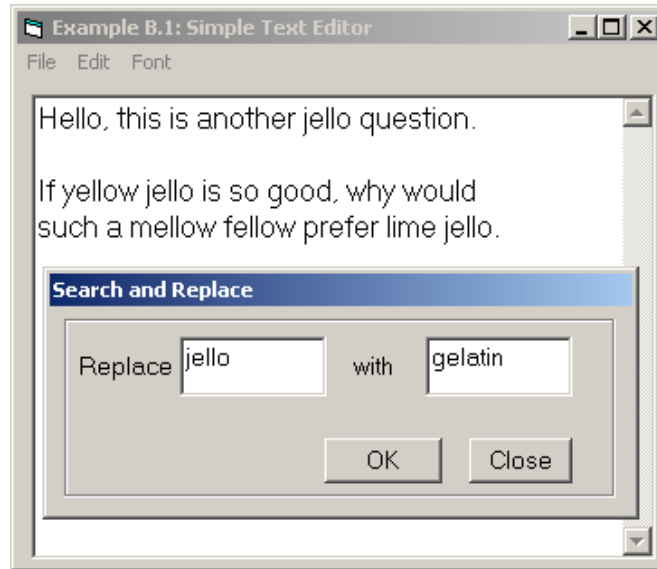
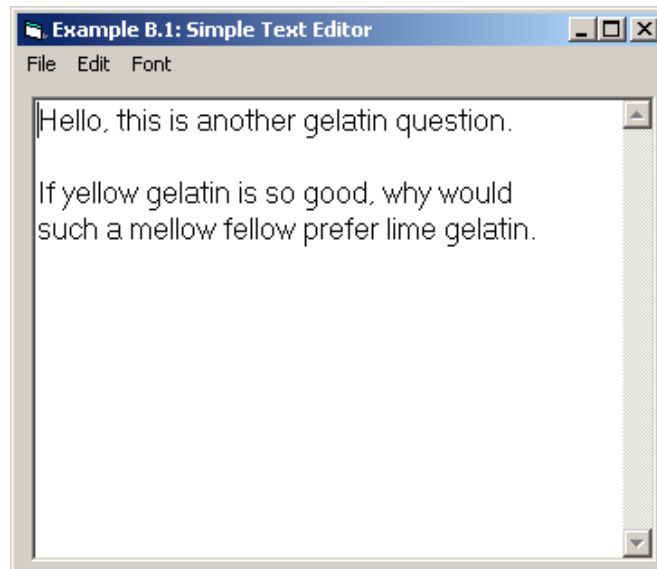


Please write your answers directly on the exam. Question point values are shown in parentheses.

1. (14) Write the code that searches the contents of a text box and replaces one user-specified string with a second user-specified string. In the example below, the user wants to change the string “jello” with “gelatin”.



After clicking on the OK button, the text box in the background now shows:



You are required to write the code for the OK button’s click event. Assume the text box that contains the original phrase (“Hello, this is another ...”) is named frmQ1!txtEdit. Also assume that the text boxes on the Search and Replace dialog box are named txtOrig and txtNew.

Exam 2

Be aware that the OK button that you need to write the click event for is on a different form than the text box with the original phrase. That is why the name of that text box begins with the form's name. Other than this naming issue, the fact that there are two forms should not make any difference for your solution.

2. (16) For each of the following, determine the value of the variable(s) printed in the Form1.Print statements. For each part, assume all variables start out equal to 0 unless explicit initial values are given.

a. For a = 1 To 3
 n = n + 1
 Do While n < 3 * a
 n = n + 1
 k = k + a
 Loop
 Next a
 Form1.Print n, k ' What's printed here?

b. For a = 1 To 5
 For n = 5 To a Step -a
 k = k + 1
 Next n
 Next a
 Form1.Print k ' What's printed here?

