Chapter 4 Decisions

Section 4.1 Relational and Logical Operators

1. Asc("A") is 65. What is Asc("C")?
   (A) 66
   (B) 67
   (C) 68
   (D) "C"
   (B)

2. Asc("A") is 65. What is displayed by txtBox.Text = Chr(65) & "BC"?
   (A) ABC
   (B) A BC
   (C) 656667
   (D) Not enough information is available.
   (A)

3. Which of the following expressions has as its value the words "Hello World" surrounded by quotation marks?
   (A) "Hello World"
   (B) Chr(34) & "Hello World"
   (C) Chr(34) & Hello World & Chr(34)
   (D) Chr(34) & "Hello World" & Chr(34)
   (D)

4. The statement txtBox.Text = Chr(162) causes Visual Basic to display the cents symbol (ANSI 162) in the text box, regardless of the font in use. (T/F)
   (F)

5. Which of the following is true?
   (A) "Cat" = "cat"
   (B) "Cat" < "cat"
   (C) "Cat" > "cat"
   (D) Relational operators are only valid for numeric values.
   (B)

6. Which of the following is a valid Visual Basic conditional statement?
   (A) 2 < n < 5
   (B) 2 < n Or < 5
   (C) 2 < n Or 5
   (D) (2 < n) Or (n < 5)
   (D)
7. Which statement is true?
   (A) "Ford" < "Ford"
   (B) “Chevy” > “Chevy”
   (C) “GMC” <= “GMC”
   (D) “Oldsmobile” < “Oldsmobile”
   C

8. Which statement is false?
   (A) "Ford" >= "Ford"
   (B) "Chevy" <= "chevy"
   (C) “GMC” <= “GMC”
   (D) “Oldsmobile” < “Oldsmobile”
   D

9. The operator And is a(n) _________ operator.
   (A) arithmetic
   (B) relational
   (C) logical
   (D) none of the above
   C

10. The three main logical operators are ________, ________, and ________.
    (A) And, Or, Not
    (B) And, Not, If
    (C) Or, Not, If
    (D) False, And, True
    A

11. When using the logical operator “And”, what part of the expression must be true?
    (A) only the left part
    (B) only the right part
    (C) both parts
    (D) either the left or right part, but not both
    C

12. When using the logical operator “Or”, what part of the expression must be true?
    (A) only the left part
    (B) only the right part
    (C) either the left or right part, but not both
    (D) either the left or right part
    D

13. When is the expression “Not cond1” true?
    (A) when cond1 is false
    (B) when cond1 is true
    (C) when cond1 is either true or false
    (D) None of the above
    A
14. Which value for $x$ would make the following condition true: $x \geq 5$
   (A) $x$ is equal to 7
   (B) $x$ is equal to 5
   (C) $x$ is equal to 5.001
   (D) All of the above
   D

15. Which value for $x$ would make the following condition true: Not $(x \geq 5)$
   (A) $x$ is equal to 7
   (B) $x$ is equal to 4
   (C) $x$ is equal to 5.001
   (D) All of the above
   B

16. Which value for $x$ would make the following condition true: $(x \geq 5)$ And $(x \leq 6)$
   (A) $x$ is equal to 7
   (B) $x$ is equal to 5
   (C) $x$ is equal to 5.001
   (D) $B$ and $C$
   D

17. "1st Place" < "2nd Place" (T/F)
   T

18. The following two statements are equivalent. (T/F)
   Not $(a < b)$
   $a > b$
   F

19. In Visual Basic, the letter $j$ is considered to be greater than the letter $y$. (T/F)
   F

20. The And operator requires that both conditions be true for the compound condition to be true. (T/F)
   T

21. If two simple conditions are true, the compound condition created from them by the Or operator is also true. (T/F)
   T

22. The condition "Y" = "y" is true. (T/F)
   F

23. If two simple conditions are true, the compound condition created from them by the And operator is also true. (T/F)
   T

