MULTIPLE CHOICE

1. Using arguments and corresponding parameters to pass data among program modules is an important feature of modular programming because:
   a. it enhances the usefulness of subprograms
   b. it makes it easier for different programmers to design and code different subprograms
   c. it makes it easier to test and debug a subprogram independently of the main program
   d. all of the above are true
   ANS: D

2. Given the following two program statements, identify the parameters.
   Call DressUp(sandals, turtleneck, jeans)
   Subprogram DressUp(shoes, shirt, pants)
   a. sandals, turtleneck, jeans
   b. shoes, shirt, pants
   c. DressUp(shoes, shirt, pants)
   d. sandals, turtleneck, jeans, shoes, shirt, pants
   ANS: B

3. Which of the following statements is an acceptable subprogram header?
   a. Subprogram SalePrice(23)
   b. Subprogram SalePrice(Price * .8)
   c. Subprogram SalePrice(Price)
   d. Subprogram SalePrice(X OR Y)
   ANS: C

4. Given the following statements, what values will be passed to the parameters (sandwich, side, and drink) of the subprogram named Lunch?
   Call Lunch(soda, chips, burger)
   Subprogram Lunch(sandwich, side, drink)
   a. sandwich = soda, side = chips, drink = burger
   b. sandwich = soda, side = chips, drink = burger
   c. sandwich = burger, side = chips, drink = soda
   d. Lunch = burger with chips and a soda
   ANS: B
5. Given the following statements, what values will be passed to the parameters of the subprogram named *Vacation*?

   Declare Motel As String
   Declare Interstate As Integer
   Set Motel = “Dew Drop Inn”
   Set Interstate = 95
   Call Vacation(Motel, Interstate)
   Subprogram Vacation(Lodging: String, Road: String)

   a. Lodging = “Dew Drop Inn”, Road = “95”
   b. Lodging = “Dew Drop Inn”, Road = 95
   c. Lodging = Motel, Road = Interstate
   d. This cannot be done, type mismatch

   ANS: D

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6. What is displayed after code corresponding to the following pseudocode is run?

   Set X = 15
   Set Y = 25
   Set Z = 20
   Call Numbers(Z, Y, X)
   Subprogram Numbers(A, B, C)
   Write A, B, C
   End Subprogram

   a. 15          b. 15          c. 20          d. 25
   25          20          25          20
   20          25          15          15

   ANS: C
7. What will be displayed after code corresponding to the following pseudocode is run?

```
Main
  Set OldPrice = 100
  Set SalePrice = 70
  Call BigSale(OldPrice, SalePrice)
  Write “A jacket that originally costs $”, OldPrice
  Write “is on sale today for $”, SalePrice
End Program
Subprogram BigSale(Cost, Sale As Ref)
  Set Sale = Cost * .80
  Set Cost = Cost + 20
End Subprogram
```

a. A jacket that originally costs $100
   is on sale today for $80
b. A jacket that originally costs $100
   is on sale today for $70
c. A jacket that originally costs $120
   is on sale today for $80
d. A jacket that originally costs $120
   is on sale today for $70

ANS: A

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8. What is wrong with the following program segment?

```
Main
  Declare Apples As Integer
  Set Apples = 4
  Call Snack(Apples)
  Write “You have “, Apples, “apples”
  Write “and “, Oranges, “oranges”
End Program
Subprogram Snack(Fruit)
  Declare Oranges As Integer
  Set Oranges = Fruit + 2
End Subprogram
```

a. you cannot call a subprogram that has only one parameter
b. you cannot declare variables within a subprogram
c. you cannot access a variable that has been declared locally within a subprogram
   outside that subprogram
d. nothing is wrong with the code segment

ANS: C

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9. What is the value of X in the following expression?

```
Set X = Str(-685.23)
```

a. 685  b. −685  c. “−685.23”  d. “685.23”

