Assignment - 03

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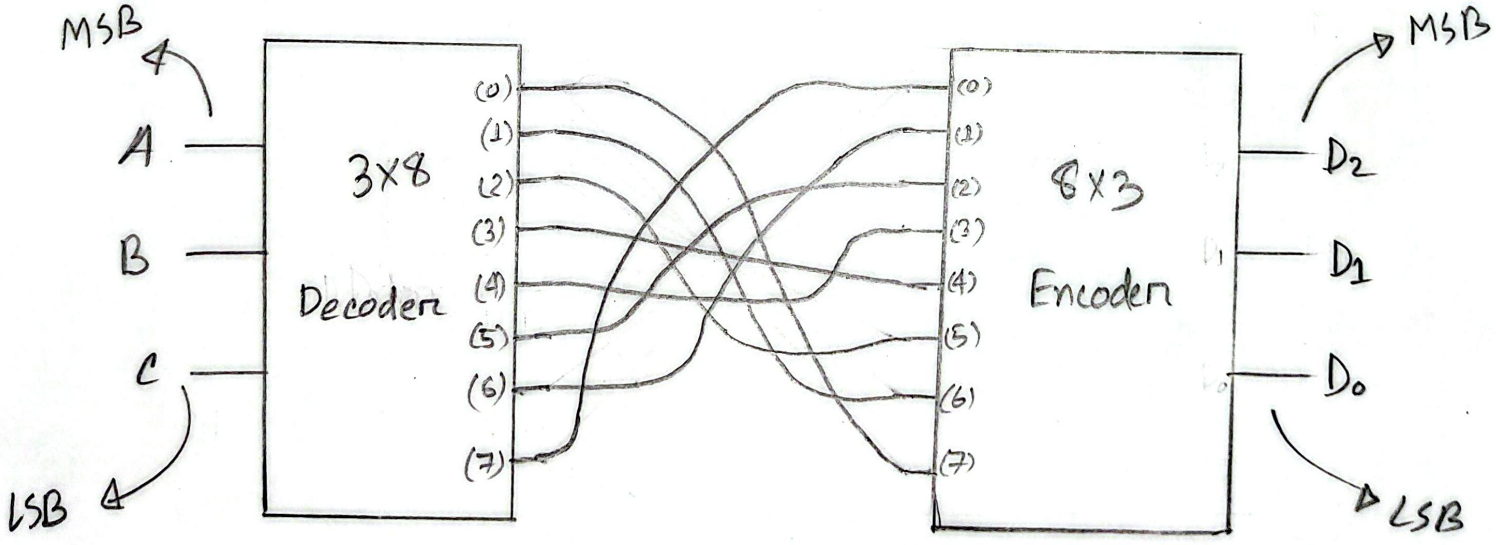
Answer to the question no-01

Truth Table for 1's complement number system:

	A	B	C	D_2	D_1	D_0	
0	0	0	0	1	1	1	7
1	0	0	1	1	1	0	6
2	0	1	0	1	0	1	5
3	0	1	1	1	0	0	4
4	1	0	0	0	1	1	3
5	1	0	1	0	1	0	2
6	1	1	0	0	0	1	1
7	1	1	1	0	0	0	0

