SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

19ECT221 – MICROPROCESSORS AND MICROCONTROLLERS

II YEAR - IV SEM

UNIT I – 8085 and 8086 MICROPROCESSOR

MVI A, 49H   : "Store 49H in the accumulator"
STA 2501H   : "Copy accumulator contents at address 2501H"
HLT   : "Stop"

Store 8-bit data in memory using indirect addressing

LXI H   : "Load H-L pair with 2501H"
MVI M   : "Store 49H in memory location pointed by H-L register pair (2501H)"
HLT   : "Stop"

Add two 8-bit numbers

Example

```
(2501 H) = 99H
(2502 H) = 39H
Result (2503 H) = 99H + 39H = D2H
Since,
   1 0 0 1 1 0 0 1 (99H)
 + 0 0 1 1 1 0 0 1 (39H)
   1 1 0 1 0 0 1 0 (D2H)
```

Program

```
LXI H, 2501H  : "Get address of first number in H-L pair. Now H-L points to 2501H"

MOV A, M     : "Get first operand in accumulator"

INX H        : "Increment content of H-L pair. Now, H-L points 2502H"

ADD M        : "Add first and second operand"

INX H        : "H-L points 4002H"

MOV M, A     : "Store result at 2503H"

HLT          : "Stop"
```

Subtract two 8-bit numbers

Example

```
(2501 H) = 49H
(2502 H) = 32H
Result (2503 H) = 49H - 32H = 17H
```

Program

```
LXI H, 2501H  : "Get address of first number in H-L pair. Now H-L points to 2501H"

MOV A, M      : "Get first operand in accumulator"

INX H         : "Increment content of H-L pair. Now, H-L points 2502H"

SUB M         : "Subtract first to second operand"

INX H         : "H-L points 4002H"

MOV M, A      : "Store result at 2503H"

HLT           : "Stop"
```

Add two 16-bits numbers

Add the 16-bit number in memory locations 2501H and 2502H to the 16-bit number in memory locations 2503H and 2504H. The most significant eight bits of the two numbers to be added are in memory locations 2502H and 4004H. Store the result in memory locations 2505H and 2506H with the most significant byte in memory location 2506H.

Example

```
(2501H) = 15H

(2502H) = 1CH

(2503H) = B7H

(2504H) = 5AH


Result = 1C15 + 5AB7H = 76CCH


(2505H) = CCH

(2506H) = 76H
```

Add two 16-bits number with ADD and ADC instruction

```
LHLD 2501H   : "Get 1st 16-bit number in H-L pair"

XCHG         : "Save 1st 16-bit number in DE"

LHLD 2503H   : "Get 2nd 16-bit number in H-L pair"

MOV A, E     : "Get lower byte of the 1st number"

ADD L        : "Add lower byte of the 2nd number"

MOV L, A     : "Store result in L-register"

MOV A, D     : "Get higher byte of the 1st number"

ADC H        : "Add higher byte of the 2nd number with CARRY"

MOV H, A     : "Store result in H-register"

SHLD 4004H   : "Store 16-bit result in memory locations 2505H and 2506H"

HLT          : "Stop"
```

References

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