MULTIPLE CHOICE

1. A list of related data of the same data type which is referred to by a single variable name with an index number to identify each item is a(n):
   a. list
   b. database
   c. array
   d. element
   ANS: C

2. The fourth element of an array named Colors is identified as:
   a. Colors[0]
   b. Colors[3]
   c. Colors[4]
   d. Colors[5]
   ANS: B

3. Which is the correct way to load an array named WorkHours with the number of hours that five employees worked last week?
      Declare J As Integer
      For J = 0 Step 1 To 4
         Write “Input number hours worked for employee”, J+1
         Input WorkHours[J]
      End For
      Declare J As Integer
      For J = 0 Step 1 To 4
         Write “Input number hours worked for employee”, J+1
         Input WorkHours[J+1]
      End For
      Declare J As Integer
      For J = 0 Step 1 To 5
         Write “Input number hours worked for employee”, J
         Input WorkHours[J+1]
      End For
   d. None of these are correct
   ANS: A
4. Two arrays of the same size in which elements with the same subscript are related are:
   a. one-dimensional arrays
   b. two-dimensional arrays
   c. parallel arrays
   d. sorted arrays
   ANS: C

5. What is displayed when code corresponding to the following pseudocode is executed?
   Declare Numbers[12] Of Integers
   For K = 0 Step 1 to 2
     Set Numbers[3 * K] = K + 1
     Write Numbers[3 * K]
   End For
   a. 0   b. 1   c. 1   d. 0
   3 2 2 3
   6 3
   ANS: C

6. What is displayed when code corresponding to the following pseudocode is executed?
   Set B[3] = 9.8
   For K = 0 Step 1 to 3
     Set B[K] = K / 2
     Write B[K]
   End For
   a. 0   b. .5   c. 0   d. .5
   .5 1 .5 1
   1 1.5 1 1.5
   1.5 9.8 9.8
   ANS: A

7. The following pseudocode searches for an item. Which variable represents a flag to indicate whether or not the item being searched for has been found? There are N elements in the array named A.
   Input SearchItem
   Set X = 0
   Set Y = 0
   While (Y = = 0) AND (X < N - 1)
     If A[X] == SearchItem Then
       Set Y = 1
     End If
     Set X = X + 1
   End While
   ANS: B
8. If $X = 6$, $Y = 9$, and $Z = 0$, what values are in $X$, $Y$, and $Z$ after code corresponding to the following pseudocode is executed?

Set $Z = X$
Set $X = Y$
Set $Y = Z$

a. $X = 9$  
   $Y = 6$  
   $Z = 0$

b. $X = 0$  
   $Y = 9$  
   $Z = 9$

c. $X = 9$  
   $Y = 6$  
   $Z = 9$

d. $X = 9$  
   $Y = 6$  
   $Z = 9$

ANS: D

9. What will be displayed after code corresponding to the following pseudocode is run?

Declare MyName[25] Of Characters
Set MyName = “Harry5”
Write Length(MyName)

a. 5
b. Harry5

c. 25
d. 6

ANS: D

10. Given the following pseudocode, what is stored in Puppy[3]?

Declare Puppy[12] Of Characters
Set Puppy = “ROVER”

a. R
b. O
c. V
d. E
e. R

ANS: D

11. If we know that 100 elements have been allocated to a two-dimensional array named MyArray, which of the following is not a possible way to declare MyArray?

a. Declare MyArray[10, 10]
b. Declare MyArray[25, 4]
c. Declare MyArray[20, 5]
d. all of the above are possible

ANS: D

12. If a string variable, Puppy, has been declared to be an array of 7 characters, which of the following strings cannot be stored in Puppy?

a. “Rover”
b. “Spot”
c. “Labrador”
d. “X”

ANS: C
13. If a two-dimensional array named Months stores the months of the year in the first column and the days of each month in the second column, which of the following represents the element that stores March 12, where March is the third month of the year?

