

Please use your own paper to answer the following questions. Point values are shown in parentheses.

1. (10) Write a complete programmer-defined function that computes and returns the economic order quantity (EOQ) according to the following formula:

$$\sqrt{\frac{2RS}{kC}}$$

Assume that the values for R, S, k, and C are determined in the procedure that calls (invokes) the function. Write the function so that it is as general as possible.

2. (12) Trace the execution of the following code and indicate the values that are displayed by the three message box statements.

```
Option Explicit 'General Declaration
Dim A As Integer
Dim B As Integer

Private Sub cmdStart_Click()
Dim X As Integer
Dim Y As Integer

X = 10
Y = 20

DoSomething X, Y
MsgBox X & " - " & Y

DoSomethingElse X, Y
MsgBox X & " - " & Y

MsgBox A & " - " & B
End Sub

Public Sub DoSomething(ByVal A As Integer, B As Integer)
Static K As Integer

K = K + 1
A = K
B = B * K
A = 50
End Sub

Public Sub DoSomethingElse(K As Integer, J As Integer)
Dim B As Integer

B = 100
K = A
J = 13
DoSomething J, K
A = A + 1
End Sub
```

3. (8) Assume that the variables A, B, C, and D are all declared as type Single. Also assume that their values are:

$$A = 10, B = 2, C = 5, D = 100$$

Determine the value each of the following VB expressions.

- a. $A + A / C - B$
- b. $D / C / A / 2$
- c. $A ^ 2 + D - A * 10$
- d. $D / A + A / C - B - A + D / C$

4. (8) Convert each of the following algebraic expressions into valid VB expressions.

a.
$$\frac{A + B}{C} + D$$

b.
$$\frac{A^2 + B^2}{X + Y}$$

c.
$$\frac{B + \sqrt{A}}{C} + \frac{D}{E + F}$$

5. (6) Write a syntactically valid segment of VB code that uses the Integer variable Quantity and String variable PriceCat to set the Currency variable Discount to its proper value given the discount schedule below. Be sure to account for possible errors in the Quantity and/or PriceCat variables.

Discount Schedule

Quantity	Price Category	
	A	B
1-10	0%	1%
11-100	1%	3%
101+	3%	5%

- 6.** (8) Are the following assertions true or false? For each one, indicate the correct answer (T or F) on your answer sheet.
- a.** The Option Explicit statement causes numeric variables to be initialized to zero, and string variables to be initialized to the zero-length string. T F
 - b.** If the project contains more than one form and event procedures on different forms need to share a variable, then a code module is necessary. T F
 - c.** Module-level variables must be declared in a code module. T F
 - d.** A static variable is like a symbolic constant, because its value does not change at run time. T F
 - e.** A good VB programmer would never write a variable declaration statement which creates a variable named lblPrice. T F
 - f.** If a variable must be shared by many event procedures on different forms, it can be declared using the Dim statement in the general declarations section of one of the forms. T F
 - g.** A local variable declared using a Dim statement retains its value from one execution of its event procedure to the next. T F
 - h.** By qualifying the name of a control with the name of the form it belongs to, the control's properties can be accessed from any form in the entire project. T F
- 7.** (9) In Visual Basic there are methods available for controls (such as the Show method for a form), event procedures for controls (such as the Click procedure for a command button), and general sub procedures.

Explain the differences between a method, an event procedure, and a general procedure.