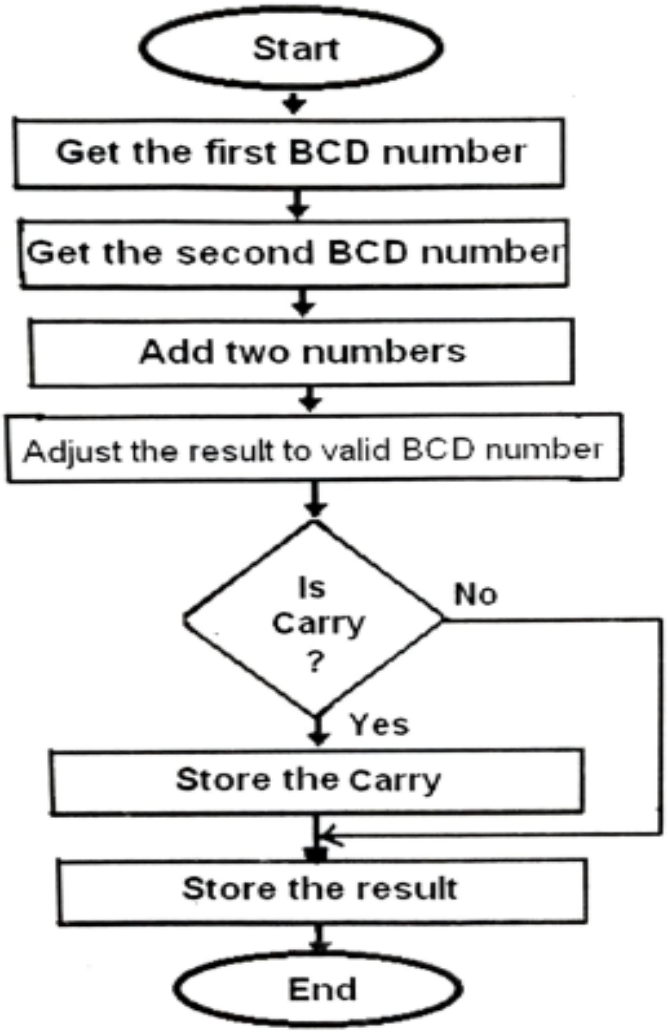
Experiment No. - 3

AIM: Write a program for addition of two BCD numbers.

APPARATUS REQUIRED: 8085 Microprocessor Kit and HEX Keyboard.

FLOW CHART:



PROCEDURE:

1. Enter the program from location 2000 onward using EXMEM command. Also enter the data at locations 2100 and 2101.
2. Execute the program from 2000 using GO key and examine the result at location 2102. (Press G; enter the starting address of the program then press Shift and then 4($))

PROGARM:

ADDRESS	MACHINE CODE	LABEL	MNEMONICS		COMMENTS
			OPCODE	OPERAND	
2000 H	21 00 21	SKIP	LXI	H 2100H	Point to 1st no.
2003 H	0E 00		MVI	C00H	Initialized the counter
2005 H	7E		MOV	A, M	Load it in accumulator
2006 H	23		INX	H	Point to 2nd no.
2007 H	86		ADD	M	Two BCD' no. to be added
2008 H	27		DAA		Convert to decimal
2009 H	D2 0D 20		JNC	200D	Jump if no carry generate
200C H	0C		INR	C	Increment the counter
200D H	23		INX	H	Increment memory pointer
200E H	77		MOV	M,A	Store the result
200F H	23		INX	H	Increment memory pointer
2010 H	71		MOV	M,C	Store the carry
2011 H	76		HLT		Stop the program

