Final Exam Sample Test

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) After the following Dim statement is executed, how many subscripted variables called *myvar(i)* will   1) _____
be available?

```
Dim  myVar(7)  As  Double
```
   A) 0   B) 1   C) 8   D) 9

2) What names are displayed in the list box when the button is clicked?   2) _____

```
Private Sub btnDisplay_Click(...) Handles
  btnDisplay.Click Dim name(4) As String
  Dim sr As IO.StreamReader =
  IO.File.OpenText("DATA.TXT") For i As Integer = 0 To 4
    name(i) =
  sr.ReadLine Next
  sr.Close()
  lstBox.Items.Clear()
  For i As Integer = 4 To 0 Step -
    2 lstBox.Items.Add(name(i))
  Next
End  Sub
```
Assume the five lines of the file DATA.TXT contain the following entries: Bach, Borodin,
Brahms, Beethoven, Britain.
   A) Britain, Brahms, and Bach
   B) Britain, Beethoven, Brahms, Borodin, and Bach
   C) Bach, Borodin, Brahms, Beethoven, and Britain
   D) Bach, Brahms, and Britain

3) What is the output of the following program segment?   3) _____

```
Dim  numbers(3)  As  Double,  h  As  Double  =  0
Dim sr As IO.StreamReader =
IO.File.OpenText("DATA.TXT") For i As Integer = 0 To 3
  numbers(i) =
CDbl(sr.ReadLine) Next
sr.Close()
For k As Integer = 0 to
  3 h += numbers(k)
Next
txtBox.Text  =  CStr(h)
```
Assume the four rows of the file DATA.TXT contain the following entries: 2, 4, 2, 3
   A) **11**   B) **2**   C) **4**   D) **7**

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4) Given the Dim statement below, which set of statements will initialize all elements of *myArray()* to 100? 4) _____

```
Dim myArray(100) As Double
```
A) `For i = 0 To 100`
    `(i) =`
`100 Next`

B) *myArray()* is already initialized to 100 by the Dim statement. C) `For j = 0 to 100`
    `myArray(j) =`
`100 Next`

D) `myArray = 100`

5) What is the output of the following program segment? 5) _____
```
Dim  antonym(7)  As  String
Dim sr As IO.StreamReader = IO.File.OpenText("DATA.TXT")
For i As Integer = 0 To 6 Step 2
  antonym(i) = sr.ReadLine
  antonym(i + 1) = sr.ReadLine
Next
sr.Close()
txtBox.Text  =  antonym(3)
```
Assume the twelve rows of the file DATA.TXT contain the following entries: big, small, black, white, old, young, fast, slow, tall, short, hard, soft.

A) white   B) black
C) small   D) Subscript out of range

6) Each individual variable in the list 6) _____
```
student(0),  student(1),  student(2)
```
is known as a(n)

A) type.   B) dimension.   C) element.   D) subscript.

7) The ReDim statement causes an array to lose its current contents unless the word ReDim is followed by the keyword 7) _____

A) MyBase   B) CInt   C) Add   D) Preserve

8) The GetUpperBound(0) function returns what information about an array? 8) _____
  A) the highest dimension of the array
  B) the largest value that can be assigned to an array element
  C) the highest number that can be used as a subscript for the array
  D) the number of elements in the array

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

9) If the following statement appears in a program, the array *score()* must have been declared using the String data type. 9) _____
```
score(1)  =  87
```

10) Like other variables, array variables can be declared and assigned initial values at the same time. 10) _____

11) If you use the ReDim statement to make an array smaller than it was, data in the eliminated elements can be retrieved by using the Preserve keyword. 11) _____

12) The following statements are valid. (T/F)'

```
x = CInt(InputBox("Enter  number  of  items  to  be  processed:"))

ReDim  myArray(x  -  1)
```

12) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

13) Consider the following Visual Basic statements:

```
Dim  nums(4)  As  Double
For  index  As  Integer  =  0  To  4
  nums(index)  =  1  +  (index  *  2)
Next
```

What values are placed in the array by the above statements? (Show each element of the array and the value for that element.)

13) _____

14) What will be the size of the array *stones()* after the following two lines of code are executed?

```
Dim  stones()  As  String  =  {"Watts",  "Jagger",  "Wood",  "Richards"}

ReDim  Preserve  stones(10)
```

14) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

15) What is the value of j after the following code segment has been executed?

```
Dim  state(49)  As  String,  j  as  Integer
'Assume  that  the  data  file  STATES.TXT  contains
'the  names  of  the  50  states  of  the  United  States
'in  the  order  they  were  admitted  to  the  union.
Dim  sr  As  IO.StreamReader  =  IO.File.OpenText("STATES.TXT")
j  =  0
Do  While  sr.Peek  <>  -1
  state(j)  =  sr.ReadLine
  j  +=  1
Loop
sr.Close()
For  i  As  Integer  =  0  to  state.GetUpperBound(0)
  lstBox.Items.Add(  "State  Number  "  &  i  +  1  &  "  is  "  &  state(i))
Next
```

A) 48 B) 49
C) 50 D) Unable to determine

15) _____

16) Which of the following is NOT an example of an ordered array?

A) num()

| 457 | 457 | 457 | 458 |

B) years()

| 1877 | 1944 | 2011 | 4301 |

C) cities()

| Selah | Wapato | Yakima | Zillah |

D) nbrhoods()

| Hockinson | Bush Prairie | Dollars Corner | Battle Ground |

16) _____

17) In the ordered array declared with the statement below, the value of the element *namfriend(0)* is equal to that of which of the other following elements?

17) _____

```
Dim  namfriend()  As  String  =  {"Fred",  "Fred",  "fred",  "fred"}
```
A) namfriend(1   B) namfriend(2)   C) namfriend(3)   D) namfriend(4)

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

18) Arrays are said to be ordered only if the values are in ascending order.

18) _____

19) The statement

19) _____

```
Dim  newlist(10)  As  String
```
is used to declare a variable where each element has the value of 10.

20) In the line of code

20) _____

```
Function Sum(ByVal score() As Integer) As Integer
```

the pair of parentheses that follows **score** can be removed.

21) In the line of code

21) _____

```
Dim score() As Integer = {55, 33,
12}
```
the upper bound of the array *score()* is 12.

22) Beginning with the first element of an ordered list and searching successive elements is known as a sequential search.

22) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

23) Consider the following structure definition. Which Dim statement would correctly declare an array of this structure for elements having subscripts from 0 through 30?

