

CSC 3210
Computer Organization and Programming
Lab 3 (b)
Answer Sheet

Student Name:

Section:

Debug through each line of code and explain the register content.

(We already answered line 10 to 13 for your reference. Start writing your answer from Line 14)

Line: 10

Instruction: `mov eax, 12345678h`

Register value: `EAX = 12345678`

Explanation: 12345678 is a hexadecimal value which is 32-bit in binary. EAX register is also 32-bit.

Line 11:

Instruction: `mov ax, 1122h`

Register value: `EAX = 12341122h`

Explanation: 1122 is hexadecimal and it is 16-bit in binary. this mov instruction only updates AX (16 bit) register, a part of EAX register. That's why you can see that the upper portion of EAX register is NOT updated.

Line 12:

Instruction: `mov bl, al`

Register value: `EBX = _____ 22`

Explanation: AL register is 8-bit long. When you mov the content of al register (22) to BL register, it only updates the first 8-bit of the EBX register. The rest contains the garbage value.

Line 13:

Instruction: `mov bl, ah`

Register value: `EBX = _____ 11`

Explanation: Ah register is 8-bit long. When you mov the content of AH register (11) to BL register, it only updates the first 8-bit of the EBX register. The rest contains the garbage value.

Line 14:

Instruction: `mov al, 89h`

Register value of EAX register, after executing line 14.

Explain the content of the EAX register.

Line 15:

Instruction: `add al, 10h`

Register value of EAX, after executing line 15:

Show the step of the hexadecimal addition.

Line 16:

Instruction: `sub al, al`

What Register value of EAX, after executing line 16?

Show the step of the hexadecimal subtraction.

Line 17, 18:

Instruction:

`mov al, 98h`

`add al, 89h`

Register value of EAX, after executing line 17 and 18:

Show the step of the hexadecimal addition.