The circuit,



Ans to the question no-02

Given function,

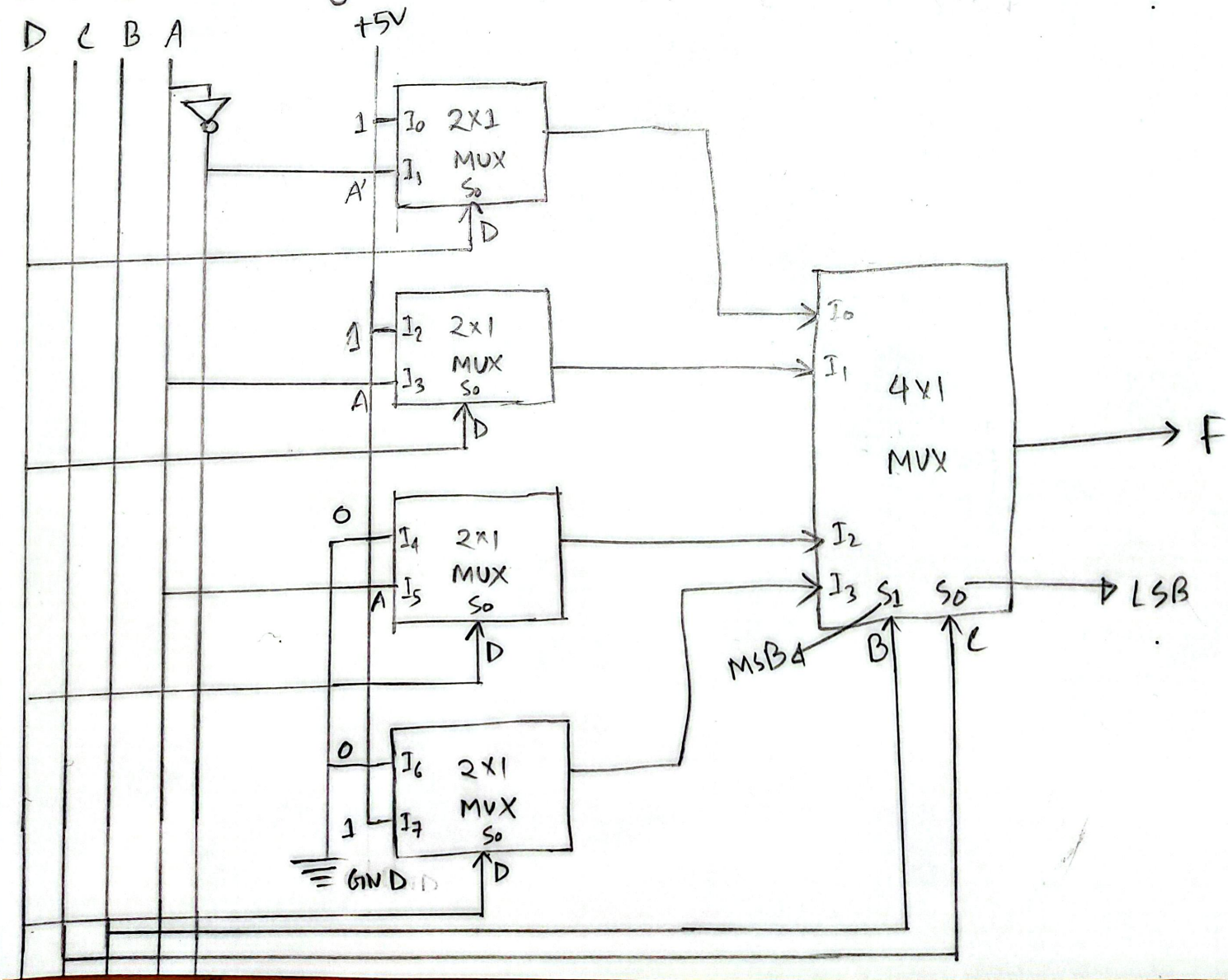
$$F(A,B,C,D) = \sum(0,1,2,7,8,10,11,13,15)$$

We can use four 2:1 MUX(s) and one 4:1 MUX to implement the following function.

So,

	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
A'	(0)	(1)	(2)	3	4	5	6	(7)
A	(8)	9	(10)	(11)	12	(13)	14	(15)
	1	A'	1	A	0	A	0	1