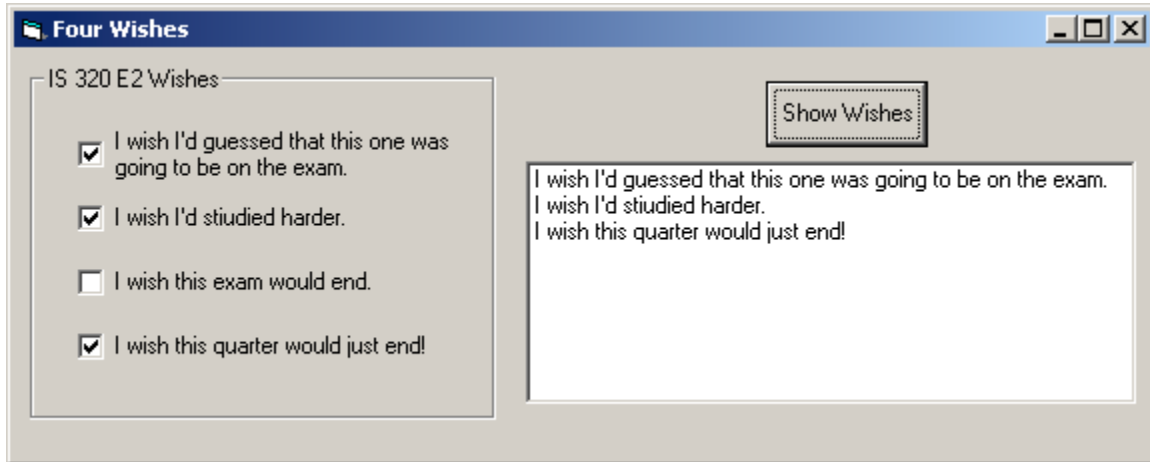
c. k = 10
 Do While a < k
 k = k - 1
 Do Until a > k
 n = n + 1
 a = a + 2
 Loop
 Loop
 Form1.Print a, k, n ' What's printed here?

d. a = 6
 For n = 1 To 3
 Do While a Mod 2 = 0
 k = k + 1
 a = a + k
 Loop
 a = a + 1
 Next n
 Form1.Print a, k ' What's printed here?

3. (20) For each statement below indicate whether it is True or False.

- T or F a. Polymorphic behavior enhances a program's maintainability.
- T or F b. The "Do While" and the "Do Until" loops are interchangeable. All you need to do is change the logical condition that determines when the loop stops.
- T or F c. It has been said that one should use a "For" loop when the number of iterations is known before the loop starts. This statement is not completely true because there are times when you do not know the number of iterations before the loop starts. For example, with the statement: For k = 1 to n, the number of iterations is unknown because "n" is a variable.
- T or F d. Visual Basic supports dynamic arrays, that is, arrays that change the upper and/or lower bounds of the subscript as the program executes.
- T or F e. The RecordSet is an example of an object (with properties and methods) that cannot be seen on the user interface.
- T or F f. Visual Basic supports most of the expected features of an object-oriented language including polymorphism and inheritance.
- T or F g. Visual Basic restricts the programmer to at most two dimensions for a String array.
- T or F h. After performing a FindFirst operation on a RecordSet, one needs to check to see if the RecordSet's EOF property has been set to True.
- T or F i. The "for" loop is an example of a "minimum 0 iteration" loop.
- T or F j. When one operates within the object paradigm, much of the initial design effort focuses on creating class definitions.

4. (16) Write the segment of code needed to fill the list box shown below on the right with the caption of the selected check boxes shown on the left



If you make the correct assumptions, you should be able to do this with 3 statements. Note, **do not** consider Dim statements in this count and consider an “if” statement as a single statement. Also be aware that the correct answer will have 3 statements regardless of the total number of check boxes and the number selected check boxes.

Please state explicitly any assumptions you are making.

