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Assig-1 : Prob-1 : Load the contents of the memory location 2200H and 2201H into registers. Add these registers and store the result in memory location 2202H and 2203H.

Instruction	Comment	Memory Address	Hex code
LDA 2200H	A ← [2200H]	2000	3A
		2001	00
		2002	22
MOV H, A	H ← A	2003	67
LDA 2201H	A ← [2201H]	2004	3A
		2005	01
		2006	22
ADD H	A ← A+H	2007	84
MOV L, A	L ← A	2008	6F
MVI A, 00H	A ← 00H	2009	3E
		200A	00
ADC A	A ← A+A+CF	200B	8F
MOV H, A	H ← A	200C	67
SHLD 2202H	L→[2202H], H→[2203H]	200D	22
		200E	02
		200F	22
HLT	Halt	2010	76

Teacher's Signature .....

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Assign-1: Prob-2: Find the sum of N numbers stored in consecutive location starting from 2500H. The value of N is stored in 2200H. Store the result in locations 2300H and 2301H.

Instruction	Comment	Memory Address	Hexcode
LDA 2200H	A ← N	2000	3A
		2001	60
		2002	22
MOV D,A	D ← A	2003	57
MVI C, 00H	C ← 00H	2004	0E
		2005	00
LXI H, 2500H	HL ← 2500H	2006	21
		2007	00
		2008	25
MVI A, 00H	A ← 00H	2009	3E
		200A	00
LOOP: ADD M	A ← A+M	200B	86
JNC SKIP	If CF!=0 then go to SKIP	200C	D2
		200D	10
		200E	20
INR C	C ← C+1	200F	0C
SKIP: INX H	H ← H+1	2010	23
DCR D	D ← D-1	2011	15
JNZ LOOP	If Z!=0 the go to LOOP	2012	C2
		2013	0B
		2014	20

Teacher's Signature _____

Instruction	Comments	Memory Add.	Hex Code
STA 2300H	A → [2300H]	2015 2016 2017	32 00 23
MOV A, C	A ← C	2018	79
STA 2301H	A → [2301H]	2019 201A 201B	32 01 23
HLT	Halt	201C	76

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Assig: 1, Prob: J: Find the sum of least significant 4 bits and most significant 4 bits of a byte stored in memory location 2500H. Store the result in 2550H.

Instructions	Comments	Memory Add	Hex Code
LDA 2500H	A ← [2500H]	2000	3A
		2001	00
		2002	20
MOV H, A	H ← A	2003	67
MVI D, 01H	D ← 01H	2004	16
		2005	01
MVI B, 00H	B ← 00H	2006	06
		2007	00
MVI E, 04H	E ← 04H	2008	1E
		2009	04
MOV A, D	A ← D	200A	7A
LOOP1: ANA H	A ← A ∧ H	200B	A4
ADD B	A ← A + B	200C	80
MOV B, A	B ← A	200D	47
MOV A, D	A ← D	200E	7A
RLC	Right rotate with carry	200F	07
MOV D, A	D ← A	2010	57
DCR E	E ← E − 1	2011	1D
JNZ LOOP1	If ZF != 0 then go to LOOP1	2012	C2
		2013	08
		2014	20
MVI	E ← 04H	2015	1E
		2016	04

Teacher's Signature .....

Instruction	Comments	Memory Add.	Hex Code
MVI C, 00H	C ← 00H	2017 2018	0E 00
LOOP2: ANA H	A ← A ∧ H	2019	A4
ADD C	A ← A + C	201A	81
MOV C, A	C ← A	201B	4F
MOV A, D	A ← D	201C	7A
RLC	Right Rotate with Carry	201D	07
MOV D, A	D ← A	201E	57
DCR E	E ← E − 1	201F	1D
JNZ LOOP2	if Z1=0 then go to LOOP2	2020 2021 2022	C2 19 20
MVI E, 04	E ← 04H	2023 2024	1E 04
MOV A, C	A ← C	2025	79
LOOP3: RRC	Right rotate with Carry	2026	0F
DCR E	E ← E − 1	2027	1D
JNZ LOOP3	If Z1=0 go to LOOP3	2028 2029 202A	C2 26 20
ADD B	A ← A + B	202B	80
STA 25501H	A → [25501H]	202C 202D 202E	32 50 25
HLT	Halt	202F	76

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Assign-1 : Prob : 4 :- Write a program to count the 1's and 0's of a byte stored in 2500H. Store the result in 2510H and ~~250~~ 2511 ao., respectively.