23) _____

```
Structure  carType
  Dim  yr  As  Integer
  Dim  make  As  String
  Dim  model  As  String
End  Structure
```
A) You cannot have an array of structures.   B) `Dim  carType(30)  As  car`

C) `Dim  car(30)  As  carType`   D) `Dim  carType(30)`

24) Each of the following statements declares a control array except one. Which of the following statements does not create a control array?

24) _____

A) `Dim  txtNumber(8)  As  TextBox`   B) `Dim  btnAmount()  As  Button`

C) `Dim  lblTitle(10)  As  Label`   D) `Dim  score(5)  As  Integer`

25) A program contains a form (Form1) with four text boxes (TextBox1, TextBox2, TextBox3, and TextBox4) and a button. The line

25) _____

```
Dim  txtBox(3)  As  TextBox
```
is placed in the Declarations section of the Code window. This code makes txtBox(3) available to which of the following?
A) all of the form's procedures
B) TextBox3's event procedures only
C) the three textboxes's event procedures only
D) the button's event procedures only

26) Suppose a structure is created with the code

```
Structure  stateUSA
   Dim capCity As String
   Dim stateNum As Integer
End  Structure
```

in the Declarations section of the Code editor. Which of the following statements correctly declares a variable of type stateWA?

A) `Dim stateWA  As  Structure`   B) `Dim stateWA  As  stateUSA`

C) `Dim stateWA  As  Member`   D) `Dim stateUSA  As  stateWA`

26) _____

27) A program contains a form (Form1) with three text boxes (TextBox1, TextBox2, and TextBox3) and a button The line

```
Dim  txtBox(2)  As  TextBox
```
is placed in the *Declarations* section of the Code window. The three
lines `txtBox(0) = TextBox1`
`txtBox(1) = TextBox2`
`txtBox(2) = TextBox3`

are placed in the Form1_Load procedure for this program. The button's click event procedure contains the code
```
For lpNum As Integer = 0 To 2
   txtBox(lpNum).Text = "Value is " & lpNum + 1
Next
```
What output will be displayed in *txtBox(1)* when the button is clicked?

A) Value is lpNum   B) Value is 2   C) 2   D) Value is 1

27) _____

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

28) A program contains a form (Form1) with three textboxes (TextBox1, TextBox2, and TextBox3). The line

```
Dim  txtBox(3)  As  TextBox
```
is placed in the *Declarations* section of the Code window. The three
lines `txtBox(3) = TextBox1`
`txtBox(1) = TextBox2`
`txtBox(2) = TextBox3`

are placed in the Form1_Load procedure for this program. This code will cause an error because the numbers of the subscripted control array elements do not match up to the numbers at the end of the default text box names.

28) _____

29) Suppose a structure is created with the code

```
Structure  stateUSA
   Dim  capCity  As  String
   Dim yearFounded As
Integer End Structure
```

in the Declarations section of the Code window. In this structure, the variable *capCity* is known as a *member*.

29) _____

30) A structure can contain members that are simple variables only; members cannot be arrays.

30) _____

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

31) How many comparisons will be made in the first pass of a bubble sort of 6 items? 31) _____
   A) 4   B) 6
   C) 5   D) depends on the elements to be sorted

32) From the following list of unsorted items, how many passes of a bubble sort are required to sort the 32) _____
   list in ascending order?
   Groucho   Harpo   Zeppo   Chico   Gummo
   A) 1   B) 2   C) 3   D) 4

33) The Shell sort is so named because 33) _____
   A) it resembles the familiar carnival game that moves a pea back and forth under walnut shells.
   B) it works through successive layers (shells) of unsorted data.
   C) it was invented by Donald Shell.
   D) None of the above

34) Assume a binary search is looking for "Mankato" in the following list. Which city would be 34) _____
   compared with "Mankato" first?
   Akron   Hartford   Ithaca   Seattle   Tulsa
   A) Seattle   B) Hartford   C) Akron   D) Tulsa   E) Ithaca

35) Each of the following represents a step in the *bubble sort* algorithm except one. Which of the 35) _____
   following is not a step used in a pass through a list by the *bubble sort* algorithm?
   A) Compare the first and last items. If they are in the wrong order, swap them.
   B) On the final comparison of the first pass, the possible swap is between the next-to-last
      and last items.
   C) Compare the second and third items. If they are in the wrong order, swap them.
   D) Compare the first and second items. If they are in the wrong order, swap them.

36) When using the *bubble sort* algorithm, after the first pass through the list, which of the following 36) _____
   will be true?
   A) The first item only is guaranteed to be in its proper position.
   B) The last two items are guaranteed to be in their proper positions.
   C) The last item only is guaranteed to be in its proper position.
   D) The first two items are guaranteed to be in their proper positions.

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

37) A *binary search* searches an ordered list by successively dividing the list in halves until the item 37) _____
   searched for is found or determined to be not present.

38) Both the *bubble sort* and the *Shell sort* require the interchanging of values stored in a pair of 38) _____
   variables.

39) When using the *bubble sort* algorithm, only lists containing data of the String type can be correctly 39) _____
   ordered.

40) The *Shell sort* algorithm, which compares distant items first and works its way down to nearby 40) _____
   items, is more efficient than the *bubble sort* algorithm.

41) The bubble sort is usually faster than the Shell sort.   41) _____

42) A binary search that begins in the middle of a list does not require the data to be in any order.   42) _____

43) Although three assignment statements can be used to swap a pair of array elements, three   43) _____
assignment statements alone cannot swap all the items in one array with all of the items in another
array.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

44) Use the following array, *age()*, and assume the bubble sort is used to sort the array from   44)_____
smallest to largest: age(0)=16, age(1)=3, age(2)=21, age(3)=43,age(4)=2, age(5)=16,
age(6)=32.
(a) What is the contents of the array after one pass?
(b) What is the contents of the array after two passes?
(c) What is the contents of the array after three passes?

45) Given an array of size 10 with the following ten values stored in order   1.8, 2.9, 4.7, 9.3,   45)_____
10.1, 13.6, 17.4, 19.2, 21.5, 23.3   you want to perform a binary search for the value 4.7. What
are the successive values of First, Last, and Middle as determined when performing
this search? (Fill in the table below until the search is completed.)

