CPSC 203 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 – 17 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)

```
For i = 1 To 4 Step 1
    MsgBox (i)
Next i
```

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

13)

```
For i = 1 To 34 Step 7
    MsgBox (i)
Next i
```

a. 4
b. 5
c. 7
d. 34
e. Loop never ends

14)

```
For i = 1 To 2 Step 0
    MsgBox (i)
Next i
```

a. 0
b. 1
c. 2
d. 3
e. Loop never ends

15)

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

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

16)

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

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

17) What's the output of the `MsgBox`?

```
For i = 1 To 4 Step 1
    For j = 1 To 3 Step 1
    k = k + 1
    Next j
Next i
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

For Questions 18 – 21 determine the output of the `MsgBox`

18) What's the output of the `MsgBox`?

```
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

19) What's the output of the `MsgBox`?

```
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

20)

```
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

21) 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 between 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




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): ")

    ' Write your answer here









    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.

```
' Write your answer here
```

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
```

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

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