Instruction	Comments	Memory Add	Hex Code
LDA 2500H	A ← [2500H]	2000	3A
		2001	00
		2002	25
MOV B,A	B ← A	2003	47
MVI C,08H	C ← 08H	2004	0E
		2005	08
MVI D,01H	D ← 01H	2006	16
		2007	01
MOV A,D	A ← D	2008	7A
MVI H,00H	H ← 00H	2009	26
~~MVI L,00H~~	~~L ← 00H~~	200A	00
MVI L,00H	L ← 00H	200B	2E
		200C	00
LOP: ANA B	A ← A ∧ B	200D	A0
JZ ELSE	If Z==0 go to ELSE	200E	CA
		200F	15
		2010	20
INR H	H ← H+1	2011	24
JMP SKIP	go to SKIP	2012	C3
		2013	16
		2014	20
ELSE: INR L	L ← L+1	2015	2C

Teacher's Signature .....

Instruction	Comments	Memory Add	Hex Code
SKIP: MOV A,D	A ← D	2016	7A
RLC	Rotate Right With Carry	2017	07
MOV D,A	D ← A	2018	57
DCR C	C ← C-1	2019	0D
JNZ LOOP	If Z!=0 go to LOOP	201A 201B 201C	CL 0d 20
MOV A,H	A ← H	201D	7C
STA 2510H	A → [2510H]	201E 201F 2020	32 10 25
MOV A,L	A ← L	2021	7D
STA 2511H	A → [2511H]	2022 2023 2024	32 11 25
HLT	Halt	2025	76

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Assig-1: Prob: 5:- Write a program to sum two 16 bit binary number.

Instruction	Comments	Memory Add.	Hex Code
LHLD 2500H	HL ← 2500H	2000	2A
		2001	00
		2002	25
XCHG	HL ↔ DE	2003	EB
LHLD 2502H	HL ← 2502H	2004	2A
		2005	02
		2006	25
MOV A,L	A ← L	2007	7D
ADD E	A ← A+E	2008	83
STA 2504H	A → [2504H]	2009	32
		200A	04
		200B	25
MOV A,H	A ← H	200C	7C
ADC D	A ← A+D+CF	200D	8A
STA 2505H	A → [2505H]	200E	32
		200F	05
		2010	25
MVI A,00H	A ← 00H	2011	3E
		2012	00
ADC A	A ← A+A+C	2013	8F
STA 2506H	A → [2506H]	2014	32
		2015	06
		2016	25
HLT	Halt	2017	76

Teacher's Signature .....

Memory Address	Hexcode
2000	3A
2001	50
2002	20
2003	47
2004	3A
2005	51
2006	20
2007	4F
2008	26
2009	F0
~~2010~~ 200A	2E
~~2011~~ 200B	0F
~~2~~ 200C	A4
200D	57
200E	78
200F	A5
2010	82
2011	07
2012	07
2013	07
2014	07
2015	32
2016	52
2017	20
2018	78
2019	A4
201A	57
201B	79
201C	A5
201D	82
201E	07
201F	07
2020	07

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Assignment 2

1/ Two numbers MN_H and KL_H are stored in 2050_H and 2051_H respectively. Write a program to assemble them as NK_H and LM_H. Store them in 2052_H and 2053_H.