First	Middle	Last
0		9

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

46) Assume the *array b()* has been filled as shown. What is the output of the following program   46) _____
segment?

```
                                                    b()
                                            0    1    2    3
s = 0                                   |------------------------
For k As Integer = 0 To 2           0   |   2    3    4    5
  s += b(k, k + 1)                      |
Next                                1   |   6    5    4    3
lstBox.Items.Add(s)                     |
                                    2   |   2    3    4    5
                                        |
                                    3   |   6    5    4    3
```

A) 64
B) 12
C) 25
D) 13
E) None of the above

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47) Which of the following types of variables is capable of holding the information contained in a table 47) _____
that has four rows and four columns?
    A) single-subscripted variables   B) simple variables
    C) double-subscripted variables   D) one-dimensional arrays

48) Which of the following types of variables can only hold a single item of data?   48) _____
    A) two-dimensional arrays   B) single-subscripted variables
    C) simple variables   D) double-subscripted variables

49) Which of the following declarations can be used to create a three-dimensional array?   49) _____
    A) `Dim newVar(2, 2, 2) As Double`   B) `Dim newVar(3, 3) As Double`

    C) `Dim newVar(3) As Double`   D) `Dim newVar(3) As TextBox`

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

50) Arrays that are capable of holding the contents of a table with several rows and columns, are   50) _____
known as *two-dimensional arrays* or *double subscripted variables*.

51) The statement   51) _____
    `Dim nextVar(3, 5) As Double`
declares a two-dimensional array that can store a table containing 4 columns and 6 rows of
numeric data.

52) A *two-dimensional array* can be declared and initialized at the same time.   52) _____

53) In the two-dimensional array declaration   53) _____
    `Dim newVar(,) As Double = {{1, 2, 3}, {4, 5, 2054}, {6, 802, 2786}}`
the comma in newVar**(,)** can be removed.

54) Variable arrays can only be one- or *two-dimensional*.   54) _____

55) ReDim statements can be used to change a one-dimensional array into a three-dimensional array.   55) _____

56) Given the following statements, the first subscript in the second statement references the column.   56) _____
    `Dim myArray(15, 20) As Double`

    `myArray(5, 10) = 0`

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

57) Opening a file for output means that   57) _____
    A) data may be read from and stored onto the disk.
    B) data may be stored onto the disk.
    C) anything that appears as output on the screen is written to the disk.
    D) data may be read from the disk.

58) When a file is opened for Append,   58) _____
    A) data may be read starting at the beginning of the file.
    B) data written to the file replaces the data already there.
    C) data written to the file are added at the end of the file.
    D) data written to the file are inserted at the beginning of the file.

59) Assume the file ALPHABET.TXT contains 26 records, the lowercase letters of the alphabet in 59) ascending order. What happens when the following code is executed?

```
Dim  letter  As  String
Dim sr As IO.StreamReader =
IO.File.OpenText("ALPHABET.TXT") Do While sr.Peek <> -1
  letter  =  sr.ReadLine
  Dim sw As IO.StreamWriter = IO.File.CreateText(letter.ToUpper
& ".TXT")
  sw.WriteLine(letter.ToUpper &
  ".TXT") sw.Close()
Loop
sr.Close()
```

  A) A file called z is created containing all of the letters of the alphabet in lowercase.
  B) Twenty-six files are created and named with one of the uppercase letters of the alphabet and each containing only its own file name.
  C) An "invalid file name" error is produced.
  D) A "too many files open" error is produced.

60) Which of the following is an example of how a *filespec* for a sequential file would be written within 60) _____
a Visual Basic application?
  A) "C\TEXT FILES\INCOME DATA.TXT"   B) C:\TEXT FILES\INCOME DATA.TXT
  C) "C:\TEXT FILES\INCOME DATA.*"   D) "C:\TEXT FILES\INCOME DATA.TXT"

61) Which of the terms in the following line of code are named variables that could be replaced as long 61) _____
as all other references were also updated?

```
sr  =  IO.File.OpenText(fileName)
```

  A) IO   B) fileName   C) OpenText   D) File

62) If a sequential file is opened for input, then this allows 62) _____
  A) data to be deleted from the file.
  B) data to be appended to the end of the file by the Visual Basic application.
  C) data to be placed into the file by the Visual Basic application.
  D) data that is in the file to be used in the Visual Basic application.

63) Which one of the following is NOT an example of a *bug*? 63) _____
  A) accessing the wrong property value   B) typos
  C) viruses   D) using an incorrect formula

64) When an exception is generated by a Visual Basic application, the default exception handler will 64) _____
  A) restart the program.
  B) continue to execute the program.
  C) terminate the program.
  D) display a dialog box that asks the user if they wish to restart the computer.

65) Which of the following exceptions will be generated by trying to access a disk drive that doesn't 65) _____
contain a disk?
  A) OverflowException   B) IndexOutOfRangeException
  C) NullReferenceException   D) IO.DirectoryNotFoundException

66) The code for an application tests to see if a file exists using the following line in the **Try** block: 66) _____

IO.File.Exists(fileName)

The first catch block is written as follows:

Catch exc As IO.IOException

This catch block is meant to handle which of the following exceptions?

A) an exception generated by deleting or renaming an open file

B) an exception generated by attempting to access a file within a folder that is missing

C) an exception generated by attempting to access a file that is missing

D) any exception that hasn't been handled by the Try block

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

67) To get rid of an existing file, execute a statement of the form **IO.File.Delete(filespec)**. 67) _____

68) When a text file is created in Visual Basic using a StreamWriter, the extension .TXT is automatically 68) _____
added to the file name if no other extension is specified.

69) If an existing sequential file is opened for output, the computer will append any new data to the 69) _____
end of this existing file.

70) An individual item of a sequential file cannot be changed or deleted directly. 70) _____

71) In a Try-Catch-Finally block, the clause in the first listed Catch block is considered if an exception 71) _____
is thrown in the Try block.

72) In the line of code 72) _____

sw = IO.File.CreateText(fileName)

sw is a variable that holds the value of a *filespec* for an existing sequential file.

73) A Catch block of code that is initiated by the keyword **Catch** and doesn't contain any additional 73) _____
clause will execute regardless of whether an exception occurred.

74) If an attempt is made to access a missing file within an existing folder using the **OpenText** method, 74) _____
the *IO.DirectoryNotFoundException* will be thrown.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

75) Give three different file modes that Visual Basic allows you to use when accessing a file? 75)_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

76) Which of the tasks is the *Split* function used to complete in the following code? 76) _____

Dim words() As String

words = line.Split(",",c)

A) Split adds a comma delimiter between all items of text in the given line.

