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Practical-11

Aim:- Implement a program to mask the lower four bits of content of the memory location.

program:-

```
LXI  H, C030H ; [HL] ← [C030h]
MOV  A, M     ;  A = M
ANI  F0       ;  A ← A ∧ F0
INX  H        ;  increment HL
MOV  M, A     ;  M = A
HLT           ;  end of program
```

Output:-

		S Z X AC X P X CY
A	30	0 0 0 1 0 1 0 0
B	00	00
D	00	00
H	C0	31
SP	0000	
PC	C031	
[M]	30	

34	C030h
30	C031h

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practical - 12

Aim:- Implement a program to set higher four bits of content of memory location to 1.

program:-

```
LXI  H, C030H  ; [HL] ← [C030]
MOV  A, M      ; A = 19
ORI  F0H       ; A ← A V F0
MOV  B, A      ; B = A
HLT            ; end of program
```

Output

		S	Z	X	AC	X	P	X	CY	
A	F3	1	0	0	0	0	1	0	0	F
B	F3	0	0							C
D	00	0	0							E
H	C0	3	0							L
SP	0000									
PC	C008									
[M]	23									

23	C030h
00	C031h

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Practical-13

Aim :- Implement a program to perform AND operation of two nos stored in different memory locations.

program :-

```
LXI H, C030h ; [HL] ← [C030]
MOV A, M     ; A = M
LXI H, C040h ; [HL] ← [C040]
ANA M        ; A ← A ∧ M
MOV D, A     ; D = A
HLT          ; end of program
```

Output :-

A	04	0	0	0	1	0	0	0	0
B	00	00							
D	04	00							
H	C0	30							
SP	0000								
PC	C00A								
M	45								

34	C030h
45	C040h

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34 -> 0011 0100
45 -> ∧ 0100 0101

0000 0100 -> [04]

A	B	output
0	0	0
0	1	0
1	0	0
1	1	1

[A ∧ B]

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Practical-14

Aim:- Implement a program to performe OR operation of two nos stored in memory.

program:-

```
LXI H, C030h
MOV A, M
LXI H, C040h
ORA M
MOV D, A
HLT
```

output

		S	Z	X	AC	X	P	X	CY
A	75	0	0	0	0	0	0	0	0
B	00				0	0			
D	75				0	0			
H	C0				4	0			
SP	C000								
PC	C00A								
M	45								

[C030] -> 34
[C040] -> 45

```
  0011 0100
V 0100 0101
-----------
  0111 0101  -> 75
```

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practical-15

Aim: Implement a program to perform XOR operation of two nos stored in memory.

program:-

```
LXI H, C030h
MOV A, M
LXI H, C040h
XRA M
MOV D, A
HLT
```

Output

		S	Z	X	AC	X	P	X	CY
A	71	0	0	0	0	0	1	0	0
B	00	00							
D	71	00							
H	C0	40							
SP		0000							
PC		C00A							
M		45							

(C030) -> 34
(C040) -> 45

```
  0011 0100
^ 0100 0101
-----------
  0111 0001  -> 71
```

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practical-16

Aim : Implement a program to compare two nos using CPI and examine the flag register.

program :-

```
LXI   H, C030h
MOV   A, M
CPI   56
HLT
```

Output

A	56	01000101	F
B	00	00	C
D	00	00	E
H	C0	30	L
SP	0000		
PC	C007		
M	56		

56	C030
00	C031

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practical-17

Aim :- Implement program to perform 8 bit substraction using 1's complent and 2's complement.

program :-

```
MVI B, 50
MVI C, 20
MOV A, C
CMA
INR A
ADD B
HLT
```

Output

		S	Z	X	AC	X	P	X	CY	
A	30	1	0	0	0	0	1	0	1	F
B	50	20								C
D	20	00								E
H	00	00								L
SP	0000									
PC	C009									
M	00									

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practical-18

Aim :- Implement a program to find sum of integers from 0 to 9.

Program :-

```
      MVI C, 09
      SUB A
SUM : ADD C
      DCR C
      JNZ SUM
      HLT
```

Output :-

	2D	0 1 0 0 0 1 0 0 F
B	00	00 C
D	00	00 E
H	00	00 L
SP	0000	
PC	C00B	
[M]	00	

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practical-19

Aim:- Implement a program to find sum of integers stored in memory block. first memory location stored size of array. store result in register.

program:-

```
      LXI H,C030h
      MOV C,M
      MVI D,00
      SUB A
SUM:  INX H
      ADD M
      INC GO
      INR D
GO:   DCR C
      JNZ SUM
      MOV E,A
      HLT        ; end of program
```

04	C030
78	C031
C6	C032
56	C033
89	C034

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Output:-

		S	Z	X	Ac	X	P	X	CY
A	1D	0	1	0	0	0	1	0	0
B	00				00				
D	02				1D				
H	C0				84				
SP	0000								
PC	C013								
M	89								

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practical-20

Aim:- Implement a program to count no of 1's in accumulator and store result in register B.

program:-

```
      MVI   A,55
      MVI   C,08
      MVI   B,00
COUNT: RALC
      INC CP
      INR B
CP:   DCR C
      JNZ   COUNT
      HLT
```

output:-

		S Z X AC X P X CY	
A	55	0 1 0 0 0 1 0 0	F
B	04	00	C
D	00	00	E
H	00	00	L
SP	0000		
PC	C010		
M	00		