MULTIPLE CHOICE

1. Which of the following is not a type of selection structure?
   a. single-alternative
   b. dual-alternative
   c. multiple-alternative
   d. Case or switch
   e. all of the above are types of selection structures
   ANS: E

2. Given the following program segment, what is the test condition?
   1. Input Answer
   2. If Answer = “No” Then
   3. Write “Try Again”
   4. Input Answer
   5. End If
   6. Write “Are you having fun yet? (Y/N)”
   7. Input Response
   a. Answer
   b. Answer = “No”
   c. Response
   d. Response = “Y”
   ANS: B

3. Given the following program segment, if the user inputs “Hooray!” on Line 1, what is the next line to be executed?
   1. Input Answer
   2. If Answer = “No” Then
   3. Write “Try Again”
   4. Input Answer
   5. End If
   6. Write “Are you having fun yet?”
   7. Input Response
   a. Line 2
   b. Line 3
   c. Line 5
   d. Line 6
   ANS: A
4. What is the output of code corresponding to the following program segment if \( \text{Age} = 18 \)?

\[
\begin{align*}
\text{If } \text{Age} &\geq 18 \text{ Then} \\
&\text{Write "You are eligible to vote."} \\
\text{Else} \\
&\text{Set Vote} = \text{Age} - 18 \\
&\text{Write "You can vote in ", Vote, "years."} \\
\text{End If}
\end{align*}
\]

a. You are eligible to vote.
b. You can vote in 18 years.
c. You are eligible to vote.
   You can vote in 18 years.
d. You can vote in 0 years.

ANS: A

5. If \( \text{MyName} = \text{"Bunny"} \) and \( \text{YourName} = \text{"Buddy"} \), which of the following is not true?

a. MyName > YourName
b. MyName <= YourName
c. MyName >= YourName
d. YourName > MyName

ANS: B

6. If \( X = \text{True} \) and \( Y = \text{False} \), which of the following will give a result of \( \text{True} \)?

a. \( X \text{ AND Y} \)
b. \( X \text{ OR Y} \)
c. \( \text{NOT X OR Y} \)
d. \( \text{NOT X AND NOT Y} \)

ANS: B

7. If \( X = 2, \ Y = 4, \) and \( Z = 6 \), which of the following will give a result of \( \text{False} \)?

a. \( (X < Y) \text{ AND } (Y < Z) \)
b. \( (Y > X) \text{ AND } (Z > X) \)
c. \( (X > Y \text{ * } Z) \text{ OR } (X \text{ * } Y > Z) \)
d. \( (X > Y \text{ * } Z) \text{ OR } (Z > X \text{ * } Y) \)

ANS: D
8. Given that Jamie worked 50 hours \((\text{Hours} = 50)\) last week and earns $10.00 an hour \((\text{Rate} = 10)\), how much did Jamie earn last week, before taxes \((\text{TotalPay})\)?

\[
\text{If } (\text{Rate} >=10) \text{ OR } (\text{Hours} <=40) \text{ Then} \\
\text{TotalPay} = \text{Hours} \times \text{Rate} \\
\text{Else} \\
\text{TotalPay} = (\text{Hours} \times \text{Rate})+(\text{Hours}-40)\times\text{Rate}\times1.5 \\
\text{End If}
\]

a. $ 500  
b. $ 650  
c. $ 750  
d. $ 400

ANS: A

9. Given that Marcy worked 42 hours \((\text{Hours} = 42)\) last week and earns $10.00 an hour \((\text{Rate} = 10)\), how much did Jamie earn last week, before taxes \((\text{TotalPay})\)?

\[
\text{If } (\text{Rate} >=10) \text{ AND } (\text{Hours} <=40) \text{ Then} \\
\text{TotalPay} = \text{Hours} \times \text{Rate} \\
\text{Else} \\
\text{TotalPay} = (40 \times \text{Rate})+(\text{Hours}-40) \times \text{Rate} \times 1.5 \\
\text{End If}
\]

a. $ 500  
b. $ 420  
c. $ 430  
d. $ 650

ANS: C

10. Given that the user input for \text{Response} is “Open Sesame” and \text{Guess} = “Open Sesame”, what would be displayed if code corresponding to the following program segment were run?

\[
\text{Input Response} \\
\text{Select Case Of Response} \\
\text{Case: “new”} \\
\text{Write “You’re a newbie”} \\
\text{Case: 23} \\
\text{Write “You’re Number 23”} \\
\text{Case: Guess} \\
\text{Write “The door to Sesame Street is open!”} \\
\text{Default} \\
\text{Write “Huh?”} \\
\text{End Case}
\]

a. You’re a newbie  
b. You’re Number 23  
c. The door to Sesame Street is open!
d. Huh?
e. Nothing would be displayed since Response is not one of the conditions in the Case statement.

ANS: C

11. The term “defensive programming” refers to all of the following except:
a. ensuring that a division by zero does not take place
b. ensuring that input data is within the proper range
c. ensuring that there are no compound conditions in a selection structure
d. ensuring that a negative number is not input to the Sqrt function

ANS: C

12. A multiple-alternative structure cannot be implemented by using which of the following:
a. a single If-Then statement
b. several If-Then statements
c. several If-Then-Else statements
d. a single Case statement

ANS: A

13. Given the following program, choose the line necessary to replace the XXXX’s so that the program segment will ensure that an illegal operation does not occur.