B) Split parses or separates out all items of text that are delimited by a *c* in the given line.

C) Split parses or separates out all items of text that are delimited by a comma in the given line.

D) Split adds a comma followed by a *c* to the end of the given line.

77) Which of the tasks is the *Join* function used to complete in the following statement?

```
Dim  line  As  String
line  =  Join(strArrData,  ",")
```

    A) Join parses or separates out all items of text that are delimited by a comma in *line*.

    B) Join concatenates the values of all elements of the array *strArrData*, and adds a comma delimiter between successive values.

    C) Join concatenates the values of all elements of *line*, and adds a comma to the end of the line.

    D) Join parses or separates out all items of text that are delimited by a comma in *strArrData*.

77) _____

78) In an application that merges sequential files without duplications, which of the following lines of code would be used to open a file for output?

    A) `Dim  sr1  As  IO.StreamReader  =  IO.File.OpenText(file3)`

    B) `Dim  sw  As  IO.StreamWriter  =  IO.File.CreateText(file3)`

    C) `file3  =  txtDataMerged.Text`

    D) `data1  =  CDbl(sr1.ReadLine)`

78) _____

79) When merging sequential files without duplications, the last step in any algorithm should be to complete which of the following tasks?

    A) Delete all items of data that remain in the ordered files once the files have been merged.

    B) Index all opened files.

    C) After there is no longer data in one of the ordered files, write out all remaining data in the other file.

    D) Close all opened files.

79) _____

80) *Control break processing* means which of the following?

    A) a program that processes data based on a variable scope

    B) a program that processes data based on a variable type

    C) a program that processes data based on a change to the value of a variable

    D) a program that processes data based on a variable that maintains a constant value

80) _____

81) Identify the control variable in the following code block.

```
Dim loopStart As Integer =
1 Dim message As String
Dim loopContinue As Integer =
1 Do While loopContinue <= 3
  message = "The number is " &
  loopContinue MessageBox.Show(message)
  loopContinue +=
loopStart Loop
```

    A) loopStart   B) loopContinue   C) message   D) Integer

81) _____

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

82) The *Trim* function is often used with the output of a *Split* function to delete extraneous spaces.

82) _____

83) In the following statement, the term Join is used to concatenate the data contained in the array *outputLine()* into one comma delimited line that can be placed in a sequential file.

```
sw.WriteLine(Join(outputLine,  ","))
```

83) _____

84) Sequential files must always be opened, processed, and closed within a single procedure.

84) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

85) Which of the following statements will remove all items from the list box?　　　　85) _____
   A) `lstBox.Clear()`
   B) `For i As Integer = 1 to lstBox.Items.Count`
      `lstBox.Items.RemoveAt(i)`
     `Next`
   C) `lstBox.Items.Clear()`
   D) `lstBox.Items.RemoveAll`

86) The following statement will insert *str* into the list box at the proper sorted position and assign to　86) _____
   num the index of that position provided that one of the following has also occurred. Which one of
   these *properties* must also have been set to allow the statement to complete the described tasks?
   `num = lstbox.Items.Add(str)`
   A) The Sorted property of the list box has been set to Alphabetical.
   B) The Sorted property of the list box has been set to True.
   C) The Sorted property of the list box has been set to False.
   D) The Count property of the list box has been set to Sorted.

87) A list box named lstBox has its Sorted property set to False and contains the three items Cat, Dog,　87) _____
   and Gnu in its list. If the word Elephant is added to the list at runtime, what will be its index value?
   A) 1　　　　　　　　B) 2　　　　　　　　C) 0　　　　　　　　D) 3

88) Which of the following controls has a drop down arrow and an attached text box that allows users　88) _____
   to type selections?
   A) Simple ComboBox　　　　　　　　B) ListBox
   C) DropDown ComboBox　　　　　　　D) DropDownList ComboBox

89) The following statement causes the Open dialog box to become visible on the form.　　　　89) _____
   `OpenFileDialog1.ShowDialog()`
   After a file has been selected and the Open button is pressed, the value of
   `OpenFileDialog1.FileName`
   will be the file's filespec; this will include all of the following except
   A) the file's extension.　　　　　　　B) the file's drive.
   C) the file's path.　　　　　　　　D) the file's date of creation.

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

90) Assume lstBox has its Sorted property set to True. After the following statement is executed, the　90) _____
   value of the Integer variable *num* is the index of the position in the list where "Hello" was inserted.
   `num = lstBox.Items.Add("Hello")`

91) The following lines of code display all the items of lstBox.　　　　91) _____
   `For n As Integer = 1 to lstBox.Items.Count`
     `lstBox2.Items.Add(lstBox.Items(n))`
   `Next`

92) In a Simple combo box, the list is always visible.　　　　92) _____

93) If no item in a combo box is selected, the value of lstBox.SelectedIndex is 0.　　　　93) _____

94) The value of cboBox.Text is the currently highlighted item.   94) _____

95) For a list box named lstBox, the following statement will delete the first occurrence of the value of   95) _____
   num from its list.

   ```
   lstBox.Items.RemoveAt(num)
   ```

96) With a simple combo box, the list drops down when the user clicks on the arrow and then   96) _____
   disappears after a selection is made.

97) The DropDownStyle property of a combo box must be set at design time.   97) _____

98) Combo boxes have most of the same properties, events, and methods as list boxes.   98) _____

99) In order to use the OpenFileDialog control, the programmer must first change its Name property to   99) _____
   something other than the default OpenFileDialog1.

100) The following statement could be used to set the Filter property of the OpenFileDialog control so   100) _____
   that it displays files with the .TXT extension.

   ```
   Text  Files  (*.TXT)|(.TXT)
   ```

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

101) Which of the following techniques does NOT always toggle the checked and unchecked state of a   101) _____
   check box control?
       A) Press Alt+Access key (if an access key has been specified).
       B) Set the Checked property equal to 1.
       C) Press the spacebar when the square has the focus.
       D) Click on the square or its caption with the mouse.

102) For a scroll bar, the value of the Value property is   102) _____
       A) a number between the values of the Minimum and Maximum properties.
       B) a number between the values of the SmallChange and LargeChange properties.
       C) true or false.
       D) any number.

103) To move the scroll box of a scroll bar a large distance   103) _____
       A) click on the bar between the scroll box and the furthermost arrow.
       B) It can only be moved by writing code.
       C) click on the scroll box.
       D) click on the furthermost arrow button.

