

Name: KEY

Id#

COE 205, Term 052
Computer Organization & Assembly Programming
Quiz# 5

Date: Saturday, April 22, 2006

Q1. Write separate assembly programs minimizing the number of instructions as much as possible to do each of the following:

- (i) Multiply the content of register AL by 21.25.
- (ii) Rearrange the content of register AL so that its content becomes $A_7A_5A_3A_1A_6A_4A_2A_0$. For example, suppose the content of register AL=10101010, after rearrangement it will become 11110000.

(i)

```
MOV AH, AL
SHL AH, 2 ; AH = 4*AL
ADD AL, AH ; AL = 5*AL
SHL AH, 2 ; AH = 16*AL
ADD AL, AH ; AL = 21*AL
SAR AH, 6 ; AH = 0.25 AL
ADD AL, AH ; AL = 21.25*AL
```

(ii)

```
XOR AH, AH
XOR BH, BH
MOV CX, 4
```

Next:

```
ROR AL, 1
RCR AH, 1
ROR AL, 1
RCR BH, 1
LOOP Next
SHR AH, 4
OR AH, BH
MOV AL, AH
```