Opcode	Code	Comments
3A, 50, 20	LDA 2050H	A ← [2050]
47	MOV B, A	B ← A
3A, 51, 20	LDA 2051H	A ← [2051]
4F	MOV C, A	C ← A
26, F0	MVI H, F0H	H ← F0H
2E, ~~F0~~ 0F	MVI L, 0FH	L ← 0FH
A4	ANA H	A ← A & H
57	MOV D, A	D ← A
78	MOV A, B	A ← B
A5	ANA L	A ← A & L
82	ADD D	A ← A+D
07	RLC	Rotate Left with carry on Register A
07	RLC	" " " " " " "
07	RLC	" " " " " " "
07	RLC	" " " " " " "
32, 52, 20	STA 2052H	A ← [2052]
78	MOV A, B	A ← B
A4	ANA H	A ← A & H
57	MOV D, A	D ← A
79	MOV A, C	A ← C
A5	ANA L	A ← A & L
82	ADD D	A ← A + D

Teacher's Signature .....

Memory Address	Hex code
2021	07
2022	32
2023	53
2024	20
2025	76

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Opcode	code	Comments
07	RLC	Rotate Left with carry on register A
07	RLC	" " " " " " "
07	RLC	" " " " " " "
07	RLC	" " " " " " "
32,53,20	STA 20534	A ← [2053]
76	HLT	Halt

Teacher's Signature .....

Memory Address	Hex Code
2000	21
2001	00
2002	00
2003	3A
2004	5d
2005	20
2006	4F
2007	87
2008	CA
2009	1A
200A	20
200B	3A
200C	51
200D	20
200E	5F
200F	87
2010	CA
2011	1A
2012	20
2013	16
2014	00
2015	19
2016	0D
2017	C2
2018	15
2019	20
201A	22
201B	52
201C	20
201D	76

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2/ Two numbers A & B are stored in 2050H and 2051H respectively. Write a program to perform A×B and store the result in 2052H and 2053H.

Opcode	Code	Comments
21, 00, 00	LXI H, 0000H	HL ← 0000H (H=00, L=00)
3A, 50, 20	LDA 2050H	A ← [2050]
4F	MOV C, A	C ← A
87	ADD A	A ← A+A
CA, 1A, 20	JZ EXIT	If ZF=1 go to Exit
3A, 51, 20	LDA 2051H	A ← [2051]
5F	MOV E, A	E ← A
87	ADD A	A ← A+A
CA, 1A, 20	JZ EXIT	If ZF=1 go to EXIT
16, 00	MVI D, 00H	D ← 00
19	LOOP: DAD D	HL ← HL+DE
0D	DCR C	C ← C-1
62, 15, 20	JNZ LOOP	If ZF=0 go to LOOP
22, 52, 20	EXIT: SHLD 2052H	H ← [2053]. L ← [2052]
76	HLT	Halt.

Teacher's Signature .....

Memory Address	HexCode
2000	21
2001	50
2002	20
2003	3A
2004	4F
2005	20
2006	87
2007	CA
2008	16
2009	20
200A	97
200B	BE
200C	D2
200D	11
200E	20
200F	7E
2010	23
2011	0D
2012	C2
2013	0C
2014	20
2015	77
~~2016~~	76
~~2017~~	

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3/ N numbers are stored in ~~con~~ consecutive m/m location starting from 2050H. The value of N is stored in 204F H.

i) Find the ~~minimum~~ maximum among the N numbers.

Opcode	Code	Comments
21,50,20	LXI H,2050H	HL ← 2050 (H=20, L=50)
3A, 4F, 20	LDA 204FH	A ← [204F]
4F	MOV C,A	C ← A
87	ADD A	A ← A+A
CA, 16, 20	JZ EXIT	If ZF=1 go to EXIT
97	SUB A	A ← A − A
BE	LOOP: CMP M	compare A and M and set the ~~regis~~ flag registers
D2, 11, 20	JNC SKIP	If CF=0 go to SKIP
7E	MOV A,M	A ← M
23	SKIP: INX H	HL ← HL+1
0D	DCR C	C ← C−1
C2, 0C, 20	JNZ LOOP	If ZF=1 go to LOOP
77	EXIT: MOV M,A	M ← A
~~C2, 0C, 20~~ 76	HLT	Halt

Teacher's Signature .....

