

Exam 1

Please write your answers directly on the exam. Question point values are shown in parentheses.

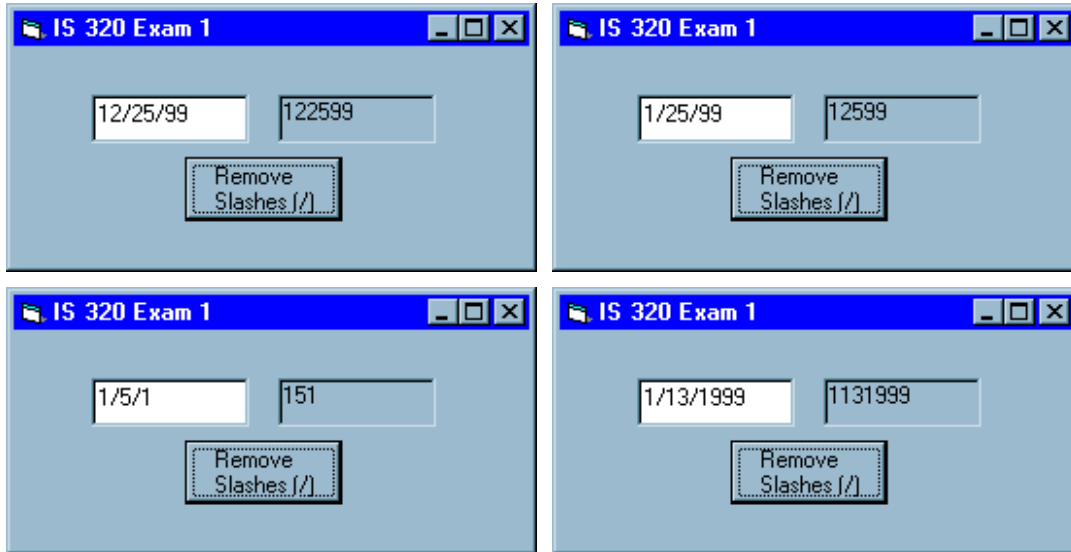
1. (12) Indicate whether each statement below is True or False by circling the T or F.
 - T or F It is not possible for the Caption property of a Label control to show more than one line of information.
 - T or F Using arguments and parameters to share local variables between two procedures is considered better program design than using scope to accomplish the same goal.
 - T or F When comparing two string values, Visual Basic automatically converts them to numeric values before the comparison takes place if possible.
 - T or F General sub procedures and function procedures both share the characteristic of returning a value when they are called.
 - T or F ByVal parameters will be used more often in sub procedures than in function procedures.
 - T or F The logical concept equivalent to “And” is impossible to apply within a Select Case decision structure.

2. (12) The following sub procedure is supposed to swap the contents of two integer variables. For example, if A = 20 and B = 30, then after calling the procedure with A and B as arguments, their values should be reversed, i.e., A = 30 and B = 20. However, the procedure will not work as written. Identify the problems and provide corrections. You may add additional variables and/or statements if necessary.

```
Private Sub swapper(ByVal x As Integer, ByVal y As Integer) As Integer
    x = y
    y = x
End Sub
```

3. (12) The user enters a date into a text box using the format m/d/y. Write the code for a VB click event that takes the user input and removes the two slashes (/) leaving only the original digits. This “slashless” version of the date should then be displayed in a label’s Caption.

The first two sets of numbers can consist of either 1 or 2 digits while the third (right-most) set can have up to four digits. For example, consider the following:



In each case above only the digits (not the slashes) were placed in the label to the right of the text box when the command button was clicked.

You may assume that the user will only enter two slashes. Also assume that the text box is named txtOrig and the label is named lblRemoved.

5. (18) Given the code below, determine the values for the variables x, y, and z for each of the three Form1.Print statements when the command button cmdDoIt is clicked.

<pre>' General Declaration Section Option Explicit Dim x As Integer, z As Integer</pre>	<pre>Private Sub subA(x As Integer, _ y As Integer, z As Integer) Dim t As Integer t = x y = 10 z = t End Sub</pre>
<pre>Private Sub cmdDoIt_Click() Dim y As Integer x = 3 y = 5 z = 7 subA x, y, z Form1.Print x, y, z</pre>	<pre>Private Function functB(ByVal x As _ Integer, y As Integer) As Integer z = x * 2 x = 100 y = 33 functB = 4 End Function</pre>
<pre>y = functB(x, z) Form1.Print x, y, z subC Form1.Print x, y, z End Sub</pre>	<pre>Private Sub subC() Dim t As Integer, u As Integer t = x u = 101 subA x, t, u z = functB(t, x) End Sub</pre>

6. (9) For each equation below, write the correct VB expression.

a. $\sqrt{\frac{a \times b}{x + y}}$

b. $\frac{a + b}{x} \times \frac{a \times b}{a - b}$

c. $\frac{a}{b} \times \sqrt{((a - b) \times c)} - \left(\frac{a + b}{a - b} \right)$

7. (12) Explain why you would use a function procedure instead of a sub procedure.