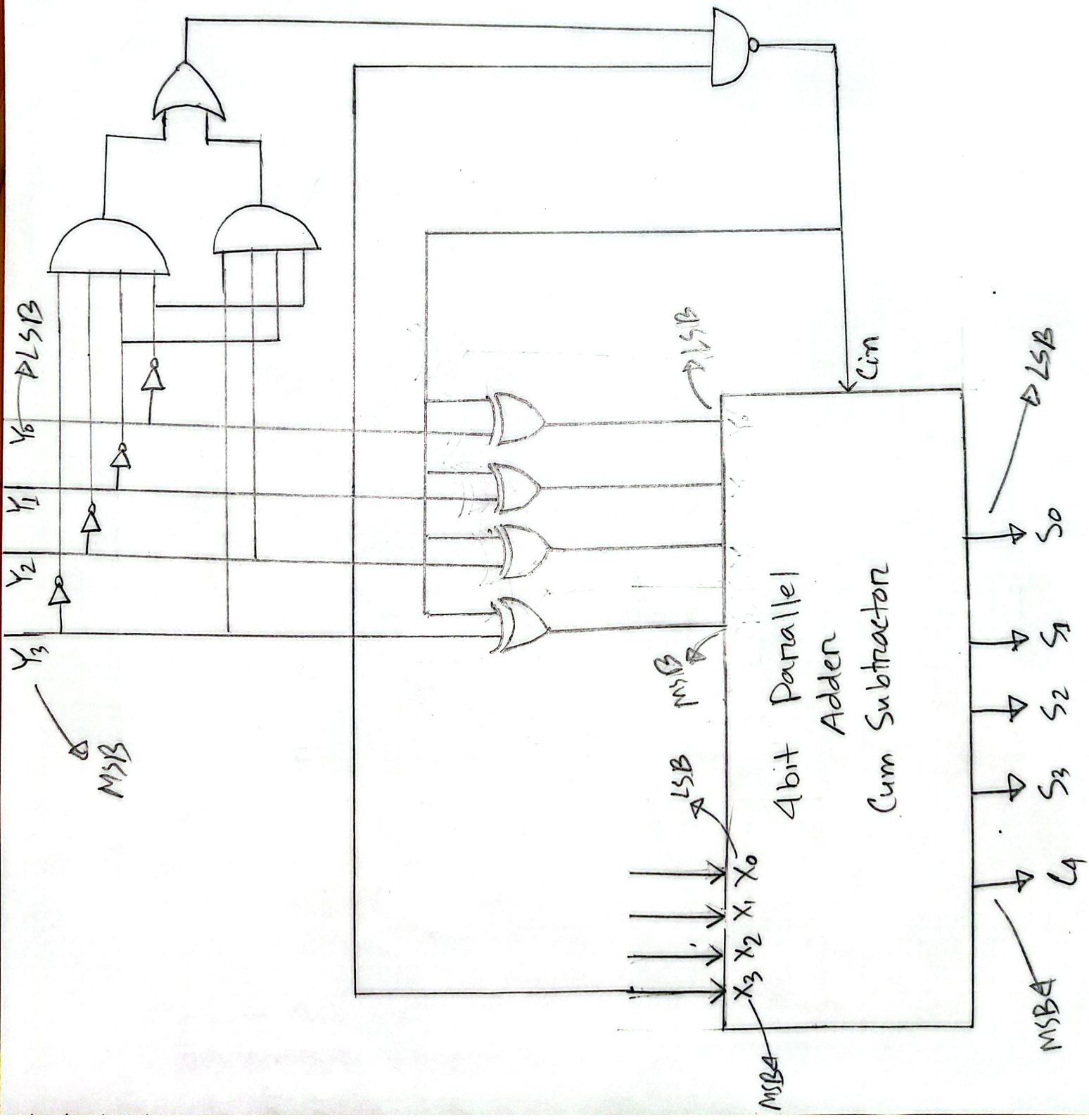
Building the diagram.



Ans. to the question no-03

Designing the given circuit using 4bit parallel Adder cum Subtractor;

To be greater than or equal to 8, MSB of X has to be 1 and, to be divisible by 12, SOP has to be. $Y_3'Y_2'Y_1'Y_0'$ or $Y_3Y_2Y_1'Y_0'$. So, the circuit will look like this;



Designing a 13 person voting system with LEDs output

Ans. to the question no-04