

8086 Assembly Homework

Q1) Answer the following multiple choice questions:

1. Which of the following is an illegal instruction
(A) mov Ax, 25000 (B) dec Al, 1
(C) and bx, bx (D) add ax, 30
2. Which of the following is an illegal 8086 instruction
(A) mov ax, [bx] (B) inc [bx]
(C) add bx, [bx] (D) add ax, [cx]
3. Which of the following variables uses the most amount of RAM:
(A) x db 255 (B) y db 80 dup('Z')
(C) z dw 50 dup(0) (D) small dd 40 dup(0)
4. The word size of an 8086 processor is
(A) 8 bits (B) 16 bits
(C) 32 bits (D) 64 bits
5. The bp register is typically used for accessing
(A) strings (B) memory
(C) stack (D) data segment
6. To copy the hexadecimal number A to the bh register you write
(A) mov 0bh, ah (B) mov bh, 0ah
(C) mov bh, ah (D) mov bh, [ah]

Q2) Consider the following instructions.

```
MOV AX, 0203h
MOV DI, 0h
MOV CX, 0Ah
MOV [DI], AH
REPADD:
ADD AH, AL
INC DI
MOV [DI], AH
PUSH CX
MOV CL, 8
ROL AX, CL
POP CX
DEC CX
JNZ REPADD
```

After execution of these instructions. Find the contents at memory location DS:[0] to DS:[9]

DS[0] =	DS[5] =
DS[1] =	DS[6] =
DS[2] =	DS[7] =
DS[3] =	DS[8] =
DS[4] =	DS[9] =

Q3)

Below we have a small code fragment that you will execute “by-hand” using the current contents of memory and registers shown. (all numbers below in hex)

1. MOV AX, [BX]
2. SHL AX, 1
3. PUSH AX
4. MOV BX, [BX+4]
5. MOV CX, 60
6. MOV DX, [FFB6]
7. ADD CX, AX
8. MOV [BP+2], DL
9. MUL BL

AX=0000h	BX=FFB4h	CX=0000h	DX=0000h	BP=FFF8h
CS=A221h	DS=2222h	SS=5223h	ES=1224h	SP=FFF2h

```

2222:FFA0h 11 22 33 44 55 66 77 88 99 AA BB CC DD EE FF 00
2222:FFB0h 22 33 44 55 66 77 88 99 AA BB CC DD EE FF 00 11
2222:FFC0h 33 44 55 66 77 EF CB CC BB CC DD EE FF 00 11 22
2222:FFD0h 44 55 66 77 88 99 AA BB CC DD EE FF 00 11 22 33
2222:FFE0h 55 66 77 88 99 AA BB CC DD EE FF 00 11 22 33 44
2222:FFF0h 66 77 88 99 AA BB CC DD EE FF 00 11 22 33 44 55
  
```

a) What is the content of following registers after execution

AX_____ BX_____ CX _____ DX_____ SP_____ BP _____

b)

I) Absolute (physical) address of source operand in instruction (1) =

- II) before executing the program, the Absolute (physical) address of top of stack is _____
- III) Absolute (physical) address of destination operand in instruction (8) is _____
- IV) Absolute (physical) address of destination operand in instruction (10) is _____
- V) if the above program is start at offset 100 then the Absolute (physical) address of instruction (1) is_____

Q4) What is the value of FLAGS below after executing the following code.

```

MOV AX, 5283H
MOV DX, 1C7CH
ADD AX, ADF0H
ADC DX, 0101H
SHL DX, 1
SHR AX, 32

```

CF	PF	ZF	SF	OV