EE213 Computer Organization and Assembly Language
Quiz I (Spring 2019)
February 21st, 2019
Paper-A

Student Name: _____ Roll#_____ GR# _____

Answer the following questions.

1. How reading from memory is different than reading from registers? **[2 Points]**

Because registers are located within the CPU, no addressing is involved hence no need to fetch data through busses, access delay is minimal which is not the case when accessing memory

2. Given that EAX = 1234 0000h, write some code that should place twice of upper 16 bits in lower 16 bits of EAX, e.g. EAX=1234 2468h after processing, do not use MUL. **[4 Points]**

```
.data
    Temp   DWORD      ?
.code
    MOV    Temp, EAX
    MOV    DX, WORD PTR [Temp+2]
    ADD    DX, DX
    MOV    AX, DX
```

3. Using *indirect addressing* mode and LOOP only, replace each of the following WORD elements with its mathematical half, do not use MUL or DIV instructions: **[4 Points]**

ARR1 SWORD -12, -14, -16, -18, -20, -22, -24, +26

```
.code
    MOV    ESI, OFFSET ARR1
    MOV    ECX, LENGTHOF ARR1 -1
    MOV    AX, 6
    L1:    ADD    [ESI], AX
           INC    AX
           ADD    ESI, TYPE ARR1
    LOOP   L1
    SUB    [ESI], AX
```

4. Given the code snippet below, answer the following questions: **[2 Points]**

```
.CODE
 1. FCFA DEDEh   MOV AX, 255
 2. FCFA DEDFh   MOV BL, 10
 3. FCFA DEE0h   MOV CL, 20
 4. FCFA DEE1h   ADD AL, 1
 5. FCFA DEE2h   SUB BL,CL
 6. FCFA DEE3h   DEC AL
```

A. What is stored in EIP after line#5 is executed?

FCFA DEE3h

B. Write down the status of following flags after line 4 is executed

CF: **SET (1)** OF: **CLEAR (0)** ZF: **SET (1)**