Experiment No – 1
AIM – Write A Program to load all register with data F9 H.
Hex Table:

Address	Hex	OpCode	Operand	Comments
C000	06	MVI	B, F9	Initialize data B with data F9 H.
C001	F9			
C002	78	MOV	A, B	Move data from reg B to reg A.
C003	48	MOV	C, B	B to C
C004	50	MOV	D, B	B to D
C005	58	MOV	E, B	B to E
C006	60	MOV	H, B	B to H
C007	68	MOV	L, B	B to L
C008	CF	RST	1	Restart

Memory Table:

Results:		
Registers/Memory Locations	Before Execution	After Execution
A	x	F9
B	x	F9
C	x	F9
D	x	F9
E	x	F9
H	x	F9
L	x	F9

PCH – C0
PCL – 09

Experiment No – 02
AIM – Write a program to fill a block of 5 memory locations starting from C040 H alternatively with 00 H and F9 H.
Hex Table:

Address	Hex	OpCode	Operand	Comments
C000	21	LXI	H, C040	Initialize HL pair with address C040
C001	40			
C002	C0			
C003	0E	MVI	C, 00 H	Load register C with data 00 H i.e., C = 00 H.
C004	00			
C005	16	MVI	D, F9 H	Load register D with data F9 H, i.e., D = F9 H.
C006	F9			
C007	1E	MVI	E, 03 H	Load register E with data 03 H, i.e., E = 03 H.
C008	03			
C009	71	MOV	M, C	Move data from reg C in the memory location in HL pair.
C00A	23	INX	H	Imcrement the HL pair By 1, HL = HL+1.
C00B	72	MOV	M, D	Move data from reg D to the memory location in HL pair.
C00C	23	INX	H	Increment HL pair By 1.
C00D	10	DCR	E	Decrement reg E(counter) By 1.
C00E	C2	JNZ	back(C000)	If counter is not zero, then go back to C000.
C00F	09			
C010	C0			
C011	CF	RST	1	Restart

Results:

Register/Memory Location	Before Execution	After Execution
A	x	x
B	00	00
C	F9	F9
D	03	00
E	C0	C0
H	40	46
L	x	00
C040	x	F9
C041	x	00
C042	x	F9
C043	x	00
C044	x	F9
C045	x	C0
Pch, PCL	x	12

Experiment No – 03
AIM – Write a program to find 1’s complement of 5 numbers starting from C040 H, store the result in same memory location.
Hex Table:

Address	Hex	OpCode	Operand	Comments
C000	21	LXI	H, C040	Initialize HL pair with address C040 H.
C001	40			
C002	C0			
C003	06	MVI	B, 05	Set counter reg B to reg 05 H, i.e., B = 05 H.
C004	05			
C005	7E	MOV	A, M	Move data from memory location in HL pair.
C006	2F	CMA		Compliment data in accumulator.
C007	C6	ADI	01 H	Logical AND the data in accumulator with 01 H.
C008	01			
C009	77	MOV	M, A	Move data from accumulator to memory location in HL pair.
C00A	23	INX	H	Increment HL pair By 1: HL = HL + 1.
C00B	05	DCR	B	Decrement counter i.e. reg B with 1 : B = B - 1
C00C	C2	INZ	Back	If counter is not zero then go Back to C005.
C00D	05			
C00E	C0			
C00F	CF	RST	1	Restart

Results:

Register/Memory Location	Before Execution	After Execution
A	x	56
B	05	00
F	x	x
H	C0	C0
L	40	45
C040	23	DD
C041	14	EC
C042	36	CA
C043	52	AE
C044	AA	56
PCH	x	C0
PCL	x	10

Experiment No – 04

AIM – Write a program to transfer data in a block of 5 memory location, starting from C035 another block starting from C045 in reverse order.