24. The following condition evaluates to True. (T/F)
   ("DOG" > "CAT") And ("CAT" > "BIRD") And ("BIRD" > "aardvark")
   F
25. Assume that A, B, and C are conditions, with A being true, B being true, and C being false. Give the truth value of (A And (Not B)).
   False

26. Assume that A, B, and C are conditions, with A being true, B being true, and C being false. Give the truth value of (A And Not (B or C)).
   False

27. Assume that A, B, and C are conditions, with A being true, B being true, and C being false. Give the truth value of (Not (A And B)).
   False

28. Is the following condition True or False (assume a = 2, b = 3, and c = 3)?
   (a = c) Or (b = c)
   True

29. < and = are examples of relational operators. (T/F)
   T

30. Conditions can involve variables, operators, and functions. (T/F)
   T

31. Two strings are compared working from left to right, character by character, to determine which one should precede the other. (T/F)
   T

32. Write a condition to express each of the following:
   (a) X is strictly between –10 and 10.
      (X > –10) And (x < 10)
   (b) Exactly one of X and Y is greater than 6.
      ((X > 6) And (Y <= 6)) Or ((Y > 6) And (X <= 6))
      Another answer is ((X > 6) Or (Y > 6)) And Not ((X > 6) And (Y > 6))
   (c) Both X and Y are positive or both X and Y are negative.
      (X > 0 And Y > 0) Or (X < 0 And Y < 0)
      Another answer is X * Y > 0

33. The value of "education".EndsWith("on") is True. (T/F)
   T

34. The value of "education".StartsWith("ED") is True. (T/F)
   F

35. The value of IsNumeric("$20.00") is True. (T/F)
   T

36. The value of IsNumeric("Twenty") is True. (T/F)
   F
Section 4.2 If Blocks

1. Consider the following two sets of code.

(a) If (a = 1) And (b = 1) Then
   txtBox.Text = "Hi"
End If

(b) If a = 1 Then
   If b = 1 Then
      txtBox.Text = "Hi"
   End If
End If

Which one of the following statements is true?

(A) (a) and (b) will produce different outputs.
(B) (b) is not a valid set of Visual Basic instructions.
(C) The two sets of code are equivalent, but (a) is preferred to (b) because (a) is clearer.
(D) The condition statement in (a) is not valid.

C

2. What will be displayed by the following program when the button is clicked?

Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
   Dim a, b, c, x As Double
   a = 5
   b = 3
   c = 6
   If a > c Then
      x = 1
   Else
      If b > c Then
         x = 2
      Else
         x = 3
         txtBox.Text = CStr(x)
      End If
   End If
End Sub

(A) 1
(B) 2
(C) 3
(D) None of the above

C
3. What will be the output of the following program when the button is clicked?

```vbnet
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim x, y, z As Double
    x = 3
    y = 3
    If x > y Then
        z = x + y
    Else
        z = y - x
    End If
    txtBox.Text = CStr(z)
End Sub
```

(A) 6  
(B) 3  
(C) 0  
(D) No output  
C

4. What will be the output of the following program when the button is clicked?

```vbnet
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim word1, word2, newWord As String
    word1 = "shower"
    word2 = "about"
    newWord = word1.Substring(0, 4) & word2.Substring(0, 3)
    If newWord.IndexOf("how") = -1 Then
        txtBox.Text = "The new word was not found."
    Else
        txtBox.Text = "Found it."
    End If
End Sub
```

(A) The new word was not found.  
(B) Found it.  
(C) Syntax error  
(D) No output  
B

5. What will be the output of the following lines of code?

```vbnet
Dim phrase As String = "A penny saved is worth nothing."
If phrase.IndexOf("pen") <> -1 Then
    txtBox.Text = CStr(phrase.IndexOf("pen"))
Else
    txtBox.Text = CStr(-1)
End If
```

