

WRITE A PROGRAM TO FIND 2's COMPLEMENT OF 8-BIT NUMBERS

MEMORY ADDRESS	MNEMONICS	MACHINE CODES	COMMENTS
8000 8001	MVI A, 22H	3E 22	Loads 8-bit data in A
8002	CMA	2F	Complements the content in AC
8003 8004 8005	STA <u>8500H</u>	32 00 85	Stores the content of AC to 8500H
8006 8007	ADI	C6 01	Add 01 to AC content.
8008 8009 8010	STA	30 '00 86	Stores content of AC to 8600H
8011	HLT	76	STOP

MVI A, 22H

8000 → 3E
8001 → 22.
8002 →

MVI

2's complement

WRITE A PROGRAM TO FIND I'S COMPLEMENT OF
8-BIT NUMBERS

APPARATUS 8085 kit, 200 V power supply, manual
and battery

INSTRUCTIONS USED IN PROGRAM

- 1 The instruction MVI A, 8 bit data transfers the 8-bit number to the accumulator
- 2 Next instruction CMA takes the complement of the number
- 3 This instruction i.e., STA 8500H stores the result in the memory location
- 4 ADI → add to AC immediately.
- 5 HLT instruction ends the program.

STEPS TO PERFORM I'S COMPLEMENT OF 8-BIT NUMBERS

- 1 Press Next Same as of 4th Exp'
- 2 Reset the microprocessor kit
- 3 Press Go
- 4 Put initial address of the program where we started to put the data.

5 Execute the program

6 If E comes then your program has been successfully completed, if ERR comes then there is an error

7 Reset the system

RESULT

8001 : 22 H ✓

8500 : dd H ✓

8600 : JEH

~~JEPH~~
28-03-15

WRITE A PROGRAM TO PERFORM ADDITION OPERATION

FOR 8-BIT NUMBERS, SUM IS 16-BIT

MEMORY ADDRESS	MNE MONICS	MACHINE CODES	COMMENTS
8000	MVI A	3E	
8001	90H	90	Loads the number to the accumulator
8002	MVI B	06	
8003	100H	90	Loads the number in the register
8004	MVI C	0E	
8005	00H	00	Loads the carry generated to register
8006	ADD B	80	Add the number in register B to AC
8007	JNC	DR	Jumps to next step if no carry is generated
8008	THIR A HEAD	OB 80	
8009			
800A	INR C	00	Increases the carry
800B	A HEAD	32	
800C	STA	03	Stores the result at 8503 H,
800D		85	
800E	MOV AC.	79	Loads the result in AC
800F		32	
8010	STA	04	Stores the carry generated in 8504 H
8011		85	
8012	HLT	76	STOP

8000 → 3E MVI A

8001 → 90H

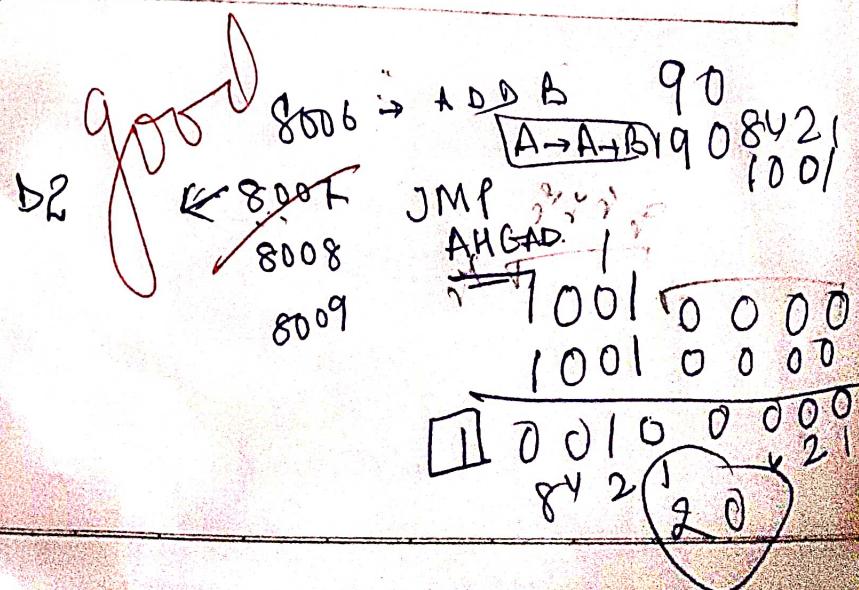
8002 06 MVI B

8003 90H

MVI C.

8004 → 0E

8005 → 00



WRITE A PROGRAM TO PERFORM ADDITION OPERATION FOR TWO 8-BIT NUMBERS, SUM IS 16-BIT



APPARATUS Battery, 8085 kit, power supply 220 V

INSTRUCTIONS USED

- 1 The instruction MVI A, 8 bit data transfer the 8 bit number to accumulator.
- 2 The instruction MVI B, 8 bit data transfer the 8 bit number to accumulator
- 3 The instruction add B add the number in B to number in A.
- 4 The instruction i.e. STA 8503H stores the result in the memory location.
- 5 HLT instruction end the program.