Address	Hex	OpCode	Operand	Comments
C000	21	LXI	H, C035	Initialize HL pair with address c035 H.
C001	35			
C002	C0			
C003	01	LXI	B, C049	Initialize BC pair with address C049 H.
C004	49			
C005	C0			
C006	16	MVI	D, 05 H	Set counter as reg D to 05 H i.e., D = 05 H.
C007	05			
C008	7E	MOV	A, M	Move data from memory location in HL pair to accumulator.
C009	02	STAX	B	Store the result memory location in bC pair from accumulator.
C00A	13	INX	H	Increment HL pair by 1.
C00B	0B	DCX	B	Decrement bC pair by 1.
C00C	15	DCR	D	Decrement counter i.e. reg D by 1.
C00D	C2	JNZ	Back	If counter is not zero then go back to C003
C00E	03			
C00F	C0			
C010	CF	RST	1	Restart.

Results:

Register/Memory Location	Before Execution	After Execution
A	x	05
B	C0	C0
C	49	44
H	C0	C0
L	35	3A
D	05	00
C035	01	01
C036	02	02
C037	03	03
C038	04	04
C039	05	05
C045	x	05
C046	x	04
C047	x	03
C048	x	02
C049	x	01
PCH	x	C0
PCL	x	11

Experiment No – 05

AIM – Write a program to exchange the data in a block of 5 memory locations starting from C035 H with another block starting from C045 H.

Address	Hex	OpCode	Operand	Comments
C000	21	LXI	H, CO36	Initialize the HL pair with address C036 H.
C001	35			
C002	C0			
C003	01	LXI	B, C045	Initialize BC pair with C045 H.
C004	45			
C005	C0			
C006	16	MVI	D, 05 H	Set counter as reg D to 05 H.
C007	05			
C008	5E	MOV	E, M	Move data from memory location in HL pair to reg E.
C009	0A	LDAX	B	Load accumulator with data in memory location specified in BC pair.
C00A	77	MOV	M, A	Move data from accumulator to memory location specified in HL pair.
C00B	7B	MOV	E, A	Move data from reg E to reg A.
C00C	02	STAX	B	Store the result in memory location in BC pair from accumulator.
C00D	23	INX	H	Increment HL paur By 1.
C00E	03	INX	B	Increment BC pair By 1.
C00F	15	DCR	D	Decrement the counter By 1.
C010	C2	JNX	back	If counter is not zero the go back to C008
C011	08			
C012	C0			
C013	CF	RST	1	Restart

RESULT:

Register/Memory Location	Before Execution	After Execution
A	x	05
B	C0	C0
C	45	4A
D	05	00
E	x	05
H	C0	C0
L	35	3A
C035	01	11
C036	02	12
C037	03	13
C038	04	14
C039	05	15
C045	11	01
C046	12	02
C047	13	03
C048	14	04

C049	15	05
PCH	x	C0
PCL	x	14

Experiment No – 06

AIM – Write a program to add 2 numbers of 4 bytes each. The first No. Starts from C035 and the 2nd number starts from C045 as Lsb store the result in C045.

Address	Hex	OpCode	Operand	Comments
C000	37	STC		Set carry flag to 1
C001	3F	CMC		Complement carry flag to 0/
C002	21	LXI	H, C035	Initialize the HL pair with C035 H.
C003	35			
C004	C0			
C005	01	LXI	B, C045	Initialize the BC pair with C045 H
C006	45			
C007	C0			
C008	16	MVI	D, 04	Set counter reg D to 04 H, D = 04 H.
C009	04			
C00A	5E	MOV	E, M	Move data from memory location in HL pair to E.
C00B	0A	LDAX	B	Load accumulator with data in memory location specified in BC pair.
C00C	8B	ADC	E	Add data in accumulator with data in reg E and carry Bit.
C00D	02	STAX	B	Store the result in memory location in BC pair from reg A.
C00E	23	INX	H	Increment HL pair By 1.
C00F	03	INX	B	Increment BC pair By 1.
C010	15	DCR	D	Decrement DC pair By 1.
C011	C2	JNZ	BACK	If counter is not zero than go Back to C00A.
C012	0A			
C013	C0			
C014	CF	RST	1	Restart.

