

St. No:
St. Name:

EENG410 - Microprocessors I

Quiz # 1 (Fall 2011/2012)

1. Find the status of the CF, PF, AF, ZF and SF after the execution of the following instructions?

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<p>a) MOV CX, 173FH MOV AX, 8A9EH ADD AL, CH ADD CH, AL</p>	<p>b) MOV DI, 045AH MOV DX, 2FE7H MOV [DI], DX ADD [DI], DX</p>
<p> $\begin{array}{r} 9E \\ + 17 \\ \hline B5 \end{array}$ $\begin{array}{r} B5 \\ + 17 \\ \hline 0C \end{array}$ $\begin{array}{r} 10110101 \\ 00010111 \\ \hline 11001100 \end{array}$ <p style="border: 1px solid black; padding: 5px; display: inline-block;">CF=0, PF=1, AF=0, ZF=0, SF=1</p> </p>	<p> $\begin{array}{r} 2FE7 \\ + 2FE7 \\ \hline 5FCE \end{array}$ $\begin{array}{r} 0010111111100111 \\ + 0010111111100111 \\ \hline 0101111111001110 \end{array}$ <p style="border: 1px solid black; padding: 5px; display: inline-block;">CF=0, PF=0, AF=0, ZF=0, SF=0</p> </p>

2. Given that DS=7600H, SS=6400H, BX=7892H, BP=1AF3H, DI=4572H, determine the Logical and Physical Addresses of the memory location of the source operand in the following lines of instructions?

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i. MOV DX, [BX] ; Logical Address = 7600:7892 Physical Address: $\begin{array}{r} 76000 \\ 7892 \\ \hline 70892 \end{array}$ ✓

ii. MOV BL, [BP]+6 ; Logical Address = 6400:1AF9 Physical Address: $\begin{array}{r} 64000 \\ 1AF9 \\ \hline 65AF9 \end{array}$ ✓

iii. MOV AX, [BP][DI]+7; Logical Address = $\begin{array}{r} 1AF3 \\ 4572 \\ + 7 \\ \hline 606C \end{array}$ 6400:606C Physical Address: $\begin{array}{r} 64000 \\ 606C \\ \hline 6A06C \end{array}$ ✓

3. Assume that the following two arrays (A and B) are given.

A = 9, 7, 3, 5, 1, 3, 7, 8, 4, 5
B = 1, 3, 8, 9, 5, 9, 4, 6, 5, 7

Write An Assembly Language program that calculates the sum of the elements in array A and array B respectively. The sum of A (SUMA), sum of B (SUMB) and sum of both arrays (SUMAB) will be saved to the data segment starting from offset address 0600H.

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```
MODEL SMALL
STACK 64
DATA
A DB 9,7,3,5,1,3,7,8,4,5
B DB 1,3,8,9,5,9,4,6,5,7
ORG 0600H
SUMA DB ?
SUMB DB ?
SUMAB DB ?
CODE
MAIN: MOV AX, @DATA
      MOV DS, AX
      MOV AX, 0000H
      MOV CX, 10
      MOV SI, OFFSET A
      MOV DI, OFFSET B
BACK: ADD AL, [SI]
      ADD AL, [DI]
      INC SI
      INC DI
      LOOP BACK
      MOV SUMA, AL
      MOV SUMB, AH
      ADD AL, AH
      MOV SUMAB, AL
      MOV AH, 4CH
      INT 21H
      END MAIN
```