104) When a check box is checked, the value of the Checked property will be   104) _____
       A) False.   B) True.   C) 0.   D) 1.

105) Which of the following methods is used to load a new picture into a picture box control?   105) _____
       A) picBox.Picture = LoadPicture(*filespec)*   B) picBox.Image = Image.FromFile(*filespec)*
       C) picBox.Picture = *filespec*   D) picBox.Image = *filespec*

106) Which of the following controls is not used to select an item from a list?　　　　　106) _____
  A) ComboBox　　　　　　　　　　　　B) OpenFileDialog
  C) List Box　　　　　　　　　　　　　D) Timer Control

107) A check box control named chkFirst contains the following code in its **CheckedChanged** event　107) _____
  procedure. Which of the following is true concerning the use of this control?
  Dim message As String = "hello"
  MessageBox.Show(message)
  A) The message "hello" will appear when the user checks the control but not when it
    is unchecked.
   B) The message "hello" will appear when the user checks the control and again when it
    is unchecked.
  C) The message "hello" will appear when the user unchecks the control but not when it
    is checked.
  D) The message "hello" will not appear using this source code.

108) Suppose there are four radio button controls attached to a group box control on a form. How many 108) radio _____
  buttons can be selected (that is, be "on") at any given time?
  A) 4　　　　　　　B) 1　　　　　　　C) 2　　　　　　　D) 3

109) In the following statement which term is used to designate the distance (in pixels) from the left side　109) _____
  of the picture box to the left side of the rectangle?
  picBox.CreateGraphics.DrawRectangle(Pens.Blue, x, y, w, h)
  A) **w**　　　　　　　B) **x**　　　　　　　C) **y**　　　　　　　D) **h**

110) A form contains a horizontal scroll bar control named hsbXpos, and the statement **lblFace.Top**　110) _____

  = hsbXpos.Value is placed inside the hsbXpos.Scroll event procedure (where lblFace identifies a
  label on the form, and the hsbXpos's Minimum and Maximum properties are set at their
  default values). What will happen when the hsbXpos.Scroll event is triggered by moving the
  scroll bar's scroll box to the right?
  A) lblFace will move to the left.　　　　　　B) lblFace will move to the
  C) lblFace will move down.　　　　　　　　right. D) lblFace will move up.

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

111) With a check box control, toggling the state of the small square triggers the CheckChanged event.　111) _____

112) With a scroll bar control, the default values of the Minimum and Maximum properties are 1 and　112) _____
  100 respectively.

113) When the SizeMode property of a picture box control is set to StretchImage, a picture placed in the　113) _____
  control will be resized to fit the picture control.

114) The main properties of a scroll bar are set in millimeters.　　　　　　　　　114) _____

115) If you set a group box control's Visible property to False, the attached controls will still remain　115) _____
  visible.

116) When a check box control has focus, the spacebar can be used to invoke its CheckedChanged event.　116) _____

117) The timer control is invisible during run time.   117) _____

118) The following statement can be used to assign the PLANE.BMP image to the picBox picture box   118) _____
control at runtime.

```
picBox.Image  =   "plane.bmp"
```

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

119) The Clipboard object is used for all of the following except which one?   119) _____
    A) Paste text from the Clipboard.   B) Clear the screen.
    C) Clear the Clipboard.   D) Copy text to the Clipboard.

120) The correct code for replacing the selected text in txtBox with the contents of the Clipboard is   120) _____
    A) txtBox.SelectedText = Clipboard   B) txtBox.SelectedText = Clipboard.SetText
    C) txtBox.SelectedText = Clipboard.GetText   D) txtBox.SelectedText = Clipboard.Text

121) What expression should be used to generate random numbers from the set 2, 3, 4, 5, 6, 7? (Assume   121) _____
that the statement `Dim  randomNum  As  New  Random()` has been executed.)
    A) `randomNum.Next(1,  8)`   B) `randomNum.Next(1,  7)`

    C) `randomNum.Next(2,  7)`   D) `randomNum.Next(2,  8)`

122) MenuStrip controls respond to which one of the following events?   122) _____
    A) Double   B) Click   C) Load   D) Change

123) The term *modal* refers to   123) _____
    A) the ability to reposition a form at run time.
    B) the BorderStyle property is set to "3-Fixed Double."
    C) the user not being allowed to shift the focus to any other form until the displayed modal
       form is hidden.
    D) the ability to display more than one form at one time.

124) A form contains a text box named txtBox and a button named btnClip. The statement   124) _____

    `Clipboard.SetText("")` is placed inside btnClip's Click event procedure. At run time, what
will be placed into the Clipboard if the user enters the word "Hello" into txtBox and then clicks on
btnClip,?
    A) The Clipboard will be emptied of all contents.
    B) the word "Hello"
    C) the word "btnClip"
    D) the word "txtBox"

125) The statement `Dim  secondForm  As  New  Form2()` is used to do which of the following?   125) _____
    A) Cause *secondForm* to appear.
    B) Declare *secondForm* as an instance of the Form2 class.
    C) Set the focus to *secondForm*.
    D) Place the text "Form2" in the title bar of *secondForm*.

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

126) Pressing **Ctrl+V** with the cursor in a text box inserts the contents of the Clipboard at the cursor   126) _____
position.

127) Menus are designed with the MenuStrip control invoked from the Toolbar. 127) _____

128) When working with multiple forms, only one form can be visible at one time. 128) _____

129) A modal form cannot lose the focus until the form disappears. 129) _____

130) A random number generator object can be declared with the following statement. 130) _____

```
Dim  rndNum  As  New  Random()
```

131) When working with the MenuStrip control, the programmer is not allowed to set up access keys by placing an ampersand in front of a character of text. 131) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

In the following exercises assume the statement `Dim gr As Graphics = picOutput.CreateGraphics` has been executed.