Memory Address	Hex code
2000	21
2001	50
2002	20
2003	3A
2004	4F
2005	20
2006	4F
2007	87
2008	3E
2009	FF
200A	CA
200B	17
200C	20
200D	BE
200E	DA
200F	12
2010	20
2011	7E
2012	23
2013	0D
2014	C2
2015	0D
2016	20
2017	77
2018	76

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ii) Find the minimum among the N number.

Opcode	Code	Comments
21, 50, 20	LXI H, 2050H	HL ← 2050 (H = 20, L = 50)
3A, 4F, 20	LDA 204FH	A ← [204F]
4F	MOV C, A	C ← A
87	ADD A	A ← A+A
3E, FF	MVI A, FFH	A ← FFH
CA, 17, 20	JZ EXIT	If ZF=1 go to EXIT
BE	LOOP: CMP M	Compare A, M and set appropriate flag register.
DA, 12, 20	JC SKIP	If CF=1 go to SKIP
7E	MOV A, M	A ← M
23	SKIP: INX H	HL ← HL+1
0D	DCR C	C ← C−1
C2, 0D, 20	JNZ LOOP	If ZF=0 go to LOOP
77	EXIT: MOV M, A	M ← A
76	HLT	Halt

Teacher's Signature .....

Memory Address	Hex code
2000	3A
2001	4F
2002	20
2003	3D
2004	9F
2005	4B
2006	21
2007	50
2008	20
2009	7E
200A	23
200B	BE
200C	DA
200D	17
200E	20
200F	CA
2010	17
2011	20
2012	56
2013	77
2014	2B
2015	72
2016	23
2017	0D
2018	C2
2019	09
201A	20
201B	05
201C	C2
201D	05
201E	20
201F	76

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iii) Sort the N numbers in ascending order.

Opcode	Code	Comments
3A, 4F, 20	LDA 204F H	A ← [204F]
3D	DCR A	A ← A-1
5F	MOV E,A	E ← A
4B	LOOP2: MOV C,E	C ← E
21, 50, 20	LXI H, 2050H	HL=2050 (H=20, L=50)
7E	LOOP1: MOV A,M	A ← M
23	INX H	HL ← HL+1
BE	CMP M	Compare A,M and set flag registers
DA, 17, 20	JC SKIP	If CF=1 goto SKIP
CA, 17, 20	JZ SKIP	If ZF=1 go to SKIP
56	MOV D,M	D ← M
77	MOV M,A	M ← A
2B	DCX H	HL ← HL-1
72	MOV M,D	M ← D
23	INX H	HL ← HL+1
0D	SKIP: DCR C	C ← C-1
C2, 09, 20	JNZ LOOP1	If ZF=0 go to LOOP1
05	DCR B	B ← B-1
C2, 05, 20	JNZ LOOP2	If ZF=0 go to LOOP2
76	HLT	Halt

Teacher's Signature .....

Memory Address	Hex Code
2000	3A
2001	4F
2002	20
2003	3D
2004	5F
2005	4B
2006	21
2007	50
2008	20
2009	7E
200A	23
200B	BE
200C	~~CA~~D2
200D	17
200E	20
200F	~~5C~~ CA
2010	17
2011	20
2012	56
2013	77
2014	20
2015	72
2016	23
2017	6D
2018	C2
2019	09
201A	20
201B	05
201C	C2
201D	05
201E	20
201F	76

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iv) Sort the N numbers in descending order.

Opcode	Code	Comments
3A, 4F, 20	LDA 204F H	A ← [204F]
3D	DCR A	A ← A − 1
5F	MOV E, A	E ← A
4B	LOOP2: MOV C, E	C ← E
21, 50, 20	LXI H, 2050	HL ← 2050 (H = 20, L = 50)
7E	LOOP1: MOV A, M	A ← M
23	INX H	HL ← HL + 1
BE	CMP M	Compare A, M and set flag registers
D2, 17, 20	JNC SKIP	If CF=0 go to SKIP
CA, 17, 20	JZ SKIP	If ZF=1 go to SKIP
56	MOV D, M	D ← M
77	MOV M, A	M ← A
2B	DCX H	HL ← HL − 1
72	MOV M, D	M ← D
23	INX H	HL ← HL + 1
~~0D~~	~~DCR C~~	
~~C2, 09, 20~~ 0D	SKIP: DCR C	C ← C − 1
~~05~~ C2, 09, 20	JNZ LOOP1	If ZF=0 go to LOOP1
~~C2, 05, 20~~ 05	DCR B	B ← B − 1
C2, 05, 20	JNZ LOOP2	If ZF=0 go to LOOP2
76	HLT	Halt.

