## King Fahd University of Petroleum & Minerals Electrical Engineering Department <u>EE-390; Exam-1(062); 2<sup>nd</sup> April, 2007</u>

| Prob.1 | Prob.2 | Prob.3 | Total |
|--------|--------|--------|-------|
|        |        |        |       |

## Answer the following questions in 1.30 hour

| Name : | Section : | I.D. |  |
|--------|-----------|------|--|
|        |           |      |  |

1(a). Write a program that will make the contents of <u>carry-flag</u> and <u>even Bits of AL register</u>, same as the content of <u>Bit 2 of AL register</u> and MASK the contents of the <u>remaining Bits</u> of AL. Don't assume the Hex number stored in AL register (as it can have any Hex value)

AL = Bit 7 Bit 6 Bit 5 Bit 4 Bit 3 Bit 2 Bit 1 Bit 0

(Use as many lines as needed)

| Line 1:                         | Line 6:         |
|---------------------------------|-----------------|
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| 1(b). 8088 microprocessors have | hit address hus |
|                                 | of uddress ous. |

1(c). The following instruction is valid or invalid: MOV AX, IP  $\rightarrow$ 

## Dr. Sheikh

2(a). Write a program that will perform the following integer multiplication,

'- AL' \* '- BL' and store the answer in memory location  $\text{DS:}0020_{\text{H}}$ 

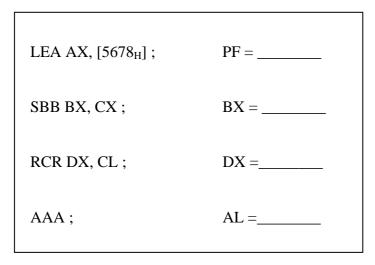
| (Use as many lines as needed) |
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2(b) Using <u>one line</u> of code, load the contents of memory location ES:123A<sub>H</sub> into the extra segment register (ES) of the microprocessor.

2(c). The DEBUG command used to view the machine code of any assembly language

instruction is:

3(a) Find the values of the register's, as you execute <u>each line</u> of the program. Assume the initial values are:  $AX=1234_H$ ,  $BX=5F88_H$ ,  $CX=1403_H$ ,  $DX=0125_H$ ,  $SI=003B_H$ , ZF=NZ, PF=PO and CF=CY



## 3(b). Assume, $DS=CS=SS=ES=2000_H$ , $AX=0400_H$ , $BX=0500_H$ , $CX=0600_H$ $DX=0600_H$ , $SI=0700_H$ , $DI=0400_H$ , $BP=0020_H$ , $SP=0AF0_H$ ,

(i) Write a program to load **AX** register with the word content of physical-Address,  $20C62_{\rm H}$ , using **Based-indexed** addressing mode.

(ii) Write a program to exchange the contents of AX-register and CS-register

(Use as many lines as needed)