132) What is the effect of the statement `gr.DrawString("Hello",  Me.Font,  Brushes.Blue,  50,  60)`? 132) _____
  A) Display the word Hello beginning 50 pixels from the left side of the picture box.
  B) Display the word Hello with the top of the word 60 pixels from the top of the picture box.
  C) Display the word Hello in blue.
  D) All of the above

133) Give a statement that displays the value of the string variable *strVar* with yellow letters. 133) _____
  A) `gr.DrawString(strVar,  Me.Font,  Yellow,  50,  50)`
  B) `gr.DrawString(strVar,  Me.Font,  Color.Yellow,  50,  60)`
  C) `gr.DrawString(strVar,  Me.Font,  Pens.Yellow,  50,  60)`
  D) `gr.DrawString(strVar,  Me.Font,  Brushes.Yellow,  50,  60)`

134) Give a statement that draws a red diagonal from the upper-left corner of the picture box to the lower-right corner. 134) _____
  A) `gr.DrawLine(Pens.Red,  picOutput.Width,  0,  0,  picOutput.Height)`
  B) `gr.DrawLine(Pens.Red,  0,  0,  picOutput.Width,  picOutput.Height)`
  C) `gr.DrawLine(Pens.Red,  0,  0,  picOutput.Height,  picOutput.Width)`
  D) `gr.DrawLine(Color.Red,  0,  0,  picOutput.Width,  picOutput.Height)`

135) The distance from the top of the picture box to the top of the circle drawn by the statement `gr.DrawEllipse(Brushes.Red,  10,  20,  40,  40)` is. 135) _____
  A) 80 pixels   B) 10 pixels   C) 40 pixels   D) 20 pixels

136) Give a statement that deletes all graphics and text from picOutput. 136) _____
  A) `picOutput.Delete()`   B) `picOutput.Refresh()`
  C) `picOutput.Clear()`   D) `picOutput.Text  =  ""`

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

137) The statements `gr.DrawLine(Pens.Red,  0,  0,  30,  40)` and `gr.DrawLine(Pens.Red,  0,  0,  40,  30)` draw lines of the same length. 137) _____

138) The statement `gr.FillRectangle(Brushes.Red, 10, 20, 30, 40)` draws a solid rectangle of width 40 pixels.

138) _____

139) The sector of a circle with sweep angle 90 consists of a-quarter of the circle.

139) _____

140) Animation can be produced by placing an image in a picture box and moving the picture box.

140) _____

141) The statement `Dim pn As Pen = Pens.Blue` is valid.

141) _____

142) The pair of statements
```
Dim fnt As Font = New Font("Times New Roman", 12)
Gr.DrawString("Hello", fnt, Brushes.Blue,10,10)
```
Displays the word Hello in 12-point Times New Roman font.

142) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

143) A rectangular array of data is called a
    A) field.
    C) database management system.
    B) table.
    D) record.

143) _____

144) Each row in a table is also called a(n)
    A) selection.   B) field.   C) array.   D) record.

144) _____

145) Which property should be used to bind a list box to a data table?
    A) The Items property of the list box.
    B) The DataSource property of the list box.
    C) The DataSource property of the data table.
    D) The Bound property of the list box.

145) _____

146) Which of the following is a collection of one or more (usually related) rectangular arrays of data?
    A) a field   B) a database   C) a record   D) a table

146) _____

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

147) Each entry of a field of a table must contain some information.

147) _____

148) The management of databases is the number one use of computers today.

148) _____

149) *DataBase Explorer* is used to browse through all parts of a database.

149) _____

150) If *dt* is a DataTable object, then the value of
`dt.Columns.Count`
is the number of records in the table.

150) _____

151) A list box can be bound or connected directly to a data table.

151) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

152) What is a primary key?   152) _____
    A) a field that uniquely identifies each record
    B) the largest field in every record
    C) the first field in every record
    D) the first field specified when a table is created

153) SQL is an abbreviation for   153) _____
    A) Structured Query Language.   B) Standard Query Language.
    C) Simple Query Language.   D) None of the above

154) A virtual table is also called a(n)   154) _____
    A) hierarchy table.   B) view.   C) appendix.   D) standard table.

155) Which one of the following statements is true about primary keys?   155) _____
    A) Only a single record can be used as a primary key.
    B) A column of names is usually a good choice for use as a primary key.
    C) A primary key is used to uniquely identify records in a table.
    D) Social Security numbers are never used as a primary key.

156) Which of the following terms is defined as two or more interdependent tables?   156) _____
    A) join   B) Rule of Referential Integrity
    C) SQL   D) relational database

157) The error message   157) _____
    You cannot add or change a record because a related record is
    required in table 'Countries'.
    will be generated by attempting which of the following with the MEGACITIES database?
    A) The user tries to request a joined table using the SQL language.
    B) A user tries to enter a record in the table Countries that doesn't contain data in the
       primary key.
    C) A user tries to enter a record to the table Countries with the same primary key as
       another record.
    D) A user tries to add a record to a table that is related to the Countries table, and that record
       contains a foreign key value that does not correspond to a primary key value in the
       Countries table.

158) The error message
158) _____

The changes you requested to the table were not successful because
they would create duplicate values in the index, primary key, or
relationship. Change the data in the field or fields that contain
duplicate data, remove the index, or redefine the index to permit
duplicate entries and try again.

will be generated by attempting which of the following?
   A) A user tries to enter a record in the table Countries with the same primary key as
      another record.
   B) A user tries to add a record to a table that is related to the Countries table, and that
      record contains a foreign key value that does NOT correspond to a primary key value
      in the Countries table.
   C) A user tries to request a joined table using the SQL language.
   D) A user tries to enter a record in the table Countries that doesn't contain data in the
      primary key.

159) The following form of _SQL_ command is classified as which of the four basic types of _SQL_ requests?
159) _____

SELECT field1, field2, ..., fieldN FROM Table1 WHERE criteria

   A) Request III: join the tables together (connected by a foreign key) and present the records
   B) Request IV: make available just some of the fields of a table
   C) Request II: show just the records that meet certain criteria
   D) Request I: show the records of a table in a specified order

160) The following form of _SQL_ command is classified as which of the four basic types of _SQL_ requests?
160) _____

SELECT * FROM Table1 WHERE criteria

   A) Request III: join the tables together (connected by a foreign key) and present the records
   B) Request IV: make available just some of the fields of either the basic table or joined _table_
   C) Request I: show the records of a table in a specified order
   D) Request II: show just the records that meet certain criteria

161) Which SQL statement below would be used to display all of the records from the Cities table that
contain the letter e as the second character in the name listed in their city field?
161) _____
   A) **SELECT * FROM Cities WHERE city Like 'e%'**
   B) **SELECT * FROM Cities WHERE city Like '_e%'**
   C) **SELECT * FROM Cities WHERE city Like 'E%'**

   D) **SELECT * FROM Cities WHERE city Like 'eb_%'**

162) A program uses the lines
162) _____
Dim dataAdapter As New OleDb.OleDbDataAdapter(sqlStr, connStr)
Dim commandBuilder As New OleDb.OleDbCommandBuilder(dataAdapter)

changes = dataAdapter.Update(dt)

to update a database with changes made to a data table through a DataGridView control. In this
code, which one of the following is not the name of a variable?
   A) connStr   B) dataAdapter   C) Update   D) changes

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

163) The Rule of Referential Integrity insists that each value in the foreign key must also appear in the
primary key of the other table.
163) _____

164) A foreign key allows Visual Basic to join together two tables from a relational database in a
meaningful way.
164) _____

165) SQL may be used to create virtual tables in Visual Basic.   165) _____

166) SQL can be used in Visual Basic to sort records.   166) _____

167) A virtual table (or view) of a database table may be displayed in a DataGridView control by setting   167) _____
the first argument of the OleDbDataAdapter equal to the appropriate SQL string.

