Coal Assigment1

# Student Name: Muhammad Sheroz

# Student Id: 9852

# Class Id: 106244

1-Use the following variable definitions for the below four questions.

.data

Var1 SBYTE -4, -2, 3,1

var2 WORD 1000h, 2000h, 3000h, 4000h

var3 SWORD -16, -42

var4 DWORD 1, 2, 3 , 4, 5

For each of the following statements, state whether or not the instruction is valid:

**Answer:**

a. mov ax, var1 -> **ilegal**

b.mov ax, var2 -> **legal**

C.Mov eax, var 3 -> **ilegal**

d.mov var2, var3 -> **ilegal**

e. movzx ax, var2 -> **legal**

f. movzx var2, al -> **ilegal**

g. mov ds, ax -> **legal**

h. mov ds, 1000h ->**ilegal**

What will be the hexadecimal value of the destination operand after each of the following?

instructions execute in sequence?

**Answer:**

mov al, var1 ; a. **fch**

mov ah, [var1+3] ;b **01h**

What will be the value of the destination operand after each of the following instructions?

execute in sequence?

**Answer:**

Mov ax , var2 ;a **1000h**

mov ax, [var2+4] ;b **3000h**

mov ax, var3 ;c **fff0h**

mov ax, [var3-2] ;d **4000h**

What will be the value of the destination operand after each of the following instructions?

execute in sequence?

**Answer:**

Mov edx , var4 ;a **00000001h**

Movzx edx, var2 ;b **00001000h**

Mov edx, [var4+4 ] ;c **00000002h**

movsx edx, var1 ;d **fffffffch**

2 -Write a program that uses the variables below and MOV instructions to copy the value from

bigEndian to littleEndian, reversing the order of the bytes. The number's 32-bit value is under-

stood to be 12345678 hexadecimal.

data

bigEndian BYTE 12h, 34h, 56h, 78h

littleEndian DWORD?

**Answer:**

**.code**

**Main proc**

**mov al,[bigEndian+3]  
  mov BYTE PTR [littleEndian],al  
  
  mov al,[bigEndian+2]  
  mov BYTE PTR [littleEndian+1],al  
  
  mov al,[bigEndian+1]  
  mov BYTE PTR [littleEndian+2],al  
  
  mov al,[bigEndian]  
  mov BYTE PTR [littleEndian+3],al**

**Exit**

**Main endp**

**End main**

3 Write a program that rearranges the values of three doubleword values in the following array

.data

Array sword third last digit,last digit, second last digit

as second last digit, third last digit last digit.

.data

Array dword 1,2,3

**Answer:**

**.code**

**Main proc**

**Mov esi,offset array**

**Mov ecx,3**

**Mov ebx,4**

**Call dumpmern**

**Call writedec**

**Call crlf**

**Exit**

**Main endp**

**End main**

4. What is the largest decimal value you can represent, using a 129-bit unsigned integer?

**Answer:**

**2128 – 2128-1 = 3.4028236692093846346337460743177x1038 --- 3.4028236692093846346337460743177x1038**

5, declare 16 bit unsigned integer variable name wArray that uses thee initialized

**Answer:**

**wArray WORD 10, 20, 30**

6. declare a string variable containing the word “TEST” repeated 500 times

**Answer:**

**Var1 dword 500 DUP ("Test")**

7 . Using the XCHG instruction no more than three times, reorder the values in four 8-bit registers

from the order A,B.C.D to B.C.D.A.

**Answer:**

**xchg A, B  
xchg A, C  
xchg A, D**

8. Write a sequence of instructions showing how the Zero flag could be used to indicate

unsigned overflow after executing INC and DEC instructions.

**Answer:**

**mov al,0FFh  
inc al  
jz INC\_overflow  
  
mov bl,1  
dec bl  
jz DEC\_overflow  
  
INC\_overflow:  
DEC\_overflow**:

9. What will be the value in EAX after the following lines execute? mov eax, 30020000h dec ax

**Answer:**

**3002FFFFh**