

## EXPERIMENT NO. 4

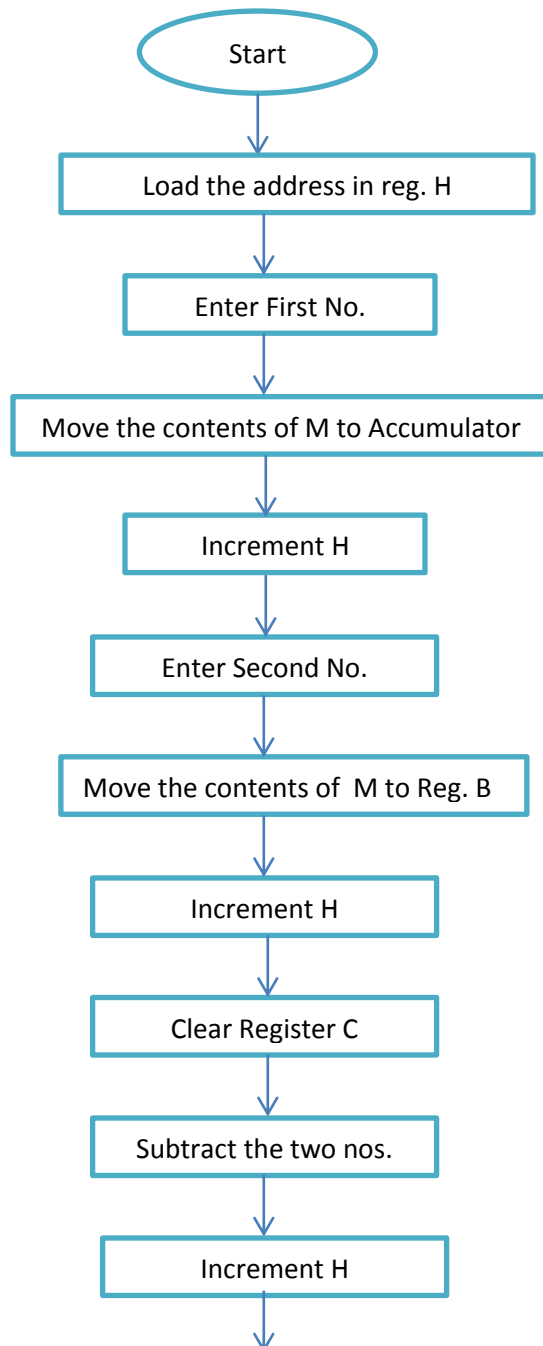
**AIM:** To subtract two 8-bit hexadecimal numbers, using Indirect addressing mode.

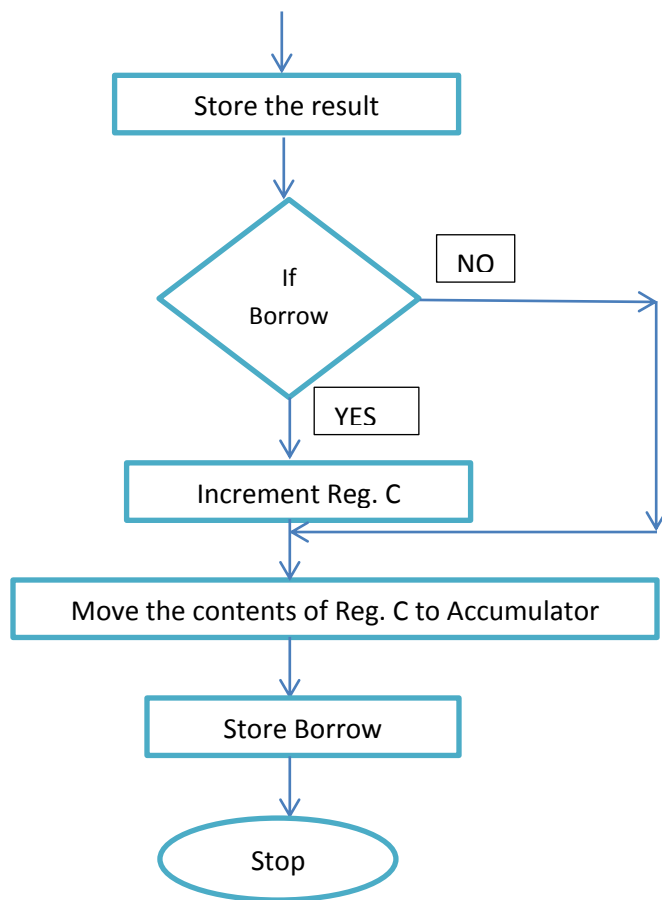
**APPARATUS REQUIRED:** 8085 Microprocessor Kit, Power Supply.

### ALGORITHM:

1. Load the two nos. at consecutive addresses.
2. Load the address in Reg. pair H.
3. Move the nos. from addresses to Accumulator and another register using the reg. pair H.
4. Subtract the two nos.
5. Store the result and borrow using the H reg. Pair.

### FLOW CHART:





**PROGRAM:**

Memory Address	Mnemonics	Hex Codes	Remarks
2000	LXI H,2050h	21	Load the memory address
2001		50	
2002		20	
2003	MOV A,M	7E	First no. in Accumulator.
2004	INX H	23	Increment mem. Addr.
2005	MOV B,M	46	Second No. in Register B
2006	SUB B	90	Subtract the two nos.
2007	INX H	23	Increment the mem. Addr.
2008	MOV C,M	4E	Clear Register C
2009	INX H	23	Increment Mem. Addr.
200A	MOV M,A	77	Store the result
200B	JNC ,2010h	D2	Check for Borrow
200C		10	Store the result

200D		20	
200E	INX H	23	Increment mem. Addr.
200F	INR C	0C	Add to Borrow
2010	MOV A,C	79	Copy contents of Reg. C to Accumulator
2011	MOV M,A	77	Store Carry
2012	HLT	76	Program terminated.

#### INPUT DATA:

1<sup>st</sup> set of input:

2050: 04h (First No. A)  
 2051: 03h (Second No. B)  
 2052: 00h

#### Output:

2053: 01(DIFFERENCE)  
 2054: 00(BORROW)

2<sup>nd</sup> set of input:

2050: 03h (First No. A)  
 2051: 04h (Second No. B)  
 2052: 00h

#### Output:

2053: FF(DIFFERENCE)  
 2054: 01(BORROW)

#### PRECAUTION:

Make sure that all the machine codes should be as specified in the program.