Teacher's Signature .....

Memory Address	Hex Code
2000	21
2001	4E
2002	20
2003	4E
2004	06
2005	00
2006	11
2007	00
2008	20
2009	21
200A	50
200B	20
200C	7E
200D	1F
200E	D2
200F	15
2010	20
2011	04
2012	17
2013	12
2014	13
2015	23
2016	0D
2017	C2
2018	0C
2019	20
201A	78
201B	32
201C	01
201D	23
201E	21
201F	4F
2020	20
2021	4E
2022	16
2023	00

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4/ N numbers are stored in consecutive m/m location starting from 2050_H. The value of N is stored in $204F_H$. Write a program to copy the even and odd numbers starting from 2100_H and 2200_H respectively. Store the total no of even and odd numbers in 2300_H & 2301_H respectively.

Opcode	Code	Comments
21, 4F, 20	LXI H, $204F_H$	HL ← 204F, (H=20, L=4F)
4E	MOV C, M	C ← M
06, 00	MVI B, 00H	B ← 00
11, 00, 22	LXI D, 2200H	DE ← 2200 (D=22, E=00)
21, 50, 20	LXI H, 2050H	HL ← 2050 (H=20, L=50)
7E	LOOP1: MOV A, M	A ← M
1F	RAR	Rotate Arithmetic Right on regis. A.
D2, 15, 20	JNC SKIP	If CF=1 go to SKIP
04	INR B	B ← B+1
17	RAL	Rotate Arithmetic Left on regis A
12	STAX D	A ← [DE]
13	INX D	DE ← DE+1
23	SKIP: INX H	HL ← HL+1
0D	DCR C	C ← C-1
C2, 0C, 20	JNZ LOOP1	If ZF=0 go to LOOP1
78	MOV A, B	A ← B
32, 01, 23	STA 2301 H	A ← [2301]
21, 4F, 20	LXI H, 204FH	HL ← 204F (H=20, L=4F)
4E	MOV C, M	C ← M
06, 00	MVI B, 00H	B ← 00

Teacher's Signature

Memory Address	Hex Code
2024	11
2025	00
2026	21
2027	21
2028	50
2029	20
202A	7E
202B	1E
202C	DA
202D	33
202E	20
202F	04
2030	17
2031	12
2032	13
2033	23
2034	0D
2035	C2
2036	2A
2037	20
2038	78
2039	32
203A	00
203B	23
203C	76

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Opcode	Code	Comments
11, 00, 21	LXI D, 2100H	DE ← 2100 (D=21, E=00)
21, 50, 20	LXI H, 2050H	HL ← 2050 (H=20, L=50)
7E	LOOP2: MOV A, M	A ← M
1F	RAR	Rotate Arithmetic Right on Reg is A
DA, 33, 20	JC SKIP2	If CF=1 go to SKIP 2
04	INR B	B ← B+1
17	RAL	Rotate ~~Righ~~ Arithmetic Right on A
12	STAX D	A ← [DE]
13	INX D	DE ← DE+1
23	SKIP2: INX H	HL ← HL+1
0D	DCR C	C ← C-1
C2, 2A, 20	JNZ LOOP2	If ZF=0 go to LOOP2
78	MOV A, B	A ← B
32, 00, 23	STA 2300 H	A ← 2300
76	HLT	Halt.

Teacher's Signature .....

Memory Address	Hex code
2000	21
2001	4F
2002	20
2003	4E
2004	46
2005	21
2006	2E
2007	20
2008	5E
2009	21
200A	50
200B	20
200C	7E
200D	BB
200E	CA
200F	1C
2010	20
2011	23
2012	05
2013	C2
2014	0C
2015	20
2016	3E
2017	FF
2018	32
2019	4D
201A	20
201B	76
201C	79
201D	90
201E	32
201F	4D
2020	20
2021	76

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Assignment-2: Problem-5: N numbers are stored in consecutive m/m location starting from 2050H. The value N is stored in 204F$_H$. Write a programto test whether a number stored in 204E$_H$ is not in the list. If ~~not~~ present store its position in the list at 204d$_H$.

Opcode	Code	Comments
21, 4F, 20	LXI H, 204FH	HL ← 204F (H ← 20, L ← 4F)
4E	MOV C, M	C ← M
46	MOV B, M	B ← M
21, 4E, 20	LXI H, 204EH	HL ← 204E (H ← 20, L ← 4E)
5E	MOV E, M	E ← M
21, 50, 20	LXI H, 2050H	HL ← 2050 (H ← 20, L ← 50)
7E	LOOP: MOV A, M	A ← M
BB	CMP E	Compare A and E and modify flag register
CA, 1C, 20	JZ SKIP	If ZF=1 goto SKIP
23	INX H	HL ← HL+1
05	DCR B	B ← B−1
C2, 0C, 20	JNZ LOOP	If ZF=0 goto LOOP
3E, FF	MVI A, FFH	A ← FF
32, 4d, 20	STA 2040H	A → [2040]
76	HLT	Halt
79	SKIP: MOV A, C	A ← C
90	SUB B	A ← A−B
32, 4d, 20	STA 204DH	A → [204D]
76	HLT	76

Teacher's Signature .....

Memory Address	Hex Code
2000	21
2001	00
2002	25
2003	11
2004	00
2005	26
2006	4E
2007	79
2008	3C
2009	3D
200A	C6
200B	22
200C	20
200D	23
200E	7E
200F	0F
2010	DA
2011	18
2012	20
2013	07
2014	07
2015	D2
2016	1D
2017	20
2018	7E
2019	EB
201A	77
201B	23
201C	EB
201D	23
201E	0D
201F	C2
2020	0E
2021	20
2022	EB
2023	36
2024	00
2025	76

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Assignment - 3

1/ A set of N data bytes is stored in m/m location starting from 2501H. The value of N is stored in 2500H. Write a program to store ~~these~~ these data bytes from m/m location 2600H if D_0 or D_1 is 1. Otherwise reject the data byte.

Opcode	Code	Comment
21, 00, 25	LXI H, 2500H	HL ← 2500 (H ← 25, L ← 00)
11, 00, 26	LXI D, 2600H	DE ← 2600 (D ← 26, E ← 00)
4E	MOV C, M	C ← M
79	MOV A, C	A ← C
3C	INR A	A ← A+1
3D	DCR A	A ← A-1
CA, 22, 20	JZ EXIT	If ZF=1 go to EXIT
23	INX H	HL ← HL+1
7E	LOOP: MOV A,M	A ← M
0F	RRC	Right Rotate with carry on accumulator
DA, 18, 20	JC STORE	If CF=1 go to STORE
07	RLC	Rotate Left with carry on accumulator
07	RLC	" " " " " "
D2, 1d, 20	JNC LOOPEND	If CF=0 go to LOOPEND
7E	STORE: MOV A,M	A ← M
EB	XCHG	HL ↔ DE
77	MOV M,A	M ← A
23	INX H	HL ← HL+1
EB	XCHG	HL ↔ DE
~~2F, 0E, 20~~	LOOPEND: INX H	HL ← HL+1
23		

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Opcode	Code	Comment
0D	DCR C	C ← C-1
C2, 0E, 20	JNZ LOOP	If ZF=0 go to LOOP
EB	EXIT: XCHG	HL ← DE
36, 00	MVI M, 00H	M ← 00
76	HLT	Halt

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Memory Address	Hex Code
2100	21
2101	FF
2102	21
2103	4E
2104	06
2105	00
2106	11
2107	20
2108	20
2109	21
210A	00
210B	22
210C	7E
210D	17
210E	12
210F	1A
2110	21
2111	1F
2112	1F
2113	D2
2114	1A
2115	21
2116	17
2117	12
2118	13
2119	021
211A	23
211B	0D
211C	C2
211D	0C
211E	21
211F	78
2120	32
2121	30
2122	20
2123	21
2124	30
2125	20
2126	4E
2127	06
2128	00
2129	3E
212A	00
212B	21

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2/ There are N data bytes stored from memory location 2200H. The value of N is stored in $21FF_H$. Write an 8085 program to find the sum of integers whose LSB and MSB are 1. Store the result in 2500H and 2501H.

