



Experiment No. 1

Objective: Write an assembly language program to store 8-bit data in memory.

Flow Chart (or) algorithm:

Algorithm:-	MVI A , 08H	3E,08
	STA , 9000	32,00,90
	HLT	76

Note:- This program is simulated by simulator having range from 8000 - FFF.

Input/Output: Input 5000 - 08

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Experiment No. 2

Objective: Write an assembly language program to exchange the contents of memory locations.

Flow Chart (or) algorithm:

For exchange content of location 8000 & 8001.

Algorithm:

LDA	8000	3A,00,80
MOV	B,A	47
LDA	8001	3A,01,80
STA	8000	32,00,80
MOV	A,B	78
STA	8001	32,01,80
HLT		76

This program is simulated by simulator having range from 8000-FFFF.



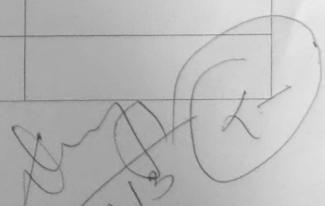
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Program:

Label	Memory Address	Mnemonics	Hex Code	Comment
1	8002	LDA	3A	
2	8003		00	
3	8004		80	
4	8005	MOV B,A	47	
5	8006	LDA	3A	
6	8007		01	
7	8008		80	
8	8009	STA	32	
9	800A		00	
10	800B		80	
11	800C	MOV A,B	78	
12	800D	STA	32	
13	800E		01	
14	800F		80	
15	8010	HLT	76	

Input/Output: Input 8000-15
8001-16
Output 8000-16
8001-15



Experiment No.3

Objective: write an assembly language program to add two 8 bit numbers.
Flow Chart (or) algorithm:

Algorithm:-

MVI A	05	3E, 05
MVI B	04	06, 04
ADD B		80
STA	8080	32, 50, 80
HLT		76

This program is simulated by simulator having range
8000 - FFFF.

Program: 3

Input/Output: Input - 8001-05
~~8003-04~~
Output - 8050-09

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Experiment No.

Objective: Write an assembly language program to subtract two 8 bit numbers.

Flow Chart (or) algorithm:

Algorithm:-

MVI A	05	3E,05
MVI B	04	06,04
SUB B		90
STA 8050		32,80,80
HLT		76

This program is simulated by simulator having range from 8000-FFFF.

Program: 4

Input/Output: Input - 8001-05
8003-04
Output - 8050-01

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Experiment No.5

Objective: write an assembly language program to add two
16 bit number.

Flow Chart (or) algorithm:

Algorithm :-

LXI H	3254	21, 54, 32
LXI D	5854	11, 94, 58
MOV	A, L	7D
ADD	E	83
STA	2500	32, 00, 25
MOV	A, H	7C
ADC	D	8A
STA	2501	32, 01, 25
HLT		76



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MATH 1A

Program: 5

Label	Memory Address	Mnemonics	Hex Code	Comment
1	2000	UXIH	21	
2	2001		54	
3	2002		32	
4	2003	UXID	11	
5	2004		94	
6	2005		58	
7	2006	MOV,A,L	70	
8	2007	ADD E	83	
9	2008	STA	82	
10	2009		00	
11	200A		25	
12	200B	MOV A,H	7C	
13	200C	ADC D	8A	
14	200D	SCA	32	
15	200E		01	
16	200F		25	
17	2010	HLT	76	

Input/Output:

Input : HL = 3254
BE = 5894

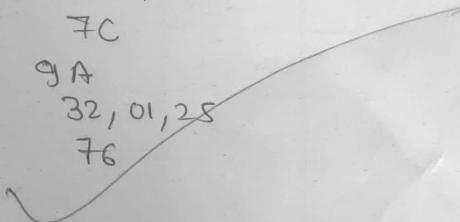
Output : HL = 8AE8

Experiment No. 6

Objective: Write an assembly language program to subtract two 16 bit numbers.

Flow Chart (or) algorithm:

LXI H	3254	21, 54, 32
LXI D	5834	11, 94, 58
MOV A, L		7D
SUB B	15	93
STA 2500		32, 00, 25
MOV A, H		7C
SBB B	D	9A
STA 2501		32, 01, 28
MUL		76



Program: 6

Label	Memory Address	Mnemonics	Hex Code	Comment
1	2000	LXI H	21	
2	2001		54	
3	2002		32	
4	2003	LXI D	11	
5	2004		94	
6	2005	I	58	
7	2006	MOV A,L	70	
8	2007	SUB E	93	
9	2008	STA	32	
10	2009		00	
11	200A		25	
12	200B	MOV A,H	7C	
13	200C	SBB 0	9A	
14	200D	STA	32	
15	200E		01	
16	200F		25	
17	2010	HLT	76	

Input/Output:

Input: HL - 3254
DE - 5894

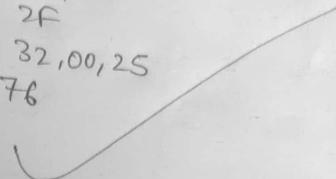
Output: HL: 03C0



Experiment No. 7

Objective: Write an assembly language program to find 1's complement of 8 bit number.
Flow Chart (or) algorithm:

MVIA	05	BE,05
CMA		2F
STA	2500	32,00,25
HLT		76

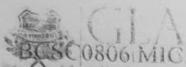


Program: 7

Input/Output:

Input-05
Output FA

12



Experiment No. 8

Objective: Write an assembly language program to find 2's complement of 8-bit number

Flow Chart (or) algorithm:

MVIA 05	3E,05
CMA	2F
ADI 01	C6,01
STA 2500	32,00,25
HLT	76

Program:

Input/Output:

out: Input - OS
Output - FB

Output - FB

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Experiment No. 9

Objective: Write an assembly language program to find 1's complement of 16 bit number.

Flow Chart (or) algorithm:

LVIH	1345	21,4513
MOV	A,L	70
CNA		2F
MOV	L,A	6F
MVR	A,H	76
CMA		2F
MOV	H,A	67
SHLD	2500	22,00,25
HLT		76



Program: 9

Label	Memory Address	Mnemonics	Hex Code	Comment
1	2000	LXI H	21	
2	2001		45	
3	2002		13	
4	2003	MOV A,L	70	
5	2004	CMA	2F	
6	2005	MOV L,A	6F	
7	2006	Mov A,H	7C	
8	2007	CMA	2F	
9	2008	MOV H,A	67	
10	2009	SHLD	22	
11	200A		00	
12	200B		25	
13	200C	HLT	76	

Input/Output:

Input 1345
Output ECBA

~~1345~~ (D)
~~ECBA~~

Experiment No.10

Objective: Write an assembly language program to find 2's complement of 16 bit number.

Flow Chart (or) algorithm:

LXI H	1345	21,45,13
MOV	A,L	7D
CMA		2F
Mov	L,A	6F
Mov	A,H	7C
CMA		2F
Mov	H,A	67
INX	H	23
SHLD		22,00,25
HLT		76

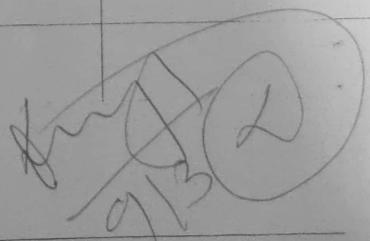
Program: 10

Label	Memory Address	Mnemonics	Hex Code	Comment
1	2000	CLXH	21	
2	2001		45	
3	2002		13	
4	2003	MOV A,L	7D	
5	2004	CMA	2F	
6	2005	MOV L,A	6F	
7	2006	MOV A,H	7C	
8	2007	CMA	2F	
9	2008	MOV H,A	67	
10	2009	INX H	23	
11	200A	SHLD	22	
12	200B		00	
13	200C		25	
14	2010	HLT	76	

Input/Output:

Input: 1345

Output: ECBB



Experiment No. 11

Objective: Write an assembly language program to pack
8-bit number.

Flow Chart (or) algorithm:

MVIA	,05	3E, 05
MVIB	04	06, 04
RLC		07
ADD B		88
STA 2500		32, 00, 25
HLT		76

unpack



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Program: //

Label	Memory Address	Mnemonics	Hex Code	Comment
1	2000	MVIA	3E	
2	2001		05	
3	2002	MVIB	06	
4	2003		04	
5	2004	RLC	07	
6	2005	RLC	07	
7	2006	RLC	07	
8	2007	RLC	07	
9	2008	ADD B	88	
10	2009	STA	32	
11	200A		00	
12	200B		25	
13	200C	HLT	76	

Input/Output:

Input :- 05
04

Output :- 54

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Experiment No. 12

Objective: Write an assembly language program to unpack
8-bit number.

Flow Chart (or) algorithm:

MVI A 54	3E,54
MOV B,A	47
ANI ,FO	E6,FO
RRCL	OF
STA 2500	32,00,25
MOV A,B	78
ANI OF	E6,OF
STA 2501	32,01,25
HLT	76



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Program: 12

Label	Memory Address	Mnemonics	Hex Code	Comment
	2000	MVIA	3E	
	2001		54	
	2002	MOV B,A	47	
	2003	ANI	E6	
	2004		F0	
	2005	RRC	0F	
	2006	RRC	0F	
	2007	RRC	0F	
	2008	RRC	0F	
	2009	STA	32	
	200A		00	
	200B		25	
	200C	MOV A,B	78	
	200D	ANI	E6	
	200E		0F	
	200F	STA	32	
	2010		01	
	2011		25	
	2012	HLT	76	

Input/Output:

Input : 54
Output : 05
 : 04

913