5. (16) The following code segment is designed to find the first record in a RecordSet for an employee whose name is “Smith” and then find the remaining records for this employee. The database has a text field called “EmpName” and a numeric field called “TestScore”. The code should place all the test scores for matching records into a list box named lstScores. They should be placed in the list box in the order they appear in the RecordSet. The data control is that used for this application is named “datQ5”. Assume that its DatabaseName and RecordSource properties have been correctly defined at design time.

Study the code below for errors and rewrite it by correcting those errors.

```
datQ5.RecordSet.Refresh
datQ5.FindFirst "EmpName = Smith"
If datQ5.RecordSet.EOF = True Then
    MsgBox "No records found"
    Exit Sub
End If
Until datQ5.NoMatch = True
    lstScores.AddItem datQ5.RecordSet(TestScore), 1
Loop
```

6. (18) You are given the following code segment:

```
Dim a(1 To 3, 1 To 3) As Integer  
Dim r As Integer, c As Integer, t As Integer
```

```
For r = 1 To 3  
  For c = 1 To 3  
    a(r, c) = r - c  
  Next c
```

```
Next r
```

' What does the array a() store now?

```
For r = 1 To 3  
  For c = r To 3  
    t = a(r, c)  
    a(r, c) = a(c, r)  
    a(c, r) = t
```

```
Next c
```

```
Next r
```

' What does the array a() store now?

Trace the execution of the code and indicate clearly what is stored in the array “a” after the **first** nested loop and again after the **second** nested loop.

1. A sample solution is:

```
Private Sub cmdOk_Click()  
    Dim searchText As String, replaceText As String  
    Dim loc As Integer, length As Integer  
  
    searchText = txtOrig.Text  
    length = Len(searchText)  
    replaceText = txtNew.Text  
    loc = InStr(1, frmExB01!txtEdit.Text, searchText)  
  
    Do While loc > 0  
        frmExB01!txtEdit.Text = Left$(frmExB01!txtEdit.Text, loc - 1) & _  
            replaceText & _  
            Right$(frmExB01!txtEdit.Text, Len(frmExB01!txtEdit.Text) - (loc + length - 1))  
        loc = InStr(loc + length, frmExB01!txtEdit.Text, searchText)  
    Loop  
End Sub
```

... or ...

```
Private Sub cmdOk_Click()  
    Dim searchText As String, replaceText As String  
    frmExB01!txtEdit.Text = replace(frmExB01!txtEdit.Text,searchText,replaceText)  
End Sub
```

2. a. $n = 9, k = 12$
b. $k = 10$
c. $a = 10, k = 9, n = 5$
d. $a = 24, k = 5$
3. a. True f. False
b. True g. False
c. False h. False
d. True i. True
e. True j. True
4. The following assumes that the check boxes have been created in a control array name chkWish.

```
For w = 0 To chkWish.UBound  
    If chkWish(w).Value = vbChecked Then  
        lstWishes.AddItem chkWish(w).Caption  
    End If  
Next w
```

5. For each statement below, the corrected statement is directly below it in bold font.

datQ5.RecordSet.Refresh

datQ5.Refresh ' Refresh it a method of the data control.

datQ5.FindFirst "EmpName = Smith"

datQ5.RecordSet.FindFirst "EmpName = 'Smith'" ' The find methods are methods of the RecordSet. Also, String literals must be enclosed in apostrophes.

If datQ5.RecordSet.EOF = True Then

If datQ5.RecordSet.NoMatch = True Then ' Find methods do not use the EOF property.

MsgBox "No records found"

Exit Sub

End If

Until datQ5.NoMatch = True

Do Until datQ5.RecordSet.NoMatch = True 'Keyword Do is required. Must check the RecordSet's NoMatch property.

IstScores.AddI tem datQ5.RecordSet(TestScore), 1

IstScores.AddI tem datQ5.RecordSet("TestScore") 'Field names must be enclosed in quotes. The AddI tem method should not have the second argument.

datQ5.RecordSet.FindNext "EmpName = 'Smith'" ' Need to go to next record

Loop

6. The contents of the array are:

