you want to get information from the form even if it is hidden. For example, you might want to determine which button was clicked or get the value from a text box. Since the form is still in memory, this is possible. If the form is unloaded, this is not possible.

4.

```
Private Sub txtQ4_KeyPress(KeyAscii As Integer)
  Select Case KeyAscii
    Case vbKey0 To vbKey9, vbKeyBack
      'do nothing -- key is legal
    Case vbKeyA To vbKeyZ, Asc("a") To Asc("z")
      ' Check to be sure not first character
      If Len(txtQ4.Text) = 0 Then 'problem
        KeyAscii = 0
        Beep
      End If
  End Select
```

```
'Check for uppercase O (oh)
If KeyAscii = Asc("O") Then 'replace with lowercase o
    KeyAscii = Asc("o")
End If
Case Else
    KeyAscii = 0
    Beep
End Select
End Sub
```

5.



6. `Public Function LeapYear(ByVal Year As Integer) As Boolean`  
`If Year Mod 4 = 0 And Year Mod 100 <> 0 Then`  
`LeapYear = True`  
`Else`  
`LeapYear = False`  
`End If`  
`End Function`

Note: The “real” leap year rule excludes century years except those divisible by 400.  
So an example of the “real function is:

```
Public Function LeapYear(ByVal yr As Integer) As Boolean
    If yr Mod 400 = 0 Then
        LeapYear = True
    Else If yr Mod 100 = 0 Then
        LeapYear = False
    Else If yr Mod 4 = 0 Then
        LeapYear = True
    Else
        LeapYear = False
    End If
End Function
```