Write “Enter a number: “
Write “This program will display the square root”
Write “of your number.”
Input MyNumber

XXXXXXXXXXXXXXXXXX
Write “The square root of “, MyNumber
Write “is: “, Sqrt(MyNumber)
Else
Write “Illegal operation!”
End If

a. If MyNumber < 0
b. If MyNumber <= 0
c. If MyNumber >= 0
d. If MyNumber <> 0

ANS: C

14. Which of the following will test to make sure the number entered by the user into the variable named InRange is between 5 and 50?
a. If (InRange > 5) AND (InRange < 50) Then ...
b. If (InRange >= 5) AND (InRange <= 50) Then ...

© 2007 Pearson Education
c. If (InRange > 5) OR (InRange < 50) Then ...

d. If (InRange >= 5) OR (InRange <= 50) Then...

ANS: B

15. Which of the following program segments is equivalent to the program segment given below?

If Pay >= 500 Then
  TaxRate = .3
End If
If (Pay >= 300) AND (Pay < 500) Then
  TaxRate = .2
End If
If (Pay >= 100) AND (Pay < 300) Then
  TaxRate = .1
End If

a. If Pay > 100 Then
  TaxRate = .1
Else
  If Pay > 300 Then
    TaxRate = .2
  Else
    If Pay > 500 Then
      TaxRate = .3
    End If
  End If
End If

b. If Pay >= 500 Then
  TaxRate = .3
Else
  If Pay >= 300
    TaxRate = .2
  Else
    TaxRate = .1
  End If
End If

c. If Pay >= 500 Then
  TaxRate = .3
Else
  TaxRate = .2
  If Pay > 100 Then
    TaxRate = .1
  End If
End If

d. none of the above are equivalent to the given example

ANS: B
TRUE/FALSE

   ANS: F

2. True/False: The assignment operator and the comparison operator are the same.
   ANS: F

3. True/False: The statement Set Cost = Price + Tax is an example of a comparison statement.
   ANS: F

4. True/False: The statement $15 \geq -63$ will result in the value True.
   ANS: T

5. True/False: If $X = \text{False}$ and $Y = \text{False}$, is the statement NOT X OR NOT Y true or false?
   ANS: T

6. True/False: Suppose $\text{MyNumber} = 6$. Is the following expression True or False?
   \[(2 * \text{MyNumber} - 4 > 6) \text{ AND } (\text{MyNumber} < 10)\]
   ANS: T

7. True/False: If $A = 20$ and $B = 15$, then both of the following statements are True:
   \[A > B \quad \text{and} \quad B \leq A\]
   ANS: T

8. True/False: The type of operators that are evaluated second in the hierarchy of order of operations are logical operators.
   ANS: F

9. True/False: The Case statement can only be used to compare numeric data.
   ANS: F

10. True/False: The integer 16 does not have a reciprocal.
    ANS: F

11. True/False: If a division operation is performed in a program and the divisor is 0, execution will halt and an error message will be displayed.
    ANS: T

12. True/False: Defensive programming includes checking for the illegal operation of trying to take the square root of zero.
    ANS: F

13. True/False: A program that uses menus instead of requiring the user to memorize commands is often known as a menu-driven program.
    ANS: T
14. True/False: If \( A = 9 \), then \( \sqrt{A \times A} = 3 \).
ANS: F

15. True/False: In a menu-driven program, the options on the main module usually correspond to separate program modules.
ANS: T

**SHORT ANSWER**

1. A selection structure consists of a(n) __________ __________ together with one or more blocks of statements.
ANS: test condition

2. A statement which checks to see if the value of the expression on the left side is the same as the value of the expression on the right side is an example of the use of the __________ operator.
ANS: comparison

3. Two strings are __________ if they contain exactly the same characters in the same order.
ANS: equal

4. A(n) __________ __________ is used to summarize the actions of the logical operators.
ANS: truth table

5. Logical operators are used to create __________ conditions from given __________ conditions.
ANS: compound, simple

6. In the hierarchy of the order of operations, __________ operations are performed first.
ANS: arithmetic

7. Some programming languages allow variables to be of logical or __________ type.
ANS: Boolean

8. The \( \geq \) is one of the __________ operators.
ANS: relational

9. The multiple-alternative selection structure that does not use an If-Then-Else clause is the __________ or __________ statement.
ANS: Case, Switch

10. Including statements in a program to check for improper data during execution of the program is known as __________ programming.
ANS: defensive

11. The program segment that catches a division by zero is known as a(n) __________ __________
ANS: error trap
12. One type of “illegal operation” is an attempt to take the square root of a(n) __________ __________.
ANS: negative number

13. The reciprocal of 0 is __________.
ANS: undefined

14. The order of operations for __________ __________ is NOT first, then AND, then OR.
ANS: logical operators

15. A dual-alternative selection structure is also known as a(n) __________ structure.
ANS: If-Then-Else