Name and ID: _____ Section Number: _____

Question 1

Which one of the following correctly allocates an an array holding elements of size 2-bytes, where the elements are 2, 4, 0FFh, and 01111h?

A. `myArray DOUBLE 2, 4, 0FFh, 01111h`

B. `myArray BYTE 2, 4, FF, 1111`

C. `myArray BYTE 2, 4, 0FFh, 01111h`

D. `myArray WORD 2, 4, 0FFh, 01111h`

Question 2

Which is a data type that deals with numbers that are 16-bits?

A. `BYTE` B. `WORD` C. `DWORD` D. `QWORD`

Question 3

Which of the following correctly declares a string "hello world" terminated with a null

A. `myString BYTE "hello world", 0`

B. `myString BYTE "hello world"`

C. `myString DWORD "hello world"`

D. `mystring DWORD "hello world", 0`

Question 4

Declare an initialized array of 200 4-byte values, all initialized to 0.

Question 5

How many bytes does the following declaration allocate: `mystery DWORD 0EEDDCCh, 0AAFFh`

A. `5` B. `6` C. `7` D. `8`

Question 6

How many bytes does the following declaration allocate: `myArray DWORD 25 DUP(?)`

A. `25` B. `none` C. `50` D. `100`

Question 7

How many bytes does the following declaration allocate: `myString BYTE "cool string", 0`

A. `10` B. `11` C. `12` D. `13`

Question 8

What is the output of the code to the right if the user enters the string "hello"?

A. `hello`

B. `5`

C. `6`

D. `25`

```
.data
myString BYTE 26 DUP(0)

.code
mov edx, OFFSET myString
mov ecx, 25
call ReadString
call WriteInt
```

Question 9

Explain if there would be an error with each of the following. If there is an error, describe briefly what the error is. Consider each seperately.

```
.data
var1 BYTE 088h
var2 WORD 01122h
var3 WORD 066h

.code
movsx eax, var2 ___________________________________
mov ax, var3    ___________________________________
mov ax, var1    ___________________________________
mov var3, var2  ___________________________________
```

Question 10

What of the following could replace **<*1>** in the code to display "Success" if the user inputs the magic number and "Go away", otherwise?

A.
```
cmp magicNumber, userNumber
je success
jne fail
```

B.
```
cmp magicNumber, userNumber
jne fail
```

C.
```
cmp magicNumber, eax
jne fail
```

D. `More than one of the above`

E. `None of the above`

```
.data
magicNumber DWORD 13
userNumber DWORD ?
successMsg BYTE "Success", 0
failMsg BYTE "Go away", 0

.code
call ReadInt
mov userNumber, eax
<*1>

success:
        mov edx, OFFSET successMsg
        call WriteString
        jmp done

fail:
        mov edx, OFFSET failMsg
        call WriteString

done:
        Invoke ExitProcess,0
```

Question 11

Given the following set of declarations (on the left) and the fact that the memory allocated for the .data section begins at location 00FFBB60h, fill in the table which represents the memory locations specified by the hex addresses in brackets. Use the hexadecimal or ASCII characters for each location. [NOTE: Don't forget about endian-ness!]

```
.data
var1 BYTE "yo", 0
var2 DWORD 066h
var3 WORD 2 DUP(08899h)
var4 WORD 01122h, 03344h
var5 BYTE 00h
```

Memory Location	Contents
00FFBB60h	
00FFBB61h	
00FFBB62h	
00FFBB63h	
00FFBB64h	
00FFBB65h	
00FFBB66h	
00FFBB67h	
00FFBB68h	
00FFBB69h	
00FFBB6Ah	
00FFBB6Bh	
00FFBB6Ch	
00FFBB6Dh	
00FFBB6Eh	
00FFBB6Fh	

Question 12

For each of the following assume that the `.data` declarations from the previous problem were present and tell what value would be in register `eax` after the instruction is executed.

a. _____ `mov eax, OFFSET var3`

b. _____ `mov eax, TYPE var2`

c. _____ `mov eax, LENGTHOF var4`

c. _____ `mov eax, SIZEOF var4`

Question 13

How many *'s are output by the code to the right?

A. 27

B. 3

C. 10

D. 30

E. 13

```
.data
star BYTE '*', 0

.code

        mov ecx, 10
L1:
        mov ebx, ecx
        mov ecx, 3
L2:
        mov edx, OFFSET star
        call WriteString
        loop L2
        mov ecx, ebx
        loop L1
```

Question 14

What happens when the `LOOP label` instruction is executed by the CPU?

A. if **ECX** is zero, execution jumps to the label. otherwise **ECX** is decremented.

B. if **EAX** is zero, execution jumps to the label. otherwise **EAX** is decremented.

C. **ECX** is decremented. if **ECX** is zero then execution jumps to the label.

D. **ECX** is decremented. if **ECX** is not zero then execution jumps to the label.

Question 15

What code would finish reversing the contents of a user-supplied input string `myString`?

```
.data
myString BYTE 501 DUP(0)

.code
mov edx, OFFSET myString
mov ecx, 500
call ReadString

;your code
```