INSTRUCTIONS:

1. Show your work (i.e., how you derived your answer or the reason behind your thinking) in addition to your answer.

2. Copied Solutions = ZERO

1. ANSWER the following Questions:

1. What is the memory byte order, from low to high address, of the following data definition?

   BigVal DWORD 12345678h

2. What is the value of the Overflow flag after the execution of code below?

   MOV AL, 88h
   ADD AL, 90h

3. Write an instruction that moves the first two bytes in the following array (A1) to the AX register. The resulting value will be 2010h.

   A1 BYTE 10h, 20h, 30h, 40h
2. **Trace the following code:**

```assembly
.data
FinalResult DWORD 11223344h
.code
MOV AL, 3
MOV BL, 2
MOV ESI, OFFSET FinalResult
MOV ECX, 4
L1:
    MOV BYTE PTR [ESI], AL
    SUB BYTE PTR [ESI], BL
    MOV AL, BL
    MOV BL, BYTE PTR [ESI]
    INC ESI
    LOOP L1
```

(a) What is the value stored in `FinalResult` after the execution of the above code? Please write it in little endian order and hexadecimal form.

(b) Suppose the 3rd line in the code is changed to `MOV ESI, 0` so as to initialize `ESI` to 0. Change the code within the loop to produce the same results.
3. Use the following data definitions for this question:

dArray DWORD 10 DUP(?)
byte1 BYTE 0FFh,1,2
word3 SWORD 7FFFh,8000h

Where marked by a letter (a, b, c, d, e, f) in the following code segment, give your answer and explain your reasons. Suppose the code segment is executed sequentially from top to bottom. Note that some instructions may be illegal.

```
mov ax, [word3+2]       a. ax = ?
mov eax, [word3+4]      b. eax = ?
mov OFFSET byte1, 10h   c. byte1 = ?
mov ebx, OFFSET byte1   
mov al, [ebx+3]         d. al = ?
movsx eax, byte1       e. eax = ?
mov al, 80h             
add al, 80h             f. ZF, CF, SF, OF = ?
```

4. Answer the following questions from your book:

Section 4.1.10 questions[8,10]

Section 4.2.8 questions[1,2,3,4,5]