

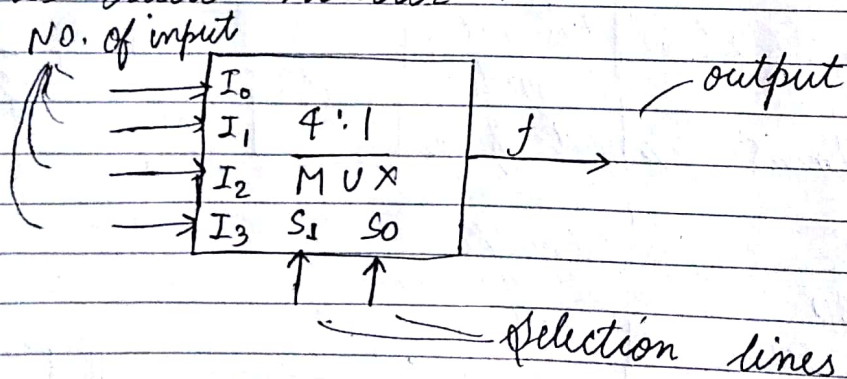
Digital Electronics

- | | |
|-------------------------|-------------------|
| 1) Number System | 6) Code converter |
| 2) Boolean Algebra | 7) MUX |
| 3) Gates | 8) Decoder |
| 4) Expression Reduction | 9) DC-MUX |
| 5) Adder-subtractor | 10) Encoder |

Multiplexer (MUX)

Many - to - one

Selection of one output (f) from many inputs (I_0, I_1, I_2, I_3) is known as MUX. It is also known as 'data selector'.

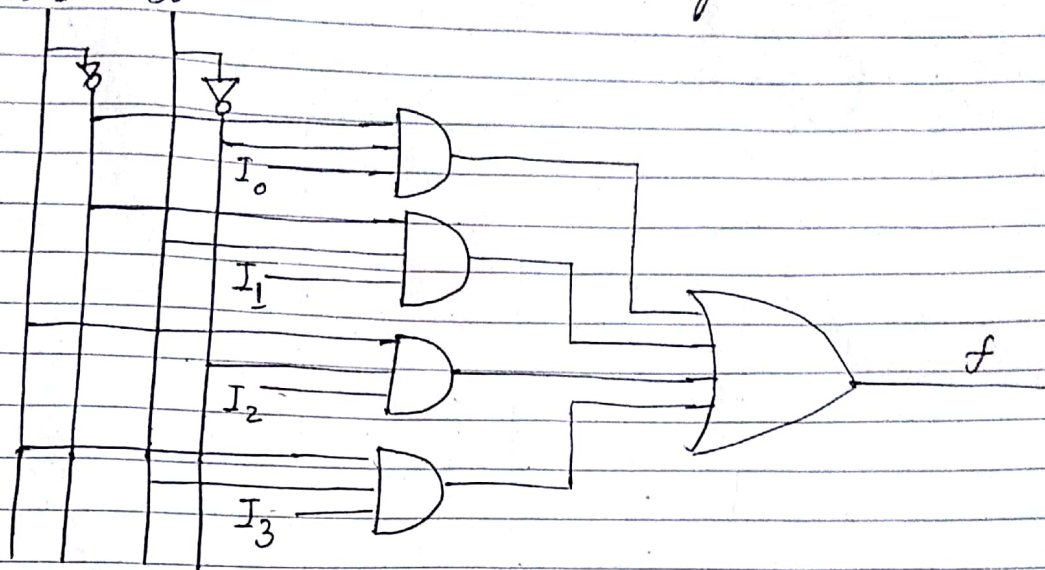


I_0, I_1, I_2, I_3 are binary inputs.

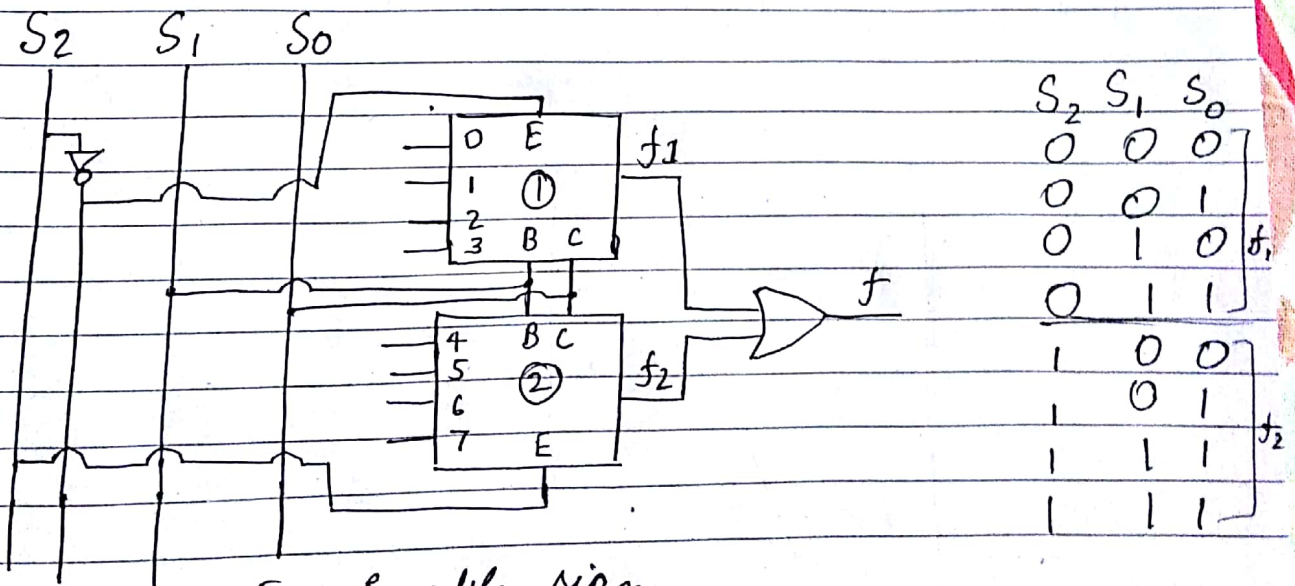
S_1	S_0	f
0	0	I_0
0	1	I_1
1	0	I_2
1	1	I_3

$$f = \bar{S}_1 \bar{S}_0 I_0 + \bar{S}_1 S_0 I_1 + S_1 \bar{S}_0 I_2 + S_1 S_0 I_3$$

- Design the internal architecture of 4:1 MUX



- Design an 8:1 MUX using 4:1 MUX and any other logic gate if required.



$E \rightarrow$ Enable sign
 $E = 1$, M works
 $E = 0$, M doesn't work

~~Next~~

- Design full adder using suitable MUX
- Design full subtractor using 4:1 MUX only.