

Azmani Sultana

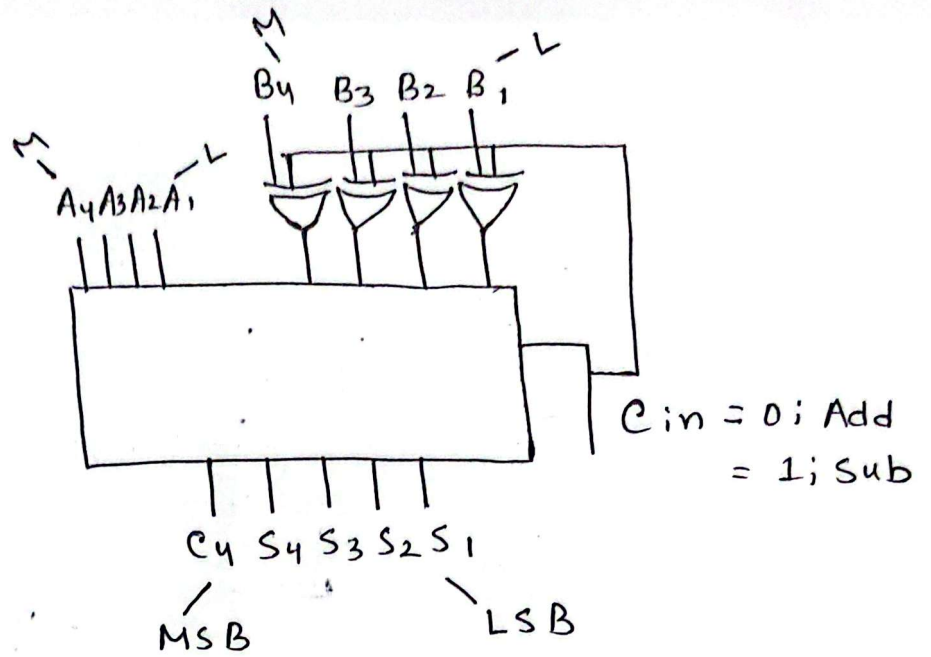
Id: 22201949

CSE260

Section: 02

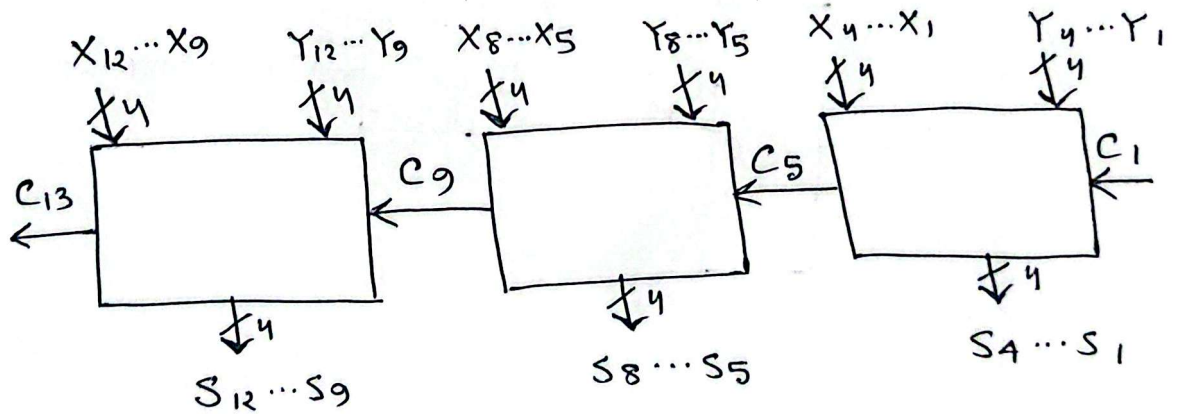
Assignment 03