8. (12) You have a text box named txtQ8 that accepts only numbers, a backspace, and a minus sign. Also, the value entered must never exceed 100, i.e., it must be ≤ 100 .

Write a KeyPress event for this text box that enforces the rules given above.

```
Private Sub txtQ8_KeyPress(KeyAscii As Integer)
```

```
End Sub
```

1. **False.** You may use vbCrLf characters to create more than one line.
True. Scope should always be as narrow as possible.
False. VB only does this if one is a string and the other is numeric.
False. Only function procedures return a value.
False. Since function procedures can return a value, they most likely will use the ByVal parameter type.
False. The “To” keyword is a form of “And”. If you say “1 To 10”, you are saying ≥ 1 AND ≤ 10 .
2. Private Sub swapper(**ByVal** x As Integer, **ByVal** y As Integer) **As Integer**
 x = y
 y = x
End Sub

Problems/Fixes

- a. You must modify the values of each argument with the procedure. Remove “ByVal” in front of each parameter.
- b. Sub procedures don’t have return types. Remove the final “As Integer” from the sub heading.
- c. You need a local temporary variable to perform the swap. Something like:

```
Dim t As Integer
t = x
x = y
y = t
```

3. Private Sub cmdRemove_Click()
 Dim firstSlash As Integer, secondSlash As Integer
 Dim orig As String, revised As String
 orig = txtOrig.Text
 firstSlash = InStr(1, orig, "/")
 secondSlash = InStr(firstSlash + 1, orig, "/")
 revised = Left\$(orig, firstSlash - 1) & _
 Mid\$(orig, firstSlash + 1, secondSlash - firstSlash - 1) & _
 Right\$(orig, Len(orig) - secondSlash)
 lblRemoved.Caption = revised
End Sub

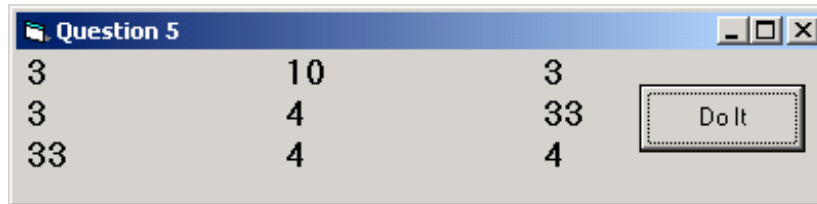
An alternate solution is:

```
Private Sub cmdVersion2_Click()  
    lblRemoved.Caption = Replace(txtOrig.Text, "/", "", 1, 2) ' ☺  
End Sub
```

4. Private Sub **txtA_Change()**
 lblSum.Caption = Val(txtA.Text) + Val(txtB.Text)
End Sub

Private Sub **txtA_KeyPress(KeyAscii As Integer)**
 Select Case KeyAscii
 Case vbKey0 To vbKey9, vbKeyBack
 'ok do nothing
 Case Else
 KeyAscii = 0
 Beep
 End Select
End Sub

5.



6.

a. $\sqrt{\frac{a \times b}{x + y}}$

$$\text{SQR}(a * b / (x + y))$$

b. $\frac{a + b}{x} \times \frac{a \times b}{a - b}$

$$(a + b) / x * (a * b / (a - b))$$

c. $\frac{a}{b} \times \sqrt{((a - b) \times c)} - \left(\frac{a + b}{a - b} \right)$

$$a / b * \text{SQR}((a - b) * c) - ((a + b) / (a - b))$$

7. You use a function procedure whenever you want some code to be executed that returns a value. For example, you might want code that returns the future value given the present value, the interest rate, and the term.

```
8. Private Sub txtQ8_KeyPress(KeyAscii As Integer)
    Select Case KeyAscii
        Case vbKey0 To vbKey9
            'do nothing
        Case vbKeyBack, Asc("-")
            Exit Sub
        Case Else
            KeyAscii = 0
            Beep
            Exit Sub
    End Select
    If Val(txtQ8.Text) * 10 + Val(Chr$(KeyAscii)) > 100 Then
        KeyAscii = 0
        Beep
    End If
End Sub
```