

## Exam 1

Instructions: Write all your answers on this document. Question point values are shown in parentheses.

1. (18) Assume you are given a text box named txtSSN that is supposed to store a social security number in the format ###-##-#### where the “#” symbol represents any digit. Write a **click event** for a command button (not a KeyPress event) that validates the user input. The click event should verify that:
  - a. Eleven characters have been entered.
  - b. Two dashes have been entered and are in the correct positions.
  - c. The characters between the two dashes are valid numbers. Depending on your approach, you may have to verify that there are no “\$” or “.” characters in the SSN.

If all of the conditions above are met, show a message box displaying “Valid”. Otherwise, if there are any problems with the user’s entry, show a message box displaying “Not Valid”.

2. (14) For each of the following, determine if the statement is True or False. Place your answer (True or False) in the left margin next to the statement.
- a. A variable's scope should be as narrow as possible. Thus, local scope is better than module-level scope and module-level scope is better than global scope.
  
  - b. In a string comparison, "able" < "Cane".
  
  - c. A call by reference is considered "safer" than a call by value because with a call by reference, the parameter is working with a copy of the argument, not the actual argument itself.
  
  - d. When one form causes a second form to be shown as a "modal" form, then either form may be made active by simply clicking on it.
  
  - e. If you write a click event for a checkbox control, you cannot be sure of the value of its Value property. Thus, you can write an If statement to see if the Value property is equal to True or False.
  
  - f. If you declare a variable as Currency type using a Dim statement, then that variable can store both a leading \$ as well as embedded commas for every thousand.
  
  - g. The Val() function and the IsNumeric() function can be used in basically the same way – to determine if a String value represents a valid number.

3. (16) Given the program below, determine what the values of the variables a, b, c, and d are equal to when the Form1.Print statements are executed. Be sure that your answers are clearly shown.

Option Explicit Dim a As Integer, b As Integer  Private Sub cmdExam_Click() Dim c As Integer, d As Integer a = 1: b = 2: c = 3: d = 4  SubA c, d <b>Form1.Print a, b, c, d</b>  SubB c, d <b>Form1.Print a, b, c, d</b> End Sub	Private Sub SubA(a As Integer, ByVal b As Integer) Dim c As Integer, d As Integer c = a d = b a = b b = d End Sub  Private Sub SubB(c As Integer, d As Integer) a = c b = d c = b d = a End Sub
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4. (15) You have the following variables and values:

a = 10  
b = 50  
c = 2  
d = 5  
x = "Apple"  
y = "101 West Main"

Assume that the variables a, b, c, and d are all declared as Double and the variables x and y are declared as String.

Given this information, determine the value of the following expressions:

a.  $b / a \text{ Mod } c$

b.  $\text{Val}(y) \setminus b$

c.  $\text{InStr}(1, x, "p") + \text{Mid}\$(y, 2, 2)$

d.  $d + c * 2 - b / a$

e.  $a + b / c - d$

5. (20) Consider the following decision table used to determine the level of tuition that would be charged based on the number of credits and a person's class status.

Class Status	Number of Credits		
	< 9	10 - 18	> 18
Undergraduate	\$50 per credit (minimum \$200)	\$750	\$750 + \$100 per credit
MBA	\$80 per credit (minimum \$350)	\$1,200	\$1,200 + \$200 per credit

Write the appropriate VB code that computes the tuition amount. Assume you have an Integer variable named NoCredits that stores the number of credits and a String variable named ClassStatus that stores either "U" or "M" for undergraduate and MBA respectively.

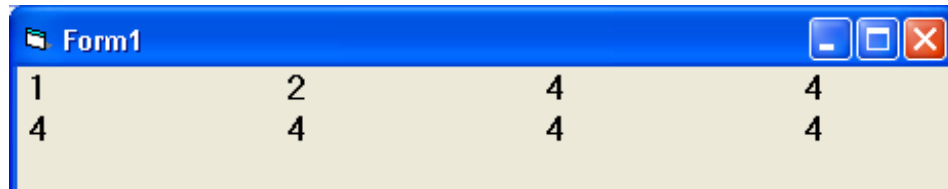
6. (17) Consider the following statement: “You can either use scope or arguments and parameters to allow local variables to be shared between two procedures. Both approaches are considered equally good.” Do you agree or disagree with this statement? Justify your answer.

1. One approach is:

```
Private Sub cmdValidate_Click()  
    Dim Dash1 As Integer, Dash2 As Integer  
    Dim SSN As String  
    SSN = txtSSN.Text  
    Dash1 = InStr(1, SSN, "-")  
    Dash2 = InStr(Dash1 + 1, SSN, "-")  
    ' Are dashes in the correct locations and is length correct  
    If Dash1 <> 4 Or Dash2 <> 7 Or Len(SSN) <> 11 Then  
        MsgBox "Not valid"  
        Exit Sub  
    End If  
    ' Does the SSN include "$" or "."  
    If InStr(1, SSN, "$") + InStr(1, SSN, ".") > 0 Then  
        MsgBox "Not valid"  
        Exit Sub  
    End If  
    ' Do we have numbers between the dashes  
    If IsNumeric(Left$(SSN, 3)) And IsNumeric(Right$(SSN, 4)) And _  
        IsNumeric(Mid$(SSN, 4, 2)) Then  
        MsgBox "Valid"  
    Else  
        MsgBox "Not valid"  
    End If  
End Sub
```

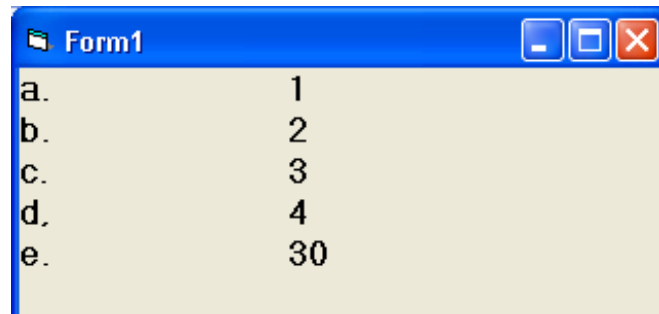
2. a. True  
b. False  
c. False  
d. False  
e. False  
f. False  
g. False

3.



1	2	4	4
4	4	4	4

4.



a.	1
b.	2
c.	3
d.	4
e.	30

5. Select Case ClassStatus

Case "U"

Select Case NoCredits

Case Is < 9

tuition = 50 \* NoCredits

If tuition < 200 Then tuition = 200

Case 10 To 18

tuition = 750

Case Is > 18

tuition = 750 + 100 \* (NoCredits - 18)

End Select

Case "M"

Select Case NoCredits

Case Is < 9

tuition = 80 \* NoCredits

If tuition < 350 Then tuition = 350

Case 10 To 18

tuition = 1200

Case Is > 18

tuition = 1200 + 200 \* (NoCredits - 18)

End Select

End Select

6. This statement is not correct. A local variable cannot be shared with other procedures unless you pass it as an argument. There is not way to use scope to share a local variable. Of course you can extend the scope to module or global level, but this is also not as good as using local variables and sharing them under controlled circumstances via an argument and parameter.