①

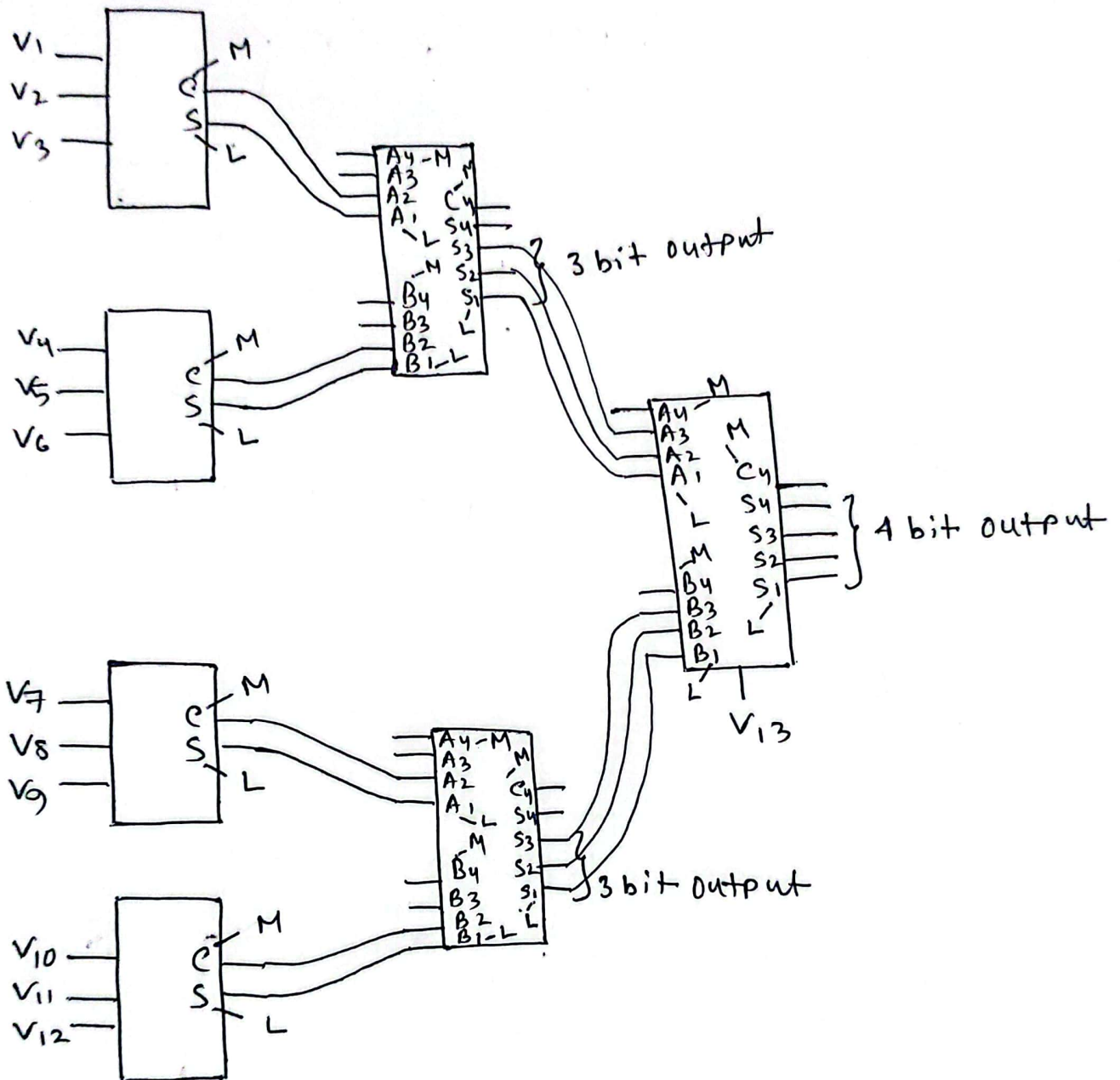


A bit adder - subtractor

②

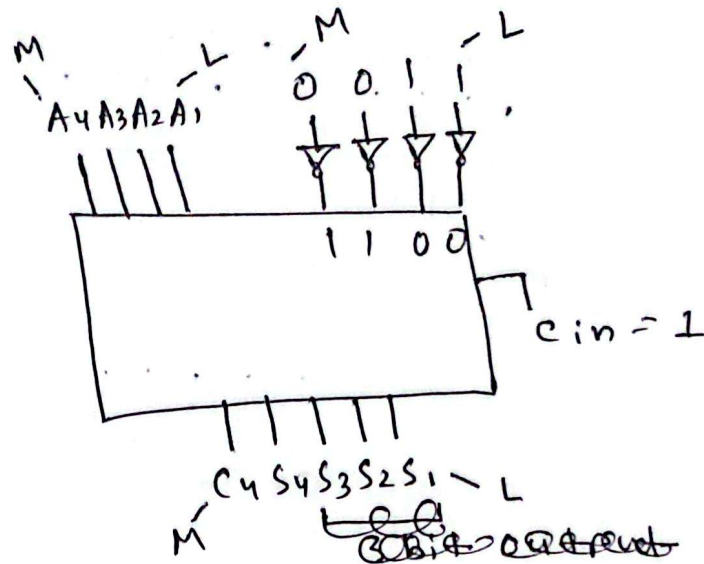


3

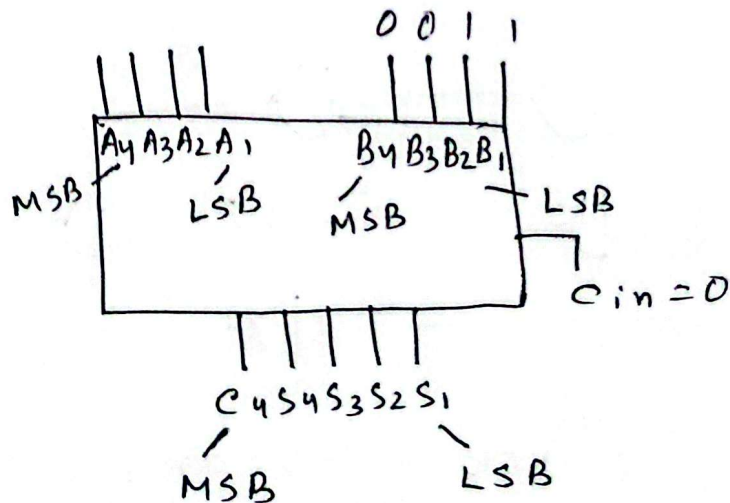


