CONTENTS

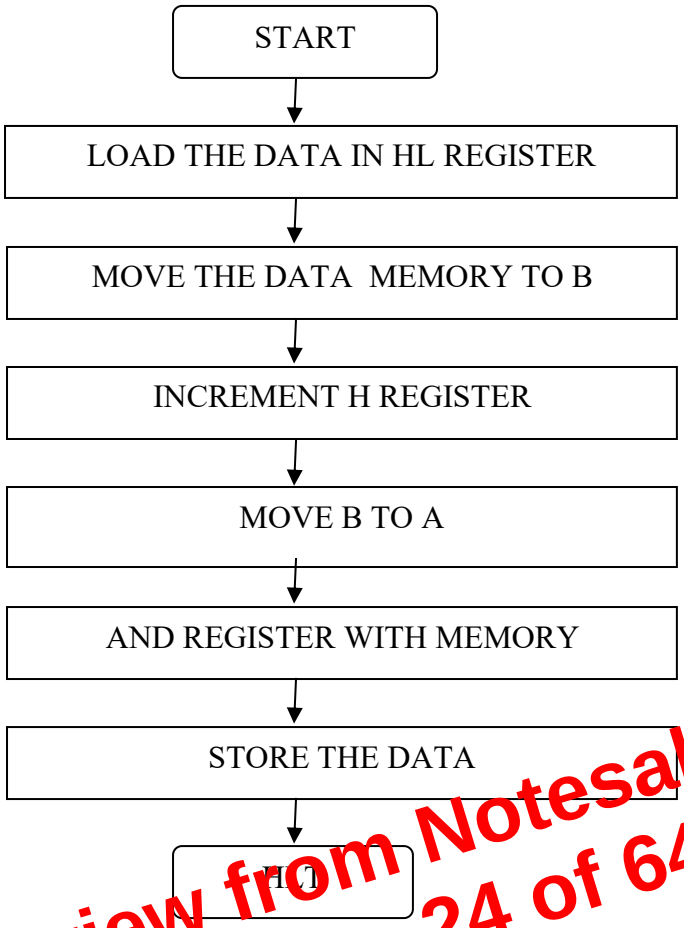
1) TWO 8 BIT SUBTRACTION WITH BORROW

ALGORITHM:

- Load the data
- move to accumulator
- increment the register
- subtract the data
- store the value
- check the borrow
- decrement the counter
- store the data
- Stop the program

PROGRAM:

ADDRESS	LABEL	MNEUMONICS	OP-CODE	COMMENTS
8000		LHI H	21	LOAD HL PAIR 9000
8001		00	00	
8002		90	90	
8003		MOV A,M	7E	MOVE MEMORY TO A
8004		INX H	23	INCREMENT REGISTER PAIR
8005		SUB M	96	SUBTRACT WITH BORROW
8006		STA	32	STORE IN 9100
8007		00	00	
8008		91	91	
8009		JNC LOOP	D2	JUMP IF NON ZERO
800A			11	
800B			80	
800C		DCR C	0D	DECREMENT C
800D		MOV A,C	79	MOVE C TO A
800E		STA	32	STORE IN 9101
800F		01	01	
8010		91	91	
8011	LOOP	HLT	76	STOP THE PROGRAM

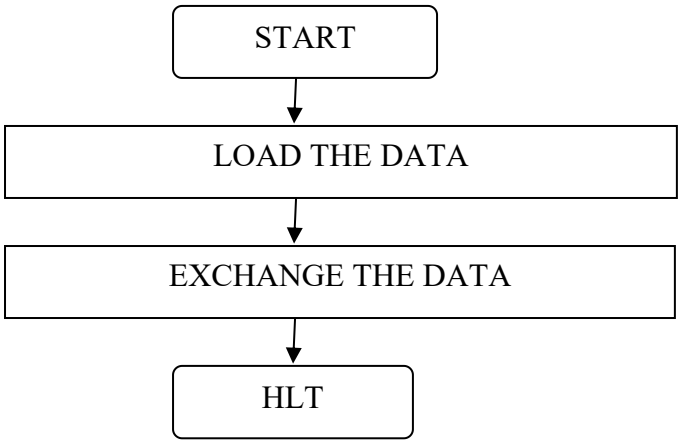


PROGRAM:

ADDRESS	LABEL	MNEUMONICS	OP-CODE	COMMENTS
8000		LXI H	21	LOAD HL PAIR
8001			00	
8002			90	
8003		MOV B,M	46	MOVE M TO A
8004		INX H	23	
8005		MOV A,B	78	
8006		ANA M	A6	
8007		STA	32	
8008		HLT	76	

MEMORY	DATA
9000	01

MEMORY	DATA
9100	01



PROGRAM:

ADDRESS	LABEL	MNEUMONICS	OP-CODE	COMMENTS
8000		LDA	3A	
8001			00	
8002			90	
8003		XCHG	EB	
8004		HLT	76	

RESULT:

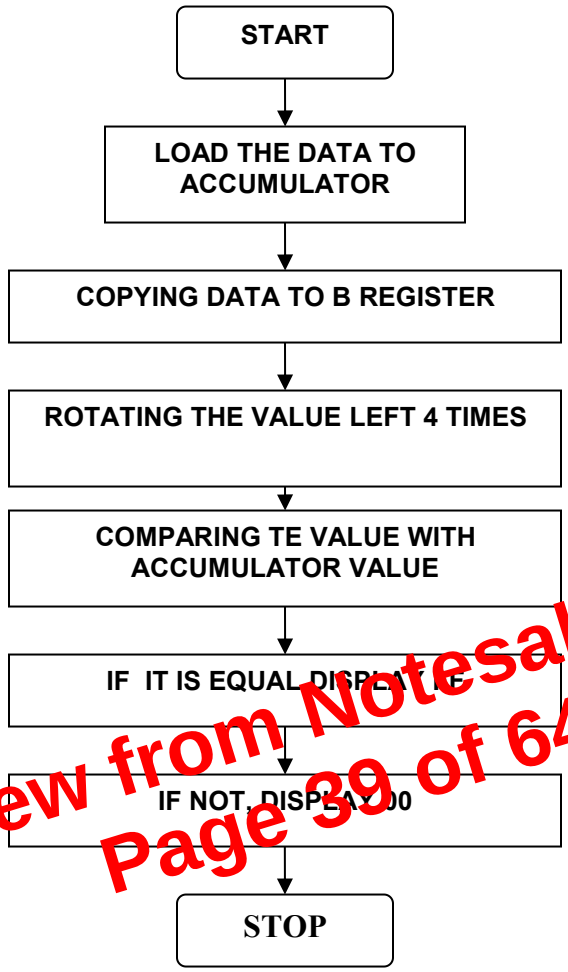
BEFORE EXECUTION :

ADDRESS	DATA
9000 9001	FF 12

AFTER EXECUTION

REGISTER	Data
H L	FF 12

FLOW CHART:



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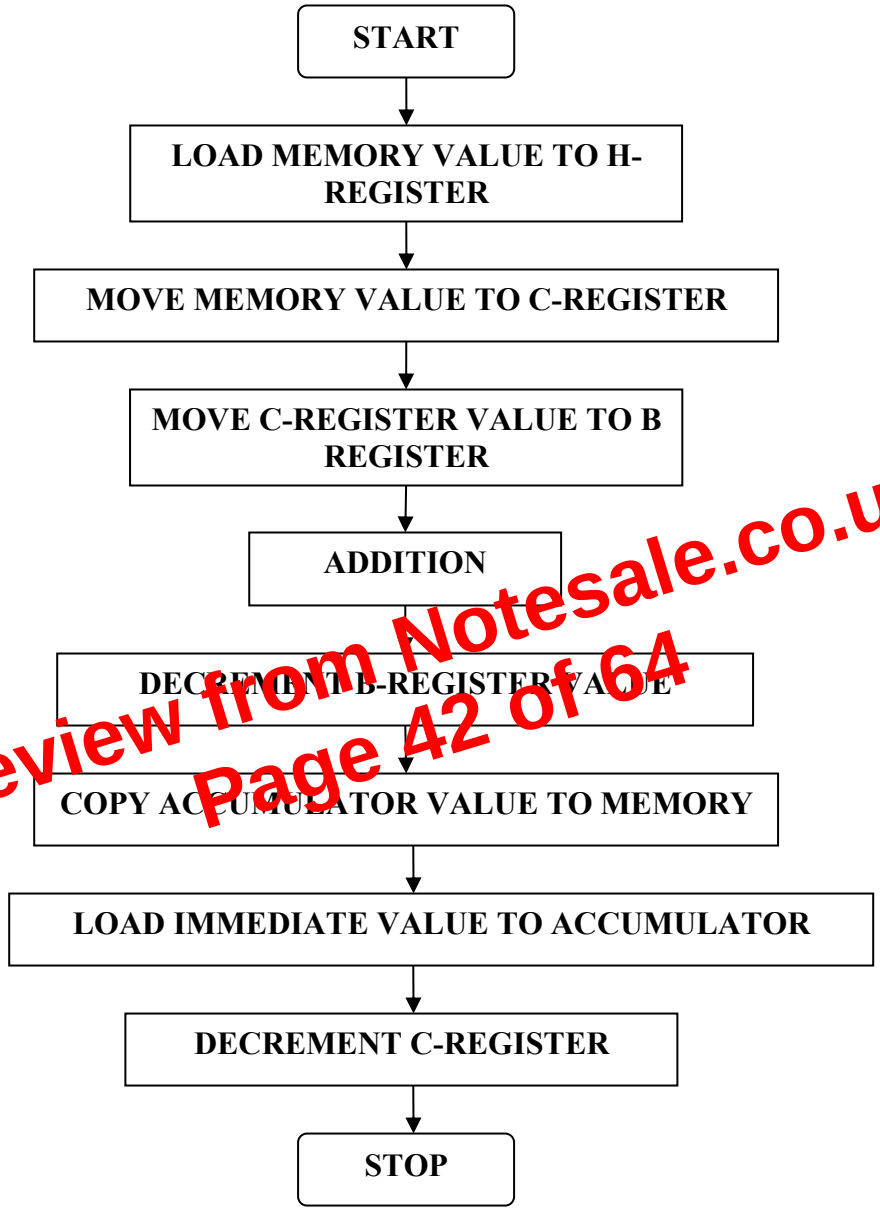

PROGRAM:

ADDRESS	LABEL	MNEMONICS	OPCODE	COMMENT (MEANING)
8000		LXI H,9000	21 00 90	H←M
8003		MOV C,M	4E	B ← ACC
8004		DCR C	0D	Decrement c register value
8005	Loop:	MOV B,C	41	B ← C
8006	Loop1:	ADD M	86	ACC+M
8007		DCR B	05	Decrement b register value
8008		JNZ LOOP1	C2	jump on non zero
8009		MOV M,A	77	M ← ACC
800A		MVI A,00	3E 00	loading value to accumulator
800C		DCR C	0D	Decrement c-register value
800D		JNZ LOOP	C2	Jump to loop on non zero
800E		HLT	76	Stop the program

RESULT:

BEFORE EXECUTION:

MEMORY	DATA
9000	05

AFTER EXECUTION

MEMORY	DATA
9100	78

PROGRAM:

ADDRESS	LABEL	MNEUMONICS	OP-CODE	COMMENTS
8000		LXI H,9000	21	Loading HL pair to memory
8001			00	
8002			90	
8003		MOV C,M	4E	Moving memory value to c register
8004		DCR C	0D	Decrementing c register
8005	REPEAT:	MOV D,C	51	Moving value from C to D register
8006		LXI H,9001	21	Loading the HL pair
8007			01	
8008			90	
8009	LOOP:	MOV A,M	7E	Moving value from memory to accumulator
800A		INX H	23	Incrementing H register
800B		CMP M	BE	Comparing memory with accumulator
800C		JNC SKIP	DA	Jump on non carry
800D		MOV B,M	46	Moving value from memory to B register
800E		MOV M,A	77	Moving accumulator value to memory
800F		DCX H	2B	Decrementing H register
8011		MOV A,B	70	Moving value from B register to memory
8011		INX H	23	Incrementing H register
8012	SKIP:	DCR D	15	Decrementing D register
8013		JNZ LOOP	C2	Jump on not zero
8014		DCR C	0D	Decrementing C register
8015		JNZ REPEAT	C2	Jump on not zero
8016		HLT	76	Stop the program

RESULT: BEFORE EXECUTION **AFTER EXECUTION**

MEMORY	DATA
9000	05
9001	01
9002	02
9003	03

TRIANGULAR WAVE GENERATION