Opcode	Code	Comment
21, FF, 21	LXI H, 21FFH	HL ← 21FF (H ← 21, E ← FF)
4E	MOV C, M	C ← M
06, 00	MVI B, 00H	B ← 00
11, 20, 20	LXI D, 2020H	DE ← 2020 (D ← 20, E ← 20)
21, 00, 22	LXI H, 2200H	HL ← 2200 (H ← 22, L ← 00)
7E	LOOP: MOV A, M	A ← M
17	RAL	Rotate arithmetic Left
D2, 10, 21	JNC SKIP	If CF=0 goto SKIP
1F	RAR	Rotate arithmetic Right
1F	RAR	" " "
D2, 1A, 21	JNC SKIP	If CF=0 go to SKIP
17	RAL	Rotate arithmetic Left
12	STAX D	A → [DE]
13	INX D	DE ← DE+1
04	INR B	BC ← BC+1
23	SKIP: INX H	HL ← HL+1
0D	DCR C	C ← C-1
C2, 0C, 21	JNZ LOOP	If ZF=0 goto LOOP
78	MOV A, B	A ← B
32, 30, 20	STA 2030H	A → [2030]
21, 30, 20	LXI H, 2030H	HL ← 2030
4E	MOV C, M	C ← M

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Memory Address	Hex Code
212C	20
212D	20
212E	86
212F	D2
2130	33
2131	21
2132	04
2133	23
2134	0D
2135	C2
2136	2E
2137	21
2138	32
2139	00
213A	25
213B	78
213C	32
213D	01
213E	25
213F	76

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Opcode	Code	Comments
06, 00	MVI B, 00H	B ← 00
3E, 00	MVI A, 00H	A ← 00
21, 20, 20	LXI H, 2020H	HL ← 2020
86	LOOP2: ADD M	A ← A+M
D2, 33, 21	JNC SKIP	If CF=0 go to SKIP
04	INR B	B ← B+1
23	SKIP2: INX H	HL ← HL+1
0D	DCR C	C ← C-1
C2, 2E, 21	JNZ LOOP2	If ZF=0 go to LOOP2
32, 00, 25	STA 2500H	A → [2500]
78	MOV A, B	A ← B
32, 01, 25	STA 2501H	A → [2501]
76	HLT	Halt.

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Memory Location	Hex Code
2000	21
2001	60
2002	20
2003	50
2004	06
2005	00
2006	0E
2007	01
2008	3E
2009	00
200A	81
200B	41
200C	4F
200D	78
200E	15
200F	C2
2010	0A
2011	20
2012	79
2013	32
2014	50
2015	20
2016	76

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3/ Write an 8085 program to generate Nth fibonacci number using function and store it in 2050H. The value N (8-bit) is stored in memory 2060H.

Opcode	Code	Comments
21, 60, 20	LXI H, 2060H	HL ← 2060 (H ← 20, L ← 60)
56	MOV D, M	D ← M
06, 00	MVI B, 00H	B ← 00
0E, 01	MVI C, 01H	C ← 01
3E, 00	MVI A, 00H	A ← 00
81	LOOP: ADD C	A ← A + C
41	MOV B, C	~~MOV B, C~~ B ← C
4F	MOV C, A	C ← A
78	MOV A, B	A ← B
15	DCR D	D ← D-1
C2, 0A, 20	JNZ LOOP	If ZF=0 goto LOOP
79	MOV A, C	A ← C
32, 50, 20	STA 2050H	A → [2050]
76	HLT	Halt.