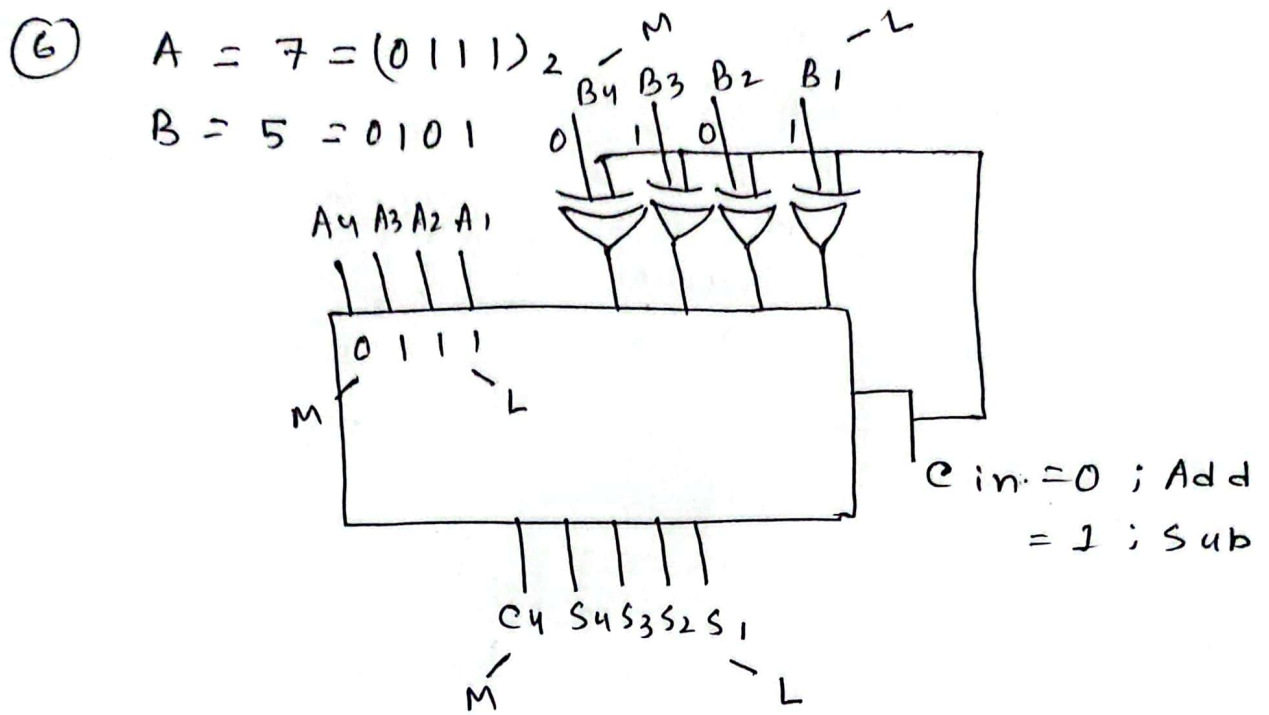
- ④ $A \rightarrow 4 \text{ bit}$
 $A - 3 = A + (-3)$

$$\begin{array}{r} 3 \\ \downarrow \\ 0011 \\ \hline 1100 \\ +1 \\ \hline \end{array}$$

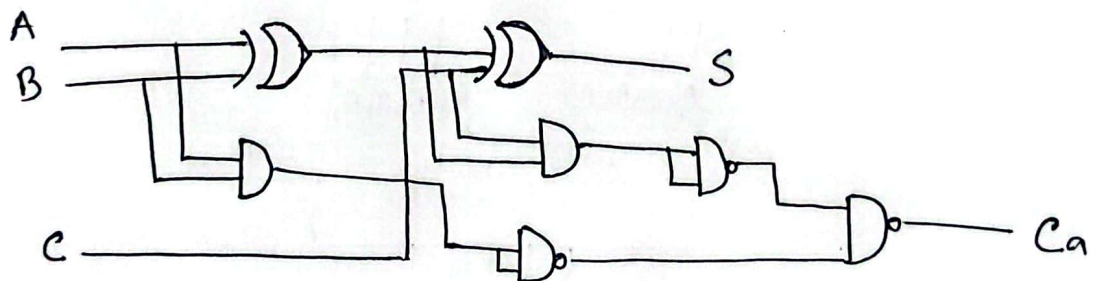


⑤

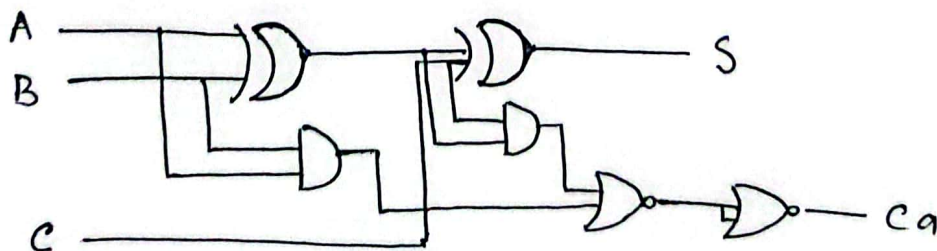