168) In the following *SQL* command, the phrase **WHERE   criteria** is used to present the records as   168) _____
ordered by the specified field or fields.

SELECT   fields   FROM   clause   WHERE   criteria

169) If a DataGridView control is filled from a table whose DataAdapter uses an SQL statement of the   169) _____
form
SELECT   *   FROM   clause   ORDER   BY   field   ASC
the result will be the display (in ascending order) of all records that are contained in the table or
tables designated by *clause*.

170) If a DataGridView control is filled from a table whose DataAdapter uses the SQL statement (with   170) _____
the database MEGACITIES)
SELECT   *   FROM   Cities   WHERE   city   Like   'S%'
the result will be the display of all of the records from the Cities table that contain the letter S in the
name listed in their city field.

171) An *SQL* clause of the form   171) _____

tblA   INNER   JOIN   tblB   ON   foreign   key   of   tblA=primary   key   of   tblB
causes two *tables* to be *joined*.

172) The statement   172) _____

dgvDisplay.DataSource   =   dt
(where dgvDisplay is the name of a DataGridView control and *dt* is a data table) will display the
contents of a data table in a data grid.

173) The Washington State Department of Motor Vehicles maintains a database on all licensed drivers   173) _____
and the cars that they own within the state. In the first table (Names) they have a listing of all of the
names of all licensed drivers; they have created a unique license number to identify each individual
within this database. In a related second table (Vehicles), the cars owned by Washington State
drivers are tracked. Since drivers often own more than one car, an individual's name (and
their corresponding driver's license number) is likely to appear more than once in this
second table. Therefore, we say that there is a one-to-many relationship from the names table
to the vehicles table in this database.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

The following exercises refer to the Countries table discussed in the text. The table has three fields *country*, *pop2005*,
and *monetaryUnit* with *country* as the key field. In these exercises, give an SQL statement that can be used to
accomplish the stated task.

174) Show the records from Countries in descending order based on the 2005 population.   174) _____

175) Show the records from Countries whose monetary unit has five characters.   175) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

176) Which line of code will declare and create an instance of a new object variable called *instructor*   176) _____
using a class called *Faculty*?
   A) `Dim  instructor  As  New  Faculty()`
   B) `Dim  Faculty  As  instructor`
   C) `Dim  Faculty  As  New  instructor()`
   D) `Dim  instructor  As  Faculty`

177) What is the purpose of the Get property procedure?   177) _____
   A) Access private methods.   B) Retrieve the value of a property.
   C) Verify the data.   D) Assign values.

178) Which procedure will set default values for member variables when an object is instantiated?   178) _____
   A) Get property procedure   B) Set property procedure
   C) New   D) Form1_Load

179) Which one of the following statements does NOT apply to object-oriented programming?   179) _____
   A) Object-oriented programming helps to prevent the complete rewriting of a program
      every time a minor change needs to be made.
   B) Object-oriented programming makes use of the principle of "data hiding."
   C) Object-oriented programming depends on the programmer having access to and
      understanding all of the code that contains the data and procedures that are
      encapsulated within an object.
   D) Object-oriented programming makes use of the encapsulation within an object of data
      and procedures that act on the data.

180) Which of the following is an example of a control object?   180) _____
   A) array   B) list box   C) string variable   D) primary key

181) Which of the following statements applies to code objects?   181) _____
   A) They are created from the Toolbox.
   B) They include objects of the type TextBox and ListBox.
   C) They require the writing of a class block of code.
   D) They are predefined and have physical manifestations.

182) Which of the following is an accurate definition of the term *object-oriented program*?   182) _____
   A) An object-oriented program is a specific instance of a user-defined type.
   B) An object-oriented program is a template from which objects are created.
   C) An object-oriented program is populated with objects that hold data, have
      properties, respond to methods, and raise events.
   D) An object-oriented program is an encapsulation of data and procedures that has
      properties and responds to methods.

183) Which statement form below assigns a value to a property?   183) _____
   A) `objectName.methodName(arg1,  ...)`
   B) `objectName.propertyName  =  value`
   C) `varName  =  objectName.propertyName`
   D) `RaiseEvent  eventName`

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

184) Member variables in a class are normally specified as Private.   184) _____

185) Set property procedures are used to assign values to member variables.   185) _____

186) Two instances of the same class may exist in a single program.   186) _____

187) An object can be created in the Declaration section of a form's Code editor with a pair of statements   187) _____
of the form.
```
Dim  objectname  As  className

objectName  =  New  className(arg1, arg2, ...)
```

188) A good rule of thumb for object-oriented programming is that classes are the verbs in your analysis   188) _____
of the problem.

189) Methods can be either Sub or Function procedures.   189) _____

190) Each *list box* is said to be an *instance* of the class *ListBox*.   190) _____

191) In the following statement, the word *m_name* demonstrates the proper name for a member or   191) _____
instance variable. If these variables are declared without the prefix "**m_**", an exception will be
thrown.
```
Private  m_name  As  String
```

192) Property blocks of code, that are used to access (indirectly) member or instance variables, must   192) _____
always contain both Get and Set property procedures.

193) Each class has a special method called a *constructor* that is sometimes invoked when an object is   193) _____
instantiated.

