

Extra review questions: the following questions are meant to provide you with some extra practice so you need to actually try them on your own to get anything out of it. For that reason, solutions won't be posted and I won't just "email you the solutions". But it really shouldn't be a big loss because I have taught you how you can find out the answers for yourself:

- For the 'tracing' questions where you have to determine the output of a program or the result of an expression (e.g. spreadsheet formula) then you can always type in the program or expression and run it yourself.
- The 'writing' questions (e.g. write a query or write a program) are a little trickier but you can still check your answers by testing the results e.g. does your program or query produce the results specified in the questions.

If you are still unsure of things after you have attempted a question (e.g. you can't figure out why you got a given result after typing it in and running the program), then you can ask (just be sure to show me the work that you have done so I can see how far that you have gotten and perhaps where you are having problems). Again don't just coming in cold without making an attempt:

## CPSC 230 Extra review and solutions

### Multiple choice questions:

For Questions 1 – 6 determine the output of the MsgBox

1)

```
x = 12
s = ""
If (x > 0) Then
    s = s & "a"
End If
s = s & "b"
MsgBox (s)
```

- a. a
- b. b
- c. s
- d. ab
- e. None of the above

2)

```
x = -12
s = ""
If (x > 0) Then
    s = s & "a"
Else
    s = s & "b"
End If
s = s & "c"
MsgBox (s)
```

- a. c
- b. s
- c. ac
- d. bc
- e. None of the above

3)

```
x = 11
s = ""
If (x > 0) Then
    s = s & "a"
End If
If (x > 10) Then
    s = s & "b"
End If
If (x > 100) Then
    s = s & "c"
End If
MsgBox (s)
```

- a. a
- b. b
- c. c
- d. ab
- e. abc

4)

```
x = 11
s = ""
If (x > 0) Then
    s = s & "a"
ElseIf (x > 10) Then
    s = s & "b"
ElseIf (x > 100) Then
    s = s & "c"
End If
MsgBox (s)
```

- a. a
- b. b
- c. c
- d. ab
- e. abc

5)

```

x = -1
y = 1
s = ""
If ((x > 0) And (y > 0)) Then
    s = s & "a"
Else
    s = s & "b"
End If
s = s & "c"
MsgBox (s)

```

- a. a
- b. b
- c. ac
- d. bc
- e. None of the above

6)

```

x = -1
y = 1
s = ""
If ((x > 0) Or (y > 0)) Then
    s = s & "a"
Else
    s = s & "b"
End If
s = s & "c"
MsgBox (s)

```

- a. a
- b. b
- c. ac
- d. bc
- e. None of the above

For Questions 7 – 13 specify the number of times that the loop will execute.

7)

```

i = 1
Do While (i < 4)
    MsgBox (i)
    i = i + 1
Loop

```

- a. 0
- b. 1
- c. 3
- d. 4
- e. Loop never ends

8)

```
i = 0
Do While (i < 4)
  MsgBox (i)
  i = i + 1
Loop
```

- a. 0
- b. 1
- c. 3
- d. 4
- e. Loop never ends

9)

```
i = 0
Do While (i <= 4)
  MsgBox (i)
  i = i + 1
Loop
```

- a. 0
- b. 3
- c. 4
- d. 5
- e. Loop never ends

10)

```
i = 0
Do While (i < 4)
  MsgBox (i)
  i = i + 1
Loop
```

- a. 0
- b. 3
- c. 4
- d. 5
- e. Loop never ends

11)

```
i = 1
Do While (i < 21)
  MsgBox (i)
  i = i * 3
Loop
```

- a. 0
- b. 1
- c. 3
- d. 20
- e. 21

12)

```

i = 1
Do While (i <= 4)
    MsgBox (i)
Loop
i = i + 1

```

- a. 0
- b. 2
- c. 3
- d. 4
- e. Loop never ends

13)

```

i = 4
Do While (i < 4)
    MsgBox (i)
    i = i / 2
Loop

```

- a. 0
- b. 2
- c. 3
- d. 4
- e. Loop never ends

For Questions 14 – 17 determine the output of the MsgBox

14)

```

i = 1
Do While (i <= 4)
    j = 1
    Do While (j <= 3)
        j = j + 1
        k = k + 1
    Loop
    i = i + 1
Loop
MsgBox (i & " " & j & " " & k)

```

- a. 4 3 7

- b. 4 3 12
- c. 5 4 12
- d. 5 4 20
- e. None of the above

15)

```

s = ""
x = 66
y = -66
z = 0
If (x > 12) Then
    s = s + "a"
    If (y < 0) Then
        s = s + "b"
    End If
    If (z > 0) Then
        s = s + "c"
    End If
End If
s = s + "d"
MsgBox (s)

```

- a. a
- b. ad
- c. abd
- d. acd
- e. abcd

16)

```

s = ""
x = 66
y = -66
Z = 0
If (x > 12) Then
    s = s + "a"
    If (y < 0) Then
        s = s + "b"
        If (Z > 0) Then
            s = s + "c"
        End If
    End If
End If
s = s + "d"
MsgBox (s)

```

- a. a

- b. ad
- c. abd
- d. acd
- e. abcd

17)

```
i = 0
sum = 0
Do While (i < 6)
    If (i <= 3) Then
        sum = sum + i
    End If
    i = i + 1
Loop
MsgBox (sum)
```

- a. 6
- b. 9
- c. 21
- d. 123456
- e. None of the above

18) What's the output of the MsgBox when the user enters 1,2,3,4,5,6,-1 as inputs?

```
temp = 1
sum = 0
Do While (temp > 0)
    temp = InputBox("Enter a num: ")
    If ((temp Mod 2) = 0) Then
        sum = sum + temp
    End If
Loop
MsgBox (sum)
```

- a. 9
- b. 12
- c. 21
- d. 123456
- e. None of the above

**Short answer:****Short answer 1**

Given the following inputs, what's the output of the MsgBox?

