

Microprocessor - 8085 Instruction Sets

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Let us take a look at the programming of 8085 Microprocessor.

Instruction sets are instruction codes to perform some task. It is classified into five categories.

S.No.	Instruction & Description
1	Control Instructions ↗ Following is the table showing the list of Control instructions with their meanings.
2	Logical Instructions ↗ Following is the table showing the list of Logical instructions with their meanings.
3	Branching Instructions ↗ Following is the table showing the list of Branching instructions with their meanings.
4	Arithmetic Instructions ↗ Following is the table showing the list of Arithmetic instructions with their meanings.
5	Data Transfer Instructions ↗ Following is the table showing the list of Data-transfer instructions with their meanings.

8085 – Demo Programs

Now, let us take a look at some program demonstrations using the above instructions –

Adding Two 8-bit Numbers

Write a program to add data at 3005H & 3006H memory location and store the result at 3007H memory location.

Problem demo –

(3005H) = 14H
(3006H) = 89H

Result –

14H + 89H = 9DH

The program code can be written like this –

```
LXI H 3005H : "HL points 3005H"
MOV A, M    : "Getting first operand"
INX H       : "HL points 3006H"
ADD M       : "Add second operand"
INX H       : "HL points 3007H"
MOV M, A    : "Store result at 3007H"
HLT         : "Exit program"
```

Exchanging the Memory Locations

Write a program to exchange the data at 5000M & 6000M memory location.

```
LDA 5000M : "Getting the contents at 5000M location into accumulator"
MOV B, A  : "Save the contents into B register"
LDA 6000M : "Getting the contents at 6000M location into accumulator"
STA 5000M : "Store the contents of accumulator at address 5000M"
MOV A, B  : "Get the saved contents back into A register"
STA 6000M : "Store the contents of accumulator at address 6000M"
```

Arrange Numbers in an Ascending Order

Write a program to arrange first 10 numbers from memory address 3000H in an ascending order.

```

MVI B, 09      : "Initialize counter"
START          : "LXI H, 3000H: Initialize memory pointer"
MVI C, 09H     : "Initialize counter 2"
BACK: MOV A, M : "Get the number"
INX H          : "Increment memory pointer"
CMP M         : "Compare number with next number"
JC SKIP        : "If less, don't interchange"
JZ SKIP        : "If equal, don't interchange"
MOV D, M
MOV M, A
DCX H
MOV M, D
INX H          : "Interchange two numbers"
SKIP:DCR C     : "Decrement counter 2"
JNZ BACK       : "If not zero, repeat"
DCR B          : "Decrement counter 1"
JNZ START
HLT            : "Terminate program execution"

```



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