CSC 3210
Computer Organization and Programming
Lab 4
Answer Sheet

Student Name: Aparna Mandapaka
Section:

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

Line number: **line 9**
Instruction: **mov AL, 245**
Register value: **EAX:** 000D10**F5**
Explanation: the binary digit 245 in hexadecimal is F5 and when we do step over the it moves the binary value into hexadecimal in the EAX register and stores it in the hexadecimal value, since AL is the 8 bit register, which also causes it to register in EAX, and also since AL is 8-bit long we change the first 8 bits of the EAX register to F5.

Line number: **line 10**
Instruction: **mov BL, 41**
Register value: EBX: 0117F0**29**
Explanation: the binary digit 41 in hexadecimal is 29, and when we do the 'mov' operation it moves the hexadecimal of 41, which is 29 into the EBX register and stores the hexadecimal value there. It moves to the EBX register because we are moving it into 'BL' which corresponds to the EBX register.

Line number: line 11
Instruction: mov CL, 11
Register value: ECX: 2B57EB**0B**
Explanation: the binary digit 11 in hexadecimal is 0B, and when we do the 'mov' operation it moves the hexadecimal of 11, which is 0B into the ECX register and stores the hexadecimal value there. It moves to the ECX register because we are moving it into 'CL' which corresponds to the ECX register.

Line number: line 12
Instruction: mov DL, 215

Register value: EDX: 012FFF**D7**
Explanation: the binary digit 215 in hexadecimal is D7, and when we do the 'mov' operation it moves the hexadecimal of 215, which is D7 into the EDX register and stores the hexadecimal value there. It moves to the EDX register because we are moving it into 'DL' which corresponds to the EDX register.

Line number: line 14
Instruction: sub AL, DL
Register value: EAX: 000D10**1E**
Explanation: when we perform the subtraction operation we are subtracting the AL from DL which is 245 – 215, which is then converted into the hexadecimal and stored inside the AL, which is then registered into the register EAX. In hexadecimal it would be F5-D7 which would equal to 1E.

Line number: line 15
Instruction: add AL, CL
Register value: EAX: 000D10**29**
Explanation: Now in this line we are add the AL, which is the new value we got when we subtracted AL from DL, which is in hexadecimal 1E, so now we are subtracting 1E from 0B, which gives us the hexadecimal value of 29 and also this value is stored in the AL, since we are subtracting it from AL, the final value will be stored in AL, which will be stored in the EAX register again.

Line number: line 16
Instruction: sub AL, BL
Register value: EAX: 000D10**00**
Explanation: Now we are subtracting AL, the new value again that we got from the previous addition which is in hexadecimal 29, we are going to subtract the hexadecimal 29 from the BL hexadecimal 29, which gives us the result of 00 when we subtract 29 from 29, therefore again this value is stored inside the AL again, which is then registered in the EAX register.

(copy the above format if you need more )