Address	**Data**
2100 H	23
2101 H	32
Result:	
2102 H	55

RESULT: 23+32=55

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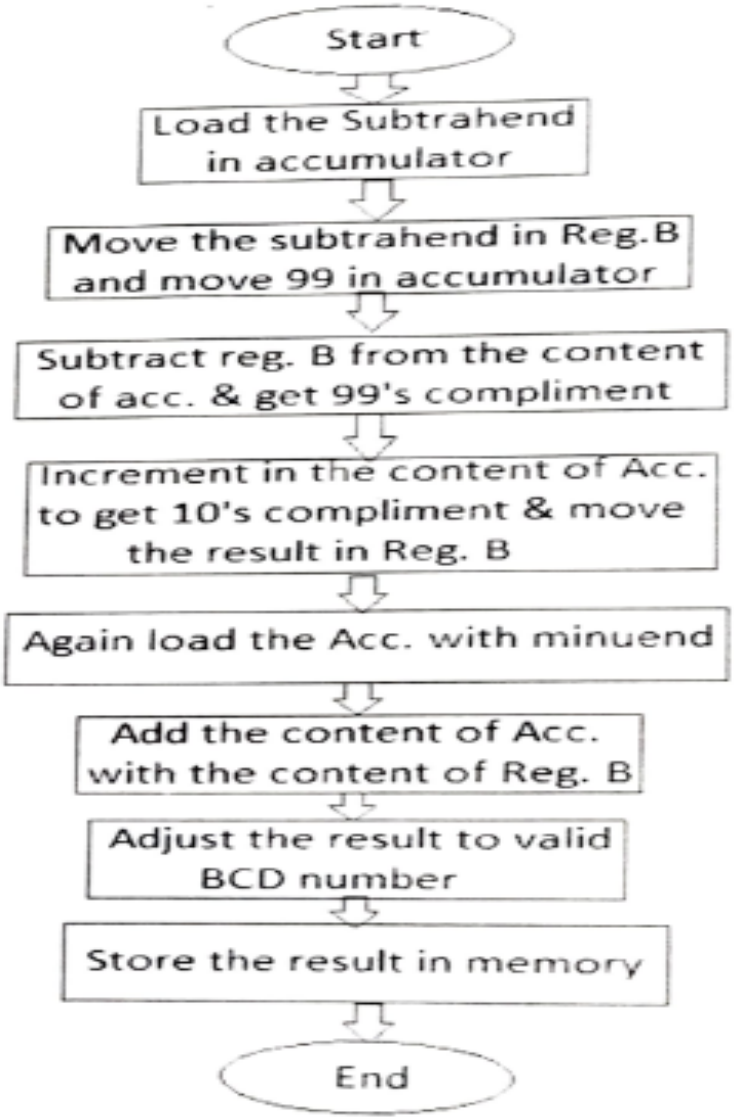
Experiment No. - 4

AIM: Write a program for subtraction of two BCD numbers.

APPARATUS REQUIRED: 8085 Microprocessor Kit and HEX Keyboard.

FLOW CHART:



PROCEDURE:

3. Enter the program from location 2000 onward using EXMEM command. Also enter the data at locations 2100 and 2101.
4. Execute the program from 2000 using GO key and examine the result at location 2102. (Press G; enter the starting address of the program then press Shift and then 4($))

PROGARM:

ADDRESS	MACHINE CODE	LABEL	MNEMONICS		COMMENTS
			OPCODE	OPERAND	
2000 H	3A O1 22	SKIP	LDA	2201 H	
2003 H	47		MOV	B, A	Get the subtrahend in B-reg
2005 H	3E 99		MVI	A 99 H	Get 10's complement of subtrahend
2006 H	90		SUB	B	
2007 H	3C		INR	A	Save 10's compliment in B
2008 H	47		MOV	B, A	Get the minuend in A-reg
2009 H	3A 00 22		LDA	2200 H	
200C H	80		ADD	B	Get the BCD sum of minuend and 10's compliment of subtrahend
200D H	27		DAA		
200E H	32 00 23		STA	2300H	Store the result in memory
2011 H	76		HLT		Stop the program

Address	**Data**
2200 H	32(Minuend)
2201 H	12(Subtrahend)
Result:	
2300 H	20(Difference)