(A) pen  
(B) 2  
(C) 0  
(D) A penny saved is worth nothing.  
B
6. Which of the following is not a logical operator in Visual Basic?
   (A) Not  
   (B) And  
   (C) Or  
   (D) Then  
       D

7. What will be displayed when the button is clicked?
   Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
       Dim num As Double = 9
       Dim sqrRoot As Double
       If num < 0 Then
           MessageBox.Show("Cannot find square root. Result set to zero.", "Error")
           sqrRoot = 0
       Else
           sqrRoot = Math.Sqrt(Num)
       End If
       txtBox.Text = CStr(sqrRoot))
   End Sub
   (A) 0
   (B) 3
   (C) 6
   (D) An error will occur.  
       B

8. A(n) __________ allows a program to decide on a course of action based on whether a certain condition is true or false.
   (A) Or block  
   (B) If block  
   (C) And block  
   (D) Else block  
       B

9. Constructs in which an If block is contained inside another If block are called:
   (A) multi-If blocks  
   (B) nested If blocks  
   (C) sequential If blocks  
   (D) None of the above  
       B
10. What word(s) will appear in the list box when the button is clicked?

```vbnet
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim num As Integer = 5
    If num = 2 Then
        ListBox.Items.Add("Two")
    ElseIf num > 3 Then
        ListBox.Items.Add("Great")
    ElseIf num = 5 Then
        ListBox.Items.Add("Equal")
    End If
End Sub
```

(A) Two, Great, and Equal  
(B) Great and Equal  
(C) Great  
(D) Equal  

11. When an If block has completed execution, the program instruction immediately following the If block is executed. (T/F)

T

12. The following lines of code are correct. (T/F)

```vbc
If (txtAge.Text >= 62) Then
txtOutput.Text = "You are eligible to collect Social Security."
End If
```

F

13. The following lines of code are correct. (T/F)

```vbc
If age >= 13 And < 20 Then
txtOutput.Text = "You are a teenager."
End If
```

F

14. The Else part of an If block may be omitted if no action is associated with it. (T/F)

T

15. Given that x = 7, y = 2, and z = 4, the following If block will display "TRUE". (T/F)

```vbc
If (x > y) Or (y > z) Then
    txtBox.Text = "TRUE"
End If
```

T

16. Given that x = 7, y = 2, and z = 4, the following If block will display "TRUE". (T/F)

```vbc
If (x > y) And (y > z) Then
    txtBox.Text = "TRUE"
End If
```

F

17. Every If block must have a Then and an Else. (T/F)

F

18. No more than one ElseIf statement may occur in any one If block. (T/F)

F
19. No more than one Else statement may occur in any one If block. (T/F)  
   T

20. A variable declared inside an If block ceases to exist after the block is exited. (T/F)  
   T

21. The following line of code is valid. (T/F)  
   If letter = ("The quality of mercy is not strained").Substring(7, 1) Then  
   T

22. The following line of code is valid. (T/F)  
   If 0 ≤ grade ≤ 100 Then  
   F

Section 4.3 Select Case Blocks

1. Why is the following Select Case block invalid in Visual Basic?  
   Select Case myName.Substring(0, 1)  
   Case myName < "D"  
      txtBox.Text = "Your name starts with A, B, or C."  
   End Select  
   (A) There should not be a standard conditional expression in a value list.  
   (B) There are not enough Case statements.  
   (C) There is no selector.  
   (D) myName.Substring(0, 1) is not valid where it is.  
   A

2. Suppose that the selector in a Select Case block is the string variable myVar. Which of the following is NOT a valid Case clause?  
   (A) Case "Adams"  
   (B) Case "739"  
   (C) Case myVar.Substring(0, 1)  
   (D) Case myVar.Length  
   D
3. What will be the output of the following program when the button is clicked?

```vbnet
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim name As String = "Washington"
    Select Case name
        Case "George"
            txtBox.Text = "George"
        Case "Wash"
            txtBox.Text = "Wash"
        Case "WASHINGTON"
            txtBox.Text = "WASHINGTON"
        Case Else
            txtBox.Text = "Washington"
    End Select
End Sub
```

