

# Computer Organization & Assembly Language (CSD 203/CSC 222) LAB

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## Lab - Assignment - week1 Lab 2

**Q#1:** Find out all valid in valid combinations of MOV instruction using data register and immediate values or both operands as data register..

**Q#2:** Now execute the following instructions (single-step) in EMU8086 and observe the changes in contents of destination operand and explain those changes. If any instruction gives error, correct that error.

1. MOV AL, 256
2. MOV AX, F1ABh
3. MOV AX, -123
4. MOV BX, 123
5. MOV AH, 010010001b
6. MOV 1234h, BX
7. MOV DX, 33h
8. MOV CX, ‘AB’
9. MOV CH, AL
10. MOV DL, BL
11. MOV AH, BL
12. MOV AX, CL

**Q#3:** In this question we will learn a little about the format in which data is stored in memory(or registers).

Our data will be composed of Bytes. Let's assume that our data is composed of following 2 Bytes:

Data = 0x7A5B (0X prefix means that the following number is interpreted as a hexadecimal number)

* If data is stored such that Most significant Byte is placed in the higher address place and Least Significant Byte is stored in the lower address place then we say that data is stored in **Little Endian** format e.g; if we run MOV [200H],0x7A5B then data in Little Endian format is stored as follow

| Address | Data |
| --- | --- |
| 200H | 5B |
| 201H | 7A |

* Similarly , If data is stored such that Most significant Byte is placed in the lower address and Least Significant Byte is stored in the higher address place then we say that data is stored in **Big Endian** format e.g; if we run MOV [200H],0x7A5B then data in Big Endian format is stored as follow

| Address | Data |
| --- | --- |
| 200H | 7A |
| 201H | 5B |

Now based on the commands that you ran in question 2, which storage format does your emulator machine (EMU8086) follows?

**Q#4:** Given the following memory addresses and their corresponding contents:

| Address | Contents in HEX |
| --- | --- |
| 200H | AB |
| 201H | 73 |
| 202H | 2C |
| 203H | 8F |
| 204H | 6A |
| 205H | 3D |
| 206H | F6 |

1. Assuming that our machine follows the Little Endian format. What number is read in the following cases:

| 16 bit number read from 200H |  |
| --- | --- |
| 16 bit number read from 201H |  |
| 16 bit number read from 202H |  |
| 16 bit number read from 203H |  |
| 32 bit number read from 203H |  |

1. Assuming that our machine follows the Big Endian format. What number is read in the following cases:

| 16 bit number read from 200H |  |
| --- | --- |
| 16 bit number read from 201H |  |
| 16 bit number read from 202H |  |
| 16 bit number read from 203H |  |
| 32 bit number read from 203H |  |