Input: 0, 0, 0      Write your output here:

Input: 0, 1, 101:    Write your output here:

Try predicting the output with other inputs, here's some examples (try additional ones)

Input: -1, -1, -1

Input: 1, 1, 11

Input: 2, -2, 1000

Input: 10, 100, 1000

```
Sub sa1()
    Dim num1 As Long
    Dim num2 As Long
    Dim num3 As Long
    Dim string1 As String

    num1 = -1
    num2 = -1
    num3 = -1
    string1 = ""

    num1 = InputBox("Enter a number", "")
    num2 = InputBox("Enter a number", "")
    num3 = InputBox("Enter a number", "")

    If ((num1 > 0) And (num2 > 0)) Then
        string1 = "a"
    End If
    If (num3 > 10) Then
        string1 = string1 + "A"
    End If
    If ((num1 > 0) Or (num2 >= 0)) Then
        string1 = string1 + "b"
        If (num3 > 100) Then
            string1 = string1 + "c"
        End If
    End If
    MsgBox (string1)
End Sub
```



**Short answer 2:**

Modify the following VBA program so it will display “Match” if age is 18 – 25 and city is either “Calgary” or “Red Deer”. “Not a match” should be displayed in all other situations.

Output messages are to be displayed via MsgBox popups.

```
Sub branchProblem()  
    Dim age As Long  
    Dim city As String  
  
    age = InputBox("Age (e.g. 18): ")  
    city = InputBox("City (e.g. Edmonton): ")
```

**' Write your answer here**

End Sub

**Short answer 3:**

Modify the following VBA program so it will repeatedly prompt the user for a password (which should be stored in the variable 'userEnteredPassword') until the user enters the correct password (which is the "SYSTEM\_PASSWORD"). Also each time that the passwords don't match the program should display an appropriate error message. When the passwords do match the program will stop prompting and instead display a message "Login successful"

```
Sub errorHandlingProgram()  
    Const SYSTEM_PASSWORD = "password"  
    Dim userEnteredPassword As String  
  
    ' Write your answer here  
    userEnteredPassword = ""
```

End Sub

**Short answer 4 (an example of a 'hard' final examination question)**

Modify the following VBA program so the variable 'result' will be the resulting exponent of 'base' raised to the value stored in the variable 'power':

- Base = 2, power = 3, result =  $2^3 = 8$
- Base = 1, power = 12, result =  $1^{12} = 1$
- Base = 55, power = 0, result =  $55^0 = 1$

You must not use functions or methods built into VBA that will calculate an exponent for you. Instead you must write the code yourself. Recall: that an exponent is a series of successive multiplications ( $2^3 = 2 * 2 * 2$ ) so some sort of looping mechanism needs to be employed. For this version of the question you can assume that the user will enter a base and power that is zero or greater.

**JT's hint: If this were an actual exam question even if you can't figure out how to calculate an exponent try to get partial marks and write the parts that you can visualize.**

```
Sub exponentLoops()
    Dim base As Long
    Dim power As Long
    Dim result As Long
    Dim i As Long

    base = InputBox("Base (zero or greater): ")
    power = InputBox("Exponent (zero or greater): ")

    result = 1
    For i = 1 To power
        result = result * base
    Next i

    MsgBox (base & " raised to " & power & "=" & result)
End Sub
```

**Short answer 5 (an example of a ‘very hard’ final examination question)**

Modify your solution to the previous program to include the following features:

- After calculating an exponent; the program will prompt the user to quit. If the user enters anything other than an option to quit (‘q’ or ‘Q’) it will re-prompt for the base and power and calculate a new resulting exponent.
- If the user enters a negative value for either the base or power then the program will display a helpful error message (e.g., “base and exponent must be zero or greater”)

Hint: your solution should employ nested loops and an additional branch (along with more nesting). This is an example of a more challenging exam problem.

**Short answer 6:**

Specify the output text shown in the MsgBox when the following VBA program is run.

```
Sub extraTrace()  
    Dim i As Long  
    Dim result As Long  
  
    i = 1  
    result = 0  
    Do While (i <= 20)  
        If (i < 5) Then  
            i = i + 1  
        ElseIf (i <= 10) Then  
            i = i + 2  
        Else  
            i = i * 2  
        End If  
        result = result + 1  
    Loop  
    MsgBox ("i=" & i & " result=" & result)  
End Sub
```

' Write your answer here

**Hint:** Inserting a MsgBox into each of the above 3 IF-branches can make it easier to determine how this result was derived.



JT: Liked the practice exam, then you'll love the real thing!