(A) WashWashington
(B) Washington
(C) WASHINGTONWashington
(D) No output

B

4. What is the problem (if any) with the following Select Case block which is intended to determine the price of a movie depending on the patron's age?

```vbnet
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim age as Integer, price As Double
    age = CInt(InputBox("Enter your age:"))
    Select Case age
        Case Is >= 65       'Senior citizen
            price = 4.50
        Case Is >= 5        'Regular price
            price = 6.00
        Case Is >= 0        'Child (no charge with parents)
            price = 0
        Case Else
            txtBox.Text = "Entry error"
    End Select
End Sub
```

(A) Everyone will get in free at the child rate.
(B) The output will always be "Entry error."
(C) The Case Is statements have bad syntax.
(D) There is nothing wrong.

D
5. What will be the output of the following program when the button is clicked?

```vbnet
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim a, b, c, acronym As String
    a = "federal"
    b = "aviation"
    c = "administration"
    acronym = a.Substring(0, 1) & b.Substring(0, 1) & c.Substring(0, 1)
    Select Case acronym
        Case "FAA"
            txtBox.Text = "Federal Aviation Administration"
        Case "DEA"
            txtBox.Text = "Drug Enforcement Agency"
        Case Else
            txtBox.Text = "Unknown acronym. Sorry."
    End Select
End Sub
```

(A) Federal Aviation Administration  
(B) Drug Enforcement Agency  
(C) Syntax error  
(D) Unknown acronym. Sorry.

6. In a Select Case block, if more than one Case clause matches the selector,
(A) only the statements associated with the first matching Case clause will be executed.  
(B) all of the statements associated with each matching Case clause will be executed.  
(C) only the statements associated with the last matching Case clause will be executed.  
(D) the program will malfunction and stop.

   A

7. What will be displayed in the list box when the following code runs?

```vbnet
Select Case num
    Case 6, 7, 11
        lstBox.Items.Add("W")
    Case Is < 7
        lstBox.Items.Add("X")
    Case Is > 5
        lstBox.Items.Add("Y")
    Case Else
        lstBox.Items.Add("Z")
End Select
```

(A) Z can never be displayed.  
(B) W, X and Y will be displayed if the value of `num` is 6.  
(C) W and Y will be displayed if the value of `num` is 7.  
(D) Z will always be displayed.

   A

8. Different items appearing in the same value list of a Select Case block must be separated by 
a ____________.

(A) semi colon  
(B) comma  
(C) colon  
(D) pair of quotation marks

   B
9. Which Case clause will be true whenever the value of the selector in a Select Case block is between 1 and 5 or is 8?
   (A) Case 1 To 8
   (B) Case 1 To 5, 8
   (C) Case 1 To 8, 5
   (D) Case 1 To 5; 8
      B

10. Which Case clause will be true whenever the value of the selector in a Select Case block is greater than or equal to 7?
    (A) Case Is >7
    (B) Case Is = 8
    (C) Case Is >= 7
    (D) Case Is <= 8
       C

11. What type of items are valid for use in the value list of a Case clause?
    (A) literals
    (B) variables
    (C) expressions
    (D) All of the above
       D

12. The Case Else part of a Select Case block is optional. (T/F)
    T

13. One may use an If block within a Select Case block. (T/F)
    T

14. One may use a Select Case block within an If block. (T/F)
    T

15. Every Select Case block can be replaced by If blocks. (T/F)
    T

16. One may use a Select Case block within another Select Case block. (T/F)
    T

17. Select Case choices are determined by the value of an expression called a selector. (T/F)
    T

18. Items in the value list must evaluate to a literal of the same type as the selector. (T/F)
    T

19. A single Case statement can contain multiple values. (T/F)
    T

20. You can specify a range of values in a Case clause by using the To keyword. (T/F)
    T
21. A variable declared inside a Select Case block cannot be referred to by code outside of the block. (T/F)  
   T

