Implement the function F(A, B, C, D) = Σ m (0, 1, 3, 4, 8, 9, 15) with

a) 8-to-1 MUX

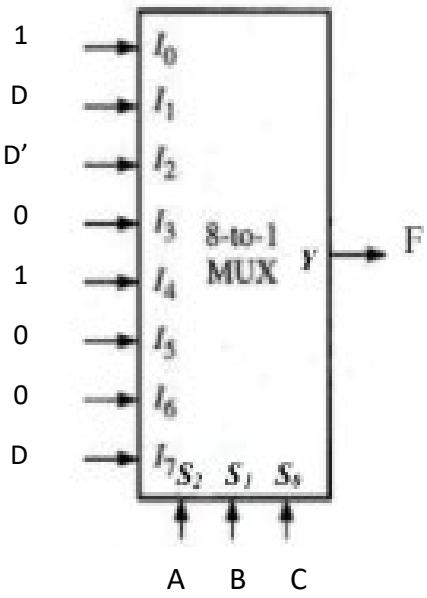
using implementation table method:

A, B and C will be connected to the selection lines and D will be used for the inputs of the MUX.

	A	B	C	D	F
m_0	0	0	0	0	1
m_1	0	0	0	1	1
m_2	0	0	1	0	0
m_3	0	0	1	1	1
m_4	0	1	0	0	1
m_5	0	1	0	1	0
m_6	0	1	1	0	0
m_7	0	1	1	1	0
m_8	1	0	0	0	1
m_9	1	0	0	1	1
m_{10}	1	0	1	0	0
m_{11}	1	0	1	1	0
m_{12}	1	1	0	0	0
m_{13}	1	1	0	1	0
m_{14}	1	1	1	0	0
m_{15}	1	1	1	1	1

implementation table method:

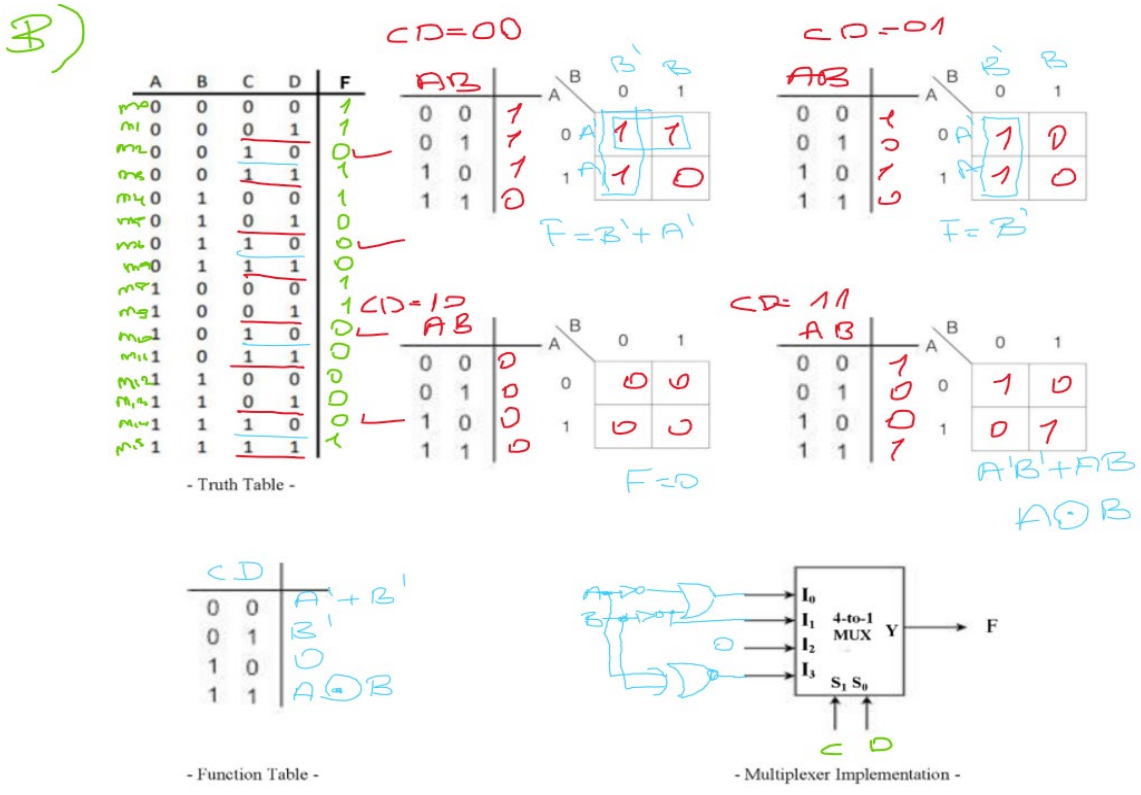
	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
D'	(0)	2	(4)	6	(8)	10	12	14
D	(1)	(3)	5	7	(9)	11	13	(15)
	1	D	D'	0	1	0	0	D

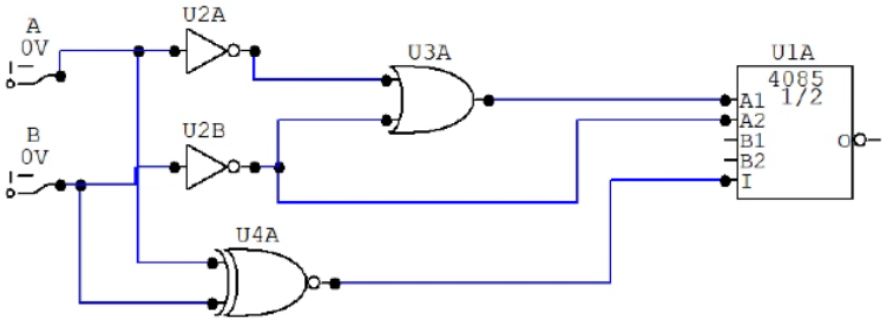


b) 4-to-1 MUX

using truth table:

C and *D* will be connected to the selection lines and *A* and *B* will be used for the inputs of the MUX.




A
0V
B
0V
U2A
U2B
U3A
U4A
U1A
4085
1/2
A1
A2
B1
B2
I
O