a. Months[2, 11]  
b. Months[3, 11]  
c. Months[3, 12]  
d. Months[2, 12]  
ANS: A

14. A two-dimensional array named Weeks has two rows and 6 columns, as shown below. Which elements of Weeks contain the numbers 5 and 42?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>42</td>
<td>19</td>
<td>38</td>
<td>35</td>
<td>12</td>
<td>20</td>
</tr>
</tbody>
</table>

a. Weeks[1, 5] and Weeks[2, 1]  
b. Weeks[0, 4] and Weeks[1, 0]  
c. Weeks[4, 1] and Weeks[1, 1]  
d. Weeks[5, 12] and Weeks[1, 42]  
ANS: B

15. What is the outcome of code corresponding to the following pseudocode?

Declare G[100]  
Set N = 4  
For J = 0 Step 1 To N  
    Set G[J] = J * 4  
End For  
Write G[N / 2]  
Write G[1], " ", G[N – 1]  

a. 0  
b. 4  
c. 8  
d. 0  

ANS: C

TRUE/FALSE

1. True/False: The serial search cannot be used with a list of names.  
ANS: F

2. True/False: The bubble sort can be used to sort strings.  
ANS: T

3. True/False: Arrays are used in input, processing, and output operations.  
ANS: T

4. True/False: Arrays save space because all elements of an array are stored in a single memory location while a list of variables needs a separate location for each variable.  
ANS: F
5. True/False: The following statement: Declare Array1[10], Array2[10] allocates storage space for 100 variables.
ANS: F

ANS: T

7. True/False: The third element of an array names Dogs is Dogs[3].
ANS: F

8. True/False: Parallel arrays are arrays of the same size in which elements of the same subscript are related.
ANS: T

9. True/False: In a search, a variable called a flag is often used to indicate whether or not the search has been successful. A flag takes on one of two values.
ANS: T

10. True/False: The bubble sort algorithm sorts data either ascending or descending.
ANS: T

11. True/False: In order to swap the values of two variables, it is necessary to use a third variable as a temporary holding location.
ANS: T

12. True/False: In some programming languages, strings are implemented as arrays whose elements are characters.
ANS: T

13. True/False: The Length function can only be used on arrays that contain numeric data.
ANS: F

14. True/False: To input a string from a user, we must know beforehand exactly how many characters are in that string.
ANS: F

15. True/False: An array does not have to be declared of any data type.
ANS: F

SHORT ANSWER

1. The __________ __________ examines array elements, one by one, until the desired element is found.
ANS: serial search

2. The __________ __________ makes passes through an array, comparing consecutive pairs of elements and interchanging them if they are not in the correct order.
ANS: bubble sort
3. A string variable can be declared as an array with elements that are of __________ type.
ANS: character

4. A(n) _______ __________ array named FullName is declared as FullName[x, y].
ANS: two dimensional

5. A variable that is used to indicate whether or not a specific action has taken place is called a(n) __________.
ANS: flag

6. The Declare statement allocates __________ storage locations to the array Photos[23].
ANS: 23

7. The elements of an array are stored in __________ storage locations in the computer’s memory.
ANS: consecutive

8. In two parallel arrays, corresponding elements in each array must have the same __________.
ANS: subscript (or index number)

9. Array indexes begin with the number __________.
ANS: 0 (zero)

10. The item you are looking for when you perform a serial search is known as the __________ __________.
ANS: search key

11. If a bubble sort arranges a list of names in alphabetical order, from A to Z, the sort is __________ (select: ascending or descending).
ANS: ascending

12. To sort an array of ten items, it will take, at most, __________ passes to completely sort them.
ANS: 9

13. The __________ operator is used to join two strings.
ANS: concatenation

14. The __________ function will return the number of characters in a given string.
ANS: Length

15. The statement Declare MyArray[8, 6] allocates __________ consecutive storage locations in the computer’s internal memory.
ANS: 48