**Section 4.4 Input via User Selection**

1. At design time, values can be placed into a list box via the _______.  
   (A) String Editor  
   (B) String Collection Editor  
   (C) Collection Editor  
   (D) Items Editor  
   B

2. A collection of related radio buttons is usually placed in a _______.  
   (A) List box  
   (B) Text box  
   (C) Collection Editor  
   (D) Group box  
   D

3. The default event procedure for a list box is _______.  
   (A) SelectedIndexChanged  
   (B) Click  
   (C) CheckedChanged  
   (D) IndexChanged  
   A

4. The default event procedure for a check box is _______.  
   (A) SelectedIndexChanged  
   (B) Click  
   (C) CheckedChanged  
   (D) Checked  
   C

5. Clicking on a checked radio button unchecks the radio button. (T/F)  
   F

6. Clicking on a checked check box unchecks the check box. (T/F)  
   T

7. Which of the following statements turns on the radio button radButton?  
   (A) radButton = True  
   (B) radButton.On = True  
   (C) radButton.Checked = True  
   (D) radButton.Selected = True  
   C
8. Which of the following is not commonly used to allow the user to select among several options?
   (A) a collection of radio buttons
   (B) a collection of check boxes
   (C) a list box
   (D) a collection of text boxes
   D

9. The value of lstBox.Text is the currently selected item of the list box. (T/F)
   T

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

11. Which of the following techniques always toggles the "on" and "off" states of a radio button control?
    (A) Click on the circle or its caption with the mouse.
    (B) Press the spacebar when the circle has the focus.
    (C) Press on another radio button in the same group box.
    (D) Set the Checked property equal to True.
    (E) None of the above
    E

12. What is the key difference between a group of check boxes attached to a group box and a group of radio buttons attached to a group box?
    (A) Only radio buttons can be toggled.
    (B) Only one radio button at a time can be checked.
    (C) Check boxes cannot be attached to a group box.
    (D) The only difference is the shape of the control.
    B

13. When a check box is checked, the value of the Checked property will be
    (A) True.
    (B) False.
    (C) 1.
    (D) 0.
    A
14. The title (as seen by the user) for the group box control is set by which one of the following properties?
   (A) Text
   (B) Name
   (C) Tag
   (D) Anchor
   A

15. When the user clicks on a check box control at run time, which one of the following events is raised (in addition to the Click event)?
   (A) ControlAdded
   (B) Invalidated
   (C) StyleChanged
   (D) CheckedChanged
   D

16. A check box control named chkFirst contains the following code in its CheckedChanged event 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 unchecked the control but not when it is checked.
   (C) The message "hello" will appear when the user checks the control and again when it is unchecked.
   (D) The message "hello" will not appear using this code.
   C

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

18. A radio button named radButton is placed on a form, and the statement
   MessageBox.Show(radButton.Checked)
   is placed in its CheckedChanged event procedure. At run time, what result will be displayed in the message box when the user clicks on radButton?
   (A) 1
   (B) True
   (C) 2
   (D) False
   B

19. After several controls of the same type have been created, they can be moved inside a group box and thereby become attached to it. (T/F)
   T
20. With a check box control, toggling the state of the small square raises the CheckChanged event. (T/F)  
   T

21. Group boxes are passive objects used to group related sets of controls. (T/F)  
   T

22. Programmers frequently write event procedures for the group box control. (T/F)  
   F

23. If you set a group box control’s Visible property to False, the attached controls will still remain visible. (T/F)  
   F

24. When a check box control has the focus, the spacebar can be used to invoke its CheckedChanged event. (T/F)  
   T

25. As with the button and check box controls, an access key can be set up by placing an ampersand in front of a letter in the radio button’s Text property setting. (T/F)  
   T

26. Suppose a form contains two group box controls with one radio button placed on each. In this case, both radio buttons can be selected (or turned “on”) at the same time. (T/F)  
   T