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Memory Location	Hex Code
2500	21
2501	1E
2502	20
2503	4E
2504	23
2505	46
2506	21
2507	00
2508	21
2509	69
250A	79
250B	90
250C	5F
250D	54
250E	0D
250F	7B
2510	81
2511	5F
2512	D2
2513	16
2514	25
2515	14
2516	2D
2517	2C
2518	7E
2519	EB
251A	77
251B	EB
251C	2B
251D	1B
251E	0D
251F	C2
2520	18
2521	25
2522	76

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4/ Write a program to transfer a block of bytes of size N from Loc1 to Loc2 (Loc2 > Loc1) where the size of overlap between the two locations is defined by M. The values of N and M are stored in 201E$_H$ and 201F$_H$ respectively.

Opcode	Code	Comments
21, 1E, 20	LXI H, 201E$_H$	HL ← 201E (H ← 20, L ← 1E)
4E	MOV C, M	C ← M
23	INX H	HL ← HL+1
46	MOV B, M	B ← M
21, 00, 21	LXI H, 2100H	HL ← 2100 (H ← 21, L ← 00)
69	MOV L, C	L ← C
79	MOV A, C	A ← C
90	SUB B	A ← A−B
5F	MOV E, A	E ← A
54	MOV D, H	D ← H
0D	DCR C	C ← C−1
7B	MOV A, E	A ← E
81	ADD C	A ← A+C
5F	MOV E, A	E ← A
D2, 16, 25	JNC SKIP1	If CF=0 go to SKIP1
14	INR D	D ← D+1
2D	SKIP1: DCR L	L ← L−1
0C	INR C	C ← C+1
7E	LOOP: MOV A, M	A ← A+M
EB	XCHG	HL ↔ DE
77	MOV M, A	M ← A

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Opcode	Code	Comments
EB	XCHG	HL ⟷ DE
2B	DCX H	HL ← HL−1
1B	DCX D	DE ← DE−1
0D	DCR C	C ← C−1
C2, 18, 25	JNZ LOOP	If ZF=0 goto LOOP
76	HLT	Halt.

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Memory Address	Hex Code
2000	31
2001	FF
2002	20
2003	CD
2004	47
2005	03
2006	0E
2007	05
2008	AF
2009	47
200A	21
200B	50
200C	20
200D	CD
200E	D0
200F	05
2010	3E
2011	01
2012	06
2013	00
2014	21
2015	54
2016	20
2017	CD
2018	D0
2019	05
201A	11
201B	00
201C	00
201D	CD
201E	BC
201F	03
2020	CD
2021	47
2022	03
2023	11
2024	10
2025	00
2026	CD
2027	BC
2028	30
2029	0D
202A	C2
202B	08
202C	20
202D	76

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5/ Write a program to flash 'BCSEII' in the address and data fields with a flashing rate of 0.5 second.

Opcode	Code	Comments
31, FF, 20	LXI SP, 20FF	Initialize Stack Pointer
CD, 47, 03	CLEAR	Display clear
	~~START: XRA A~~	
	~~MOV B, A~~	
0E, 05	MVI C, 05H	C ← 05
AF	START: XRA A	A ← 00
47	MOV B, A	B ← A(00). Since no dot displayed
21, 50, 20	LXI H, 2050H	Data to be displayed starts from 2050H.
CD, D0, 05	OUTPUT	We display BCSE on address field.
3E, 01	MVI A, 01H	For data to be displayed in data field
06, 00	MVI B, 00H	Since no dot displayed.
21, 54, 20	LXI H, 2054	H-L points to remaining data to be displayed.
CD, D0, 05	OUTPUT	Display last 'II' in data field.
11, 00, 00	LXI D, 0000H	Display for 0.5s
CD, BC, 03	DELAY	Wait for 0.5s
CD, 47, 03	CLEAR	Clear displayed.
11, 00, 00	LXI, D, 0000H	no display for 0.5s
CD, BC, 03	DELAY	wait for 0.5s
0D	DCR C	C ← C-1
C2, 08, 20	JNZ START	If ZF=0 goto START
76	HLT	Halt.

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