You have 1 hr for this Quiz. The quiz is “closed books and notes;” in addition, no electronic devices of any kind (e.g. calculators or PDAs) are permitted. Please show your answers in the green “boxes” provided; the back of the sheets can be used for additional or scratch work.

Name: _______________________________________

Pledge (please complete): I pledge my honor that __________________________
______________________________________________________________________________

1. (5%) Which Visual Basic number type would you use if you needed to do a calculation that involved very large numbers, say exceeding $10^{50}$?

   Answer: ______________________________________

2. (5%) What will be shown in the “Message Box” on the screen after the following code segment executes?

   ```vbnet
   Dim var1 As String = "Hello "
   Dim var2 As String = "World!"
   var1 &= var2
   MsgBox(var1 & var2)
   ```

   Answer: ______________________________________

3. (8%) What is the decimal value of the following “octal” (base 8) number?

   Octal number “230”

   Decimal value = ______________________________________

   Please explain briefly how you calculated your answer:
   ______________________________________________________

4. (10%) What is the value of variable c at the end of the code segment at the top of the next page?
Dim i, j, k As Integer
Dim a, b, c As Single
i = 3 : j = 4
a = i : b = j
k = i / j
c = k - a / b
MsgBox(c)

Value of c after the last line executes:

Brief explanation of your how you came up with your answer:

5. (10%) What is the value of the variable z at the end of the following code segment? Please explain briefly how came up with your answer.

Dim z As Boolean
Dim a, b, c As Integer
a = 3 : b = 2 : c = 2
z = c = a - b ^ 2 + a
MsgBox(z)

Value of z after the last line executes:

Explanation:

6. (10%) What is the value of i after the last line of the code segment below executes? Please explain briefly how you came up with your answer.

Dim i As Integer = 4
Dim j As Integer = 2
If i = 2 * j Then
    i = j ^ 3
Else if i > j Then
    i = j + 1
Else
    i = i / j
Endif
MsgBox(i)

Write and explain your answer here:
7. (10%) Refer to the following code segment:

    Dim A() As Integer = {5, 4, 3, 2}
    Dim i As Integer
    For i = 1 To A.Length - 1
        A(i) = A(i - 1) * A(i)
    Next
    MsgBox(A(2))

What is the value printed by the MsgBox command? Show the calculations justifying your answer:

8. (12%) Consider the following program and a function procedure “MyProc”:

    Sub Main()
        Dim i, j As Short
        i = 8 : j = 2
        i = MyProc(i,i,j)
        MsgBox("i = " & i)
        MsgBox("j = " & j)
    End Sub

    Function MyProc(ByVal A,B,C)
        C = C / 2
        MyProc = A * B * C
    End Sub

What is the value of i printed by the "Msgbox" command when it executes? Why? What is the value of j printed by the "Msgbox" command when it executes? Why?
9. (30% You are asked to write an integer function that returns the $N$th "Fibonacci" number, $F_N$. The Fibonacci numbers are $F_0 = 0$, $F_1 = 1$, $F_2 = 1$, $F_3 = 2$, $F_4 = 3$, $F_5 = 5$, $F_6 = 8$, $F_7 = 13$, ... ; each is generated by adding the previous two numbers in the sequence (except, of course, $F_0$ and $F_1$ which are just assigned the values 0 and 1). Your function should return -1 if the input integer $N$ is less than 0.

```vba
Function Fibonacci(ByVal N As Integer) As Integer
    ' write your code in the box below
End Function
```