RESULT: 32-12=20

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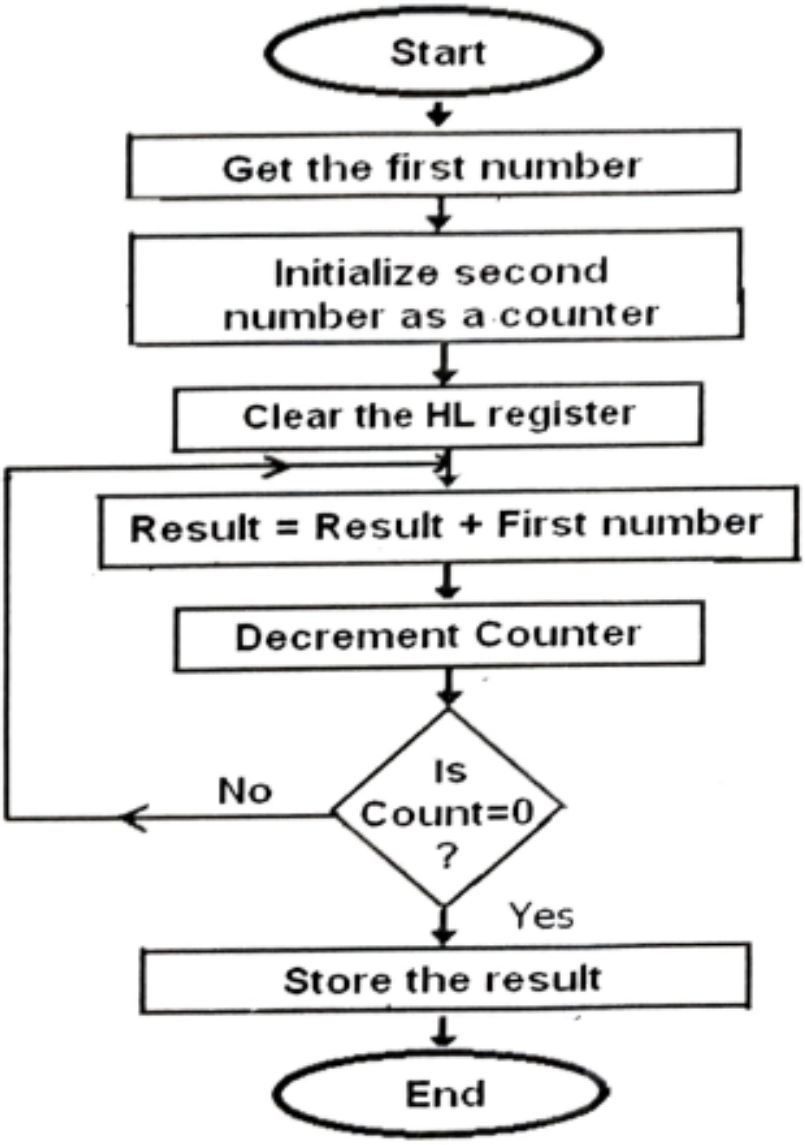
Experiment No. - 5

AIM: To perform multiplication of two 8-bit numbers using 8085 µP.

APPARATUS REQUIRED: 8085 Microprocessor Kit and HEX Keyboard.

FLOW CHART:



PROCEDURE:

1. Enter the program from location 2000 onward using EXMEM command. Also enter the data at locations 2300 and 2301.
2. Execute the program from 2000 using GO key and examine the result at locations 2500 & 2501. (Press G; enter the starting address of the program then press Shift and then 4($))

PROGARM:

ADDRESS	MACHINE CODE	LABEL	MNEMONICS		COMMENTS
			OPCODE	OPERAND	
2000 H	3A 01 23	BACK	LDA	2301 H	Initialized multiplicand
2003 H	5F		MOV	E, A	
2004 H	16 00		MVI	D 00 H	Move immediate 00 in D reg
2006 H	3A 00 23		LDA	2300 H	Initialized multiplier
2009 H	4F		MOV	C, A	
200A H	21 00 00		LXI	H 0000H	Result = 0
200D H	19		DAD	D	Result = result + multiplicand
200E H	0D		DCR	C	Decrement multiplier
200F H	C2 0D 20		JNZ	BACK(200D)	If multiplier !=0 repeat
2012 H	22 00 25		SHLD	2500H	Store the result
2015 H	76		HLT		Stop the program

Address	**Data**
2300 H	03 H Multiplier
2301 H	B2 H Multiplicand

Result:

2500 H	16 H
2501 H	02 H

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