194) The constructor method requires at least one argument, and the code inside the procedure block   194) _____
performs any tasks needed for initializing an object.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

195) Which of the following is an example of an array declaration whose data type is a user-defined   195) _____
object?
   A) `Dim  students(50)  As  Student`   B) `Dim  students(50)  As  String`

   C) `Dim  students(50)  As  Integer`   D) `Dim  students(50)  As  TextBox`

196) In the following code block, which of the following represents the line of code that assigns the value of the **Name** property?

```
Class  Student
  Private  m_name  As  String
  Public  Property  Name()  As  String
    Get
      Return  m_name
    End  Get
    Set(ByVal  Value  As  String)
      m_name  =  Value
    End  Set
  End  Property
End  Class
```

A) `Return  m_name`   B) `m_name  =  Value`

C) `Private  m_name  As  String`   D) `End  Class`

196) _____

197) Which of the following statements best applies to the term *user-defined events*?
   A) User-defined events are predefined objects with physical manifestations.
   B) User-defined events are used to communicate changes of properties, errors, and the progress of lengthy operations.
   C) User-defined events represent specific instances of a user-defined type.
   D) User-defined events are populated with objects that hold data, have properties, respond to methods, and raise events.

197) _____

198) Statements of which of the following kind should be placed in the Declarations section of a class code block?
   A) `Dim  WithEvents  object1  As  ClassName`
   B) `RaiseEvent  UserDefinedEvent(arg1,  arg2,  ...)`
   C) `Private  Sub  object1_UserDefinedEvent(par1,  par2,  ...)  _`
      `           Handles  object1.UserDefinedEvent`
   D) `Public  Event  UserDefinedEvent(ByVal  par1  As  dataType1,  _`
      `                           ByVal  par2  As  dataType2,  ...)`

198) _____

199) Statements of which of the following kind should be placed in the form's code to declare an instance of a class that contains an event?
   A) `Dim  WithEvents  object1  As  ClassName`
   B) `Public  Event  UserDefinedEvent(ByVal  par1  As  dataType1,  _`
      `                           ByVal  par2  As  dataType2,  ...)`
   C) `RaiseEvent  UserDefinedEvent(arg1,  arg2,  ...)`
   D) `Private  Sub  object1_UserDefinedEvent(par1,  par2,  ...)  _`
      `           Handles  object1.UserDefinedEvent`

199) _____

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

200) The statement for triggering a user-defined event is located in the form's code and the event is dealt with in the class block of code.

200) _____

201) The statement for triggering a user-defined event is located in the class block of code and the event is dealt with in the form's code.

201) _____

202) The keyword WithEvents is inserted into the standard declaration statement for instantiation of a class to allow the instance to respond to an event.
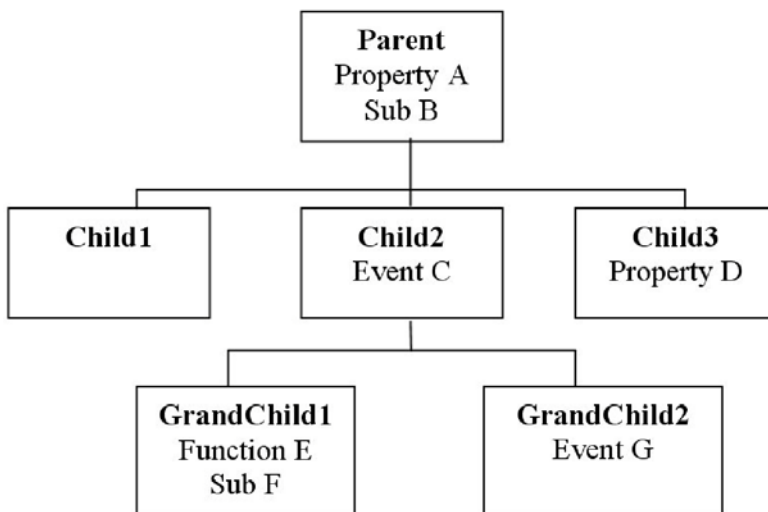
202) _____

203) It can be said that class Student contains class College when a member variable of class Student 203) makes use of an object of type class College.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

204) Which of the following terms does not describe a relationship between classes?   204) _____
    A) containment   B) subclass   C) inheritance   D) use

205) Which of the following best defines the term *hierarchy*?   205) _____
    A) the process by which the properties, methods, and events of one class are passed onto another class
    B) when one class manipulates or changes objects of another class
    C) when a member variable of class **A** makes use of an object of type class **B**
    D) the collection of a parent class along with its descendants

206) Which of the following best defines the term *inheritance*?   206) _____
    A) when one class manipulates or changes objects of another class
    B) when a member variable of class **A** makes use of an object of type class **B**
    C) the collection of a parent class along with its descendants
    D) the process by which the properties, methods, and events of one class are passed onto another class

```
                  Parent
                Property A
                  Sub B
                     |
    ┌────────────────┼────────────────┐
 Child1           Child2           Child3
                  Event C          Property D
                     |
         ┌───────────┴───────────┐
    GrandChild1             GrandChild2
    Function E                Event G
    Sub F
```

207) In the hierarchy chart shown above, GrandChild1 has access to each of the following items (as a result of inheritance), except one. Which of the following is GrandChild1 NOT able to access?   207) _____
    A) Sub B   B) Property A   C) Event C   D) Property D

208) Which of the following is a benefit of inheritance?   208) _____
    A) Inheritance allows variables to be collected in arrays.
    B) Inheritance leads to the duplication of code in multiple classes.
    C) Inheritance allows two or more classes to share some common features yet differentiate themselves on others.
    D) Inheritance allows Visual Basic applications to directly connect to databases.

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

209) Inheritance does not enhance code reusability.

209) _____

210) Inheritance is the process by which the parent or base class inherits the properties, methods, and events of the child or derived class.

210) _____

211) The programmer needs to be able to identify useful hierarchies of classes and derived classes in working with object-oriented programming.

211) _____

212) The feature that two classes can have methods with different names but that have the same purpose (and essentially the same implementation), is known as *polymorphism*.

212) _____

213) In inheritance, the keyword Overridable is used to designate the parent's methods that may be overridden by its children.

213) _____

214) The keyword MustInherit is used to declare an abstract base class.

214) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

In the exercises below, fill in the blank with one of the following six words:

a. user-defined
b. polymorphism
c. derived
d. interface
e. uses
f. Get

215) The set of properties, methods, and events for a class is called a class _____.

215) _____

216) In addition to the predefined events for classes, such as New, other events can be defined by the programmer to communicate changes of properties, errors, and the progress of lengthy operations. Such events are called _____ events.

216) _____

217) One class _____ another class if it manipulates objects of that class.

217) _____

218) If class A inherits the properties, methods, and events of class B, then class A is referred to as a _____ class of class B.

218) _____