Result:

Register/Memory Location	Before Execution	After Execution
A	x	08
D	04	00
B	C0	C0
C	45	49
H	C0	C0
L	35	39
C035	67	67
C036	E3	E3
C037	56	56
C038	24	24
C045	23	8A
C046	34	17
C047	A3	FA
C048	A4	08
PCH	x	C0
PCL	x	15

Experiment No – 07

AIM – Write a program to separate the digit of numBers started at C020 H. Store the digits in C021 H, C023 H, multiply the digits and store the product in next memory location.

Address	Hex	OpCode	Operand	Comments
C000	21	LXI	H, C020	Initialize the HL pair with address C020 H.
C001	20			
C002	C0			
C003	7E	MOV	A, M	Move data from memory location in HL pair to accumulator
C004	46	MOV	B, M	Move data from memory location in HL pair to reg B.
C005	E6	ANI	0F H	Logical and operation of data in accumulator with 0F H.
C006	0F			
C007	23	INX	H	Increment HL pair By 1.
C008	77	MOV	M, A	Move data in memory location of HL pair from acculumator.
C009	4F	MOV	C, A	Move data from accumulator to reg C.
C00A	78	MOV	A, B	Move data from reg B to accumulator.
C00B	07	RLC		Rotate data in A towards left
C00C	07	RLC		Rotate data in A towards left
C00D	07	RLC		Rotate data in A towards left
C00E	07	RLC		Rotate data in A towards left
C00F	E6	ANI	0F H	Logical AND operation of data in accumulator with 0F H.
C010	0F			
C011	23	INX	H	Increment HL pair By 1.
C012	77	MOV	M, A	Move data from accumulator to memory location in HL pair.
C013	AF	XRA	A	Logical XOR operation of data in accumulator By itself.
C014	47	MOV	B, A	Move data from memory location in HL pair to reg B.
C015	81	ADD	C	Add data in accumulator with data in reg C.
C016	05	DCR	B	Decrement data in reg B By 1
C017	C2	JNZ	Back	If data in reg B is not zero than go Back to C015
C018	15			
C019	C0			
C01A	23	INX	H	Increment HL pair By 1
C01B	77	MOV	M, A	Move data from accumulator to memory location in HL pair.
C01C	CF	RST	1	restart

Result:

Register/Memory Location	Before Execution	After Execution
H	C0	C0
L	20	23
A	x	CE
B	x	00

C	x	9A
C020	23	23
C021	x	03
C022	x	02
C023	x	06
PCH	x	C0
PCL	x	10

Experiment No – 8

AIM – Write a program to count the occurrence of data FF H in a lock of 8 memory location starting from C030 H store the count in C040 H.

Address	Hex	OpCode	Operand	Comments
C000	21	LXI	H, C030	Initialize the HL pair with address C030 H.
C001	30			
C002	C0			
C003	0E	MVI	C, 00 H	Set counter as reg C to count the accurate to 00 H.
C004	00			
C005	16	MVI	D, 08	Move immediately value 08 H to reg D
C006	08			
C007	3E	MVI	A, AA H	Move immediately value AA H to accumulator.
C008	AA			
C009	BE	CMP	M	Compare data in accumulator with data in HL pair.
C00A	C2	JNZ		If zero, move to C003.
C00B	03			
C00C	C0			
C00D	0C	INR	C	Increment reg C by 1.
C00E	23	INX	H	Increment HL pair by 1.
C00F	15	DCR	D	Decrement reg D by 1.
C010	C2	JNZ	back	If data in reg b is not zero go back to C009
C011	09			
C012	C0			
C013	21	LXI	H, C040	Initialize HL pair to C040 H.
C014	40			
C015	C0			
C016	71	MOV	M, C	Move data from C to memory location in HL pair.
C017	CF	RST	1	restart

Result:

Register/Memory Location	Before Execution	After Execution
A	AA	AA
C	00	05
D	08	00
H	C0	C0
L	30	40
C030	05	05
C031	AA	AA
C032	AA	AA
C033	AA	AA
C034	56	56
C035	AA	AA
C036	AA	AA
C037	67	67
C040	x	05
PCH	x	C0
PCL	x	18