As per your existing group, not more than 8members each!

Jimma University

Faculty of Computing and Health Informatics

Microprocessor and Assembly Language Programming

Group Assignment – 15%

1. Explain in detail about memory segmentation. Why do we need memory segmentation and what makes it different from paging?

2. Assume the following values:

   SS = C0A0 , CS = 1234 , DS = 258C , ES = 3D95

   SP = 2020 , IP = 0100 , SI = 0210 , DI = 0310

   Then, find the physical and logical addresses of each segment.

3. Given the following instruction along with the content of registers in the table below, find what will happen(Values) to the contents of registers after the statements in the table gets executed? Write your answer in the space provided(also support your answer for each with justification).

   Note: If any instruction is illegal, write the word ILLEGAL as the answer.

   var1 and var2 are considered as a 16-bit operands, and count is assumed as 8 bits in this all instructions. All numbers are in hexadecimal.

Instruction	Before	After
a. mov ax,bx	AX = 0023, BX = 00A5	AX =
b. mov ah,3	AX = 06AF	AX =
c. mov dl,count	DX = 8F23, count = 1A	DL =
d. mov bl,ax	BX = 00A5, AX = 4000	BL =
e. mov di,100h	DI = 06E9	DI =
f. mov ds,cx	DS = 0FB2, CX = 0020	DS =
g. mov var1,bx	var1 = 0025, BX = A000	var1 =
h. mov count,ax	count = 25, AX = 4000	count =
i. mov var1,var2	var1 = 0400, var2 = 0500	var1 =

Instruction	*Before*	*After*
j. ADD 7 , AX	*AX = F008*	*AX =*
k. ADD BX , 100F	*BX = FFFF*	*BX =*
l. MOV CX , ES	*CX = 2006 , ES = 1A43*	*CX =*
m. JMP [5]	*IP = 360E*	*IP =*
n. MOV Var2 , DX	*Var2 = 5100 , DX = 2301*	*Var2 =*
o. MOV AX , BL	*AX = 4300 , BL = 81AA*	*AX =*
p. MOV DS , 51	*DS = 2016*	*DS =*

Note: From question #3 each group is required to do only 2 questions. Here below is which 2 question each group has to do.

a and b = G1, *c and d = G2,* *e and f = G3,* *g and h = G4,*

i and j = G5, *k and l = G6,* *m and n = G7,* *o and p = G8*

4. *There are different types of flag registers that are supported by the 8086/8088 microprocessors. List and explain the different types along with one example for each indicating how they works.*

5. *Assume the following values were given;*

IP: 20BD *SP: EA03*

SS: 36C0 *CS: 100F*

Find the address after implimenting the following instruction.

A. JMP [IP]

B. JMP [SP]

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