ANS: C
10. What is the value of \( X \) in the following expression, given that \( Y = 429 \): 

\[
\text{Set } X = \text{Round}(Y/8)
\]

a. 53  
b. 53.75  
c. 54  
d. this cannot be done

ANS: C

11. Given the following pseudocode, identify the line of code that is recursive.

1. Function Sum(N) As Integer
2. If N = 1 Then
3.  Set Sum = 1
4. Else
5.  Set Sum = Sum(N – 1) + N
6. End If
7. End Function

a. Line 1  
b. Line 2  
c. Line 3  
d. Line 5  
e. Line 7

ANS: D

12. A Call statement that passes values to a subprogram contains the subprogram’s name and, in parentheses, a list of:

a. parameters  
b. arguments  
c. variables  
d. any of the above

ANS: B

13. The part of a program in which a given variable can be referenced is that variable’s:

a. value  
b. scope  
c. name  
d. argument

ANS: B

14. Given the following program segment, what data is passed from the Main program to the subprogram named Display?

Main
Declare R As Integer
Set R = 2
Call Display(R * 6, R + 1, 14)
End Program
Subprogram Display(X, Y, Z)
Write X, "", Z, "", Y
End Subprogram

a. 2, 2, 14  
b. 12, 3, 14  
c. 12, 14, 3  
d. this cannot be done

ANS: C
15. Given the following function:

\[
\text{Function AddIt}(X) \text{ As Real} \\
\text{Set } F = X + 15/2 \\
\text{End Function}
\]

What is displayed when the following statement in the main program is executed?

\[
\text{Write } F(4)
\]

a. 9.5  
b. 9  
c. 11.5  
d. 11  

ANS: C

TRUE/FALSE

1. True/False: If a data item which is processed by a subprogram is needed by the main program, its value is imported to the main module.
   ANS: F

2. True/False: A subprogram must always return a value to the program or subprogram that calls it.
   ANS: F

3. True/False: A data flow diagram shows the data imported by and exported from each program module.
   ANS: T

4. True/False: The items listed in parentheses in a \texttt{Call} statement are known as arguments.
   ANS: T

5. True/False: Parameters, as well as arguments, can be constants, variables, or general expressions.
   ANS: F

6. True/False: Changes to the value of value parameters do not affect the value of the corresponding variables in the calling module.
   ANS: T

7. True/False: When a variable is passed by value, the submodule that variable is passed to will receive the actual storage location where the value of the variable is stored.
   ANS: F

8. True/False: When the value of a variable in a subprogram is unchanged, regardless of how the value of a variable with the same name changes outside the subprogram, that variable is said to have local scope.
   ANS: T

9. True/False: Functions that are program modules, created by the programmer, are called built-in functions.
   ANS: F
10. True/False: Code for built-in functions is supplied by the programming language in separate modules, often referred to as a library.
   ANS: T

11. True/False: A function’s name may be assigned a value in the code that defines it.
   ANS: T

12. True/False: The value of \( \text{Int}(-35.8) \) is 35.
   ANS: F

13. True/False: To solve the problem of how to code a repeated multiplication problem, recursion must be used.
   ANS: F

14. True/False: Since \( \text{Abs}(-5) = 5 \) and \( \text{Int}(5.3) = 5 \), these two functions can be used interchangeably.
   ANS: F

15. True/False: A built-in function is called by using the function name anywhere in a program where a constant of that type is allowed.
   ANS: T

SHORT ANSWER

1. If data in the main program is needed by a subprogram, the value of that data is passed to, or __________ by, the subprogram.
   ANS: imported

2. A(n) __________ __________ diagram can be used to keep track of the data passed among the various modules.
   ANS: data flow

3. Both data flow diagrams and __________ __________ can be used by programmers to indicate the data imported, processed, and exported from each module.
   ANS: IPO (or Input-Process-Output) charts

4. The items appearing in a subprogram header are known as __________.
   ANS: parameters

5. When a subprogram is called, the values of the __________ are assigned to corresponding __________.
   ANS: arguments, parameters

6. Parameters that can be used to both import data into and export data from a subprogram are __________ parameters.
   ANS: reference

7. When a variable is passed by __________ to a submodule, that submodule receives only a copy of that variable.
   ANS: value
8. A variable that is declared outside all program modules, including the main module, has _________ scope.
   ANS: global

9. Programming languages usually supply an assortment of _________ functions
   ANS: built-in

10. The function that converts a(n) _________ to a number is Val(S, N).
    ANS: string

11. When a program or subprogram calls itself, this process is known as _________.
    ANS: recursion

12. The function that converts a number, X, to a corresponding string is the _________ function.
    ANS: Str(X)

13. Programming languages allow the programmer to create his or her own functions which are called _________ _________ functions.
    ANS: user defined

14. If a variable is declared both locally and globally, it is treated as if it were two different variables, and the _________ declaration takes precedence.
    ANS: local

15. The number and type of arguments in a Call statement must be the same as the _________ and _________ of parameters in the corresponding subprogram header.
    ANS: number, type