STEPS TO PERFORM ADDITION OPERATION FOR TWO 8-BIT NUMBERS

- 1 Press Nent
- 2 Reset the microprocessor

- 3 Press GO
 - 4 Put the initial address of program when we started the program.
 - 5 Execute the program.
 - 6 If E comes then your program has been successfully completed, if EOR comes then there is an error.
 - 7 Reset the system.
 - 8 Put the address of memory where you were to store the result by

RESULT

$$\cancel{8001} : 90$$

✓ 8003 : 90

~~→ 8503 : 20 (sum)~~

8504 : 01 (CARRY)

~~Sept. 4-15.~~

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Date 16.6.81

Date

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WRITE A PROGRAM TO FIND 1's COMPLEMENT OF 16 BIT NUMBERS

APPARATUS BOB 5 kit, 200V power supply, manual and battery.

INSTRUCTIONS USED IN PROGRAM

- 1 The instruction LLD 9050 H, loads the HL pair with operand from 9050 H
- 2 The instruction MOV A,L , moves the lower order from register L to register A .
- 3 CMA takes the complement of number
- 4 The instruction MOV L,A moves the result from register A to register L
- 5 The instruction ~~MOV A,L~~ moves the result from register ~~L~~ to register A .
- 6 The next instruction CMA takes the complement of number.
- 7 MOV H,A instruction, move the result from register A to register H.

Teacher's Signature:

- 8 The instruction SHLD, stores the result at address 9852.
- 9 HLT instruction ends the program.

STEPS TO PERFORM 1's COMPLEMENT OF 16 BIT NUMBERS

- 1 Press Next
- 2 Reset the microprocessor kit
- 3 Press Examine memory
- 4 Put the address of number of whom you want to take the complement. lower is the first, higher in the next.
- 5 Press Next
- 6 Reset the microprocessor kit
- 7 Press Go
- 8 Put the initial address of the program where we started to put the data.

Teacher's Signature : _____

- 9 Execute the program.
- 10 If E comes then your program has been successfully completed, if ERR comes then there is an error.
- 11 Reset the system.

RESULT

05

9050	:	30 H
9051	:	40 H
9852	:	CFA
9853	:	BF H

Before Execution	
After Execution	

90

11-04-16

Result :

9050	:	22 H
9051	:	33 H

9085	:	00 HA
9086	:	CC H

Teacher's Signature : _____

M HL

WRITE A PROGRAM TO PERFORM SUBTRACTION OF TWO

16-BIT NUMBERS

9050 →
9052 →

MEMORY ADDRESS	MNEMONICS	MACHINE CODE	COMMENTS
9000	<u>LHLD</u> 9050H	2A	load H-L pair with 1st operand from mem
9001		50	lower order of 9050H
9002		90	higher order of 9050H
9003	XCHG	EB	Exchange H-L pair with DE pair
9004	<u>LHLD</u> 9052H	2A	load H-L pair with 2nd operand from mem
9005		52	lower order of 9052H
9006		90	higher order of 9052H
9007	MOV A,E	7B	Move the lower order of 1st number from register E to register A
9008	<u>SUB L</u>	95	Subtract the lower-order of 2 nd number from lower order of 1 st number
9009	MOV L,A	6F	Move the result from register A to register L
900A	MOV A,D	7A	Move the higher order of 1 st number from register D to register A
900B	SBB H	9C	Subtract the higher order of 2 nd number from higher order of 1 st number with borrow from the previous subtraction
900C	MOV H,A	67	Move the result from reg A to reg H

WRITE A PROGRAM TO PERFORM SUBTRACTION OF
TWO 16 - BIT NUMBERS.

APPARATUS 8085 kit, 200 V power supply, manual and battery

INSTRUCTIONS USED IN PROGRAM

08 06 D E
05 04 H L
05 02
05

- 1 The instruction LHLD 9050 H, load the HL pair with operand from 9050 H
- 2 The instruction XCHG, exchange HL pair with DE pair
- 3 The instruction LHLD 9052 H, load the HL pair with operand from 9052 H
- 4 The instruction MOV A, E move the lower order of 1st number from register E to register A.
- 5 The instruction SUB L Subtract the lower order of 2nd number from lower order of 1st number.
- 6 The instruction MOV L,A Move the result from register A to register L.
- 7 The instruction MOV A,D Move the higher order of 1st number from register D to register A.

MEMORY ADDRESS	MNEMONICS	MACHINE CODE	COMMENTS
900D E F	SHLD 9054H	22 54 90	Store the 16-bit result from HL pair to memory lower-order of 9054H Higher-order of 9054H
900E	HALT	76	halt

9010
//

8010
800F
801B
6421
1000 0600 X 0000 1111
1000 0000 0000 1111
0 0001 0000 0000

- 8 The instruction SBB H , subtract the higher order of 2nd number from higher order of 1st number with borrow from the previous subtraction.
- 9 The instruction MOV H,A move the result from register A to register H.
- 10 The instruction SHLD 9054H store the 16-bit result from H-L pair to memory.
- 11 HLT instruction ends the program.

STEPS TO PERFORM SUBTRACTION OF TWO ~~8~~ BIT NUMBERS

- 1 Press Next
- 2 Reset the microprocessor kit
- 3 Press Examine memory
- 4 Put the address of numbers
- 5 Press Next
- 6 Reset the microprocessor kit

Teacher's Signature : _____

- 7 Press GO
- 8 Put the initial address of the program where we started to put the data.
- 9 Execute the program
- 10 If 0 comes then your program has been successfully completed, if EOR comes then there is an error.
- 11 Reset the system.

RESULTINPUT

9050 : 06
9051 : 03
9052 : 04
9053 : 05

OUTPUT

→ 9054 : 02
→ 9055 : 03

08	05
05	04

8 7 6 5

0 1 1 0
0 1 0 0
0 1 0 1 0
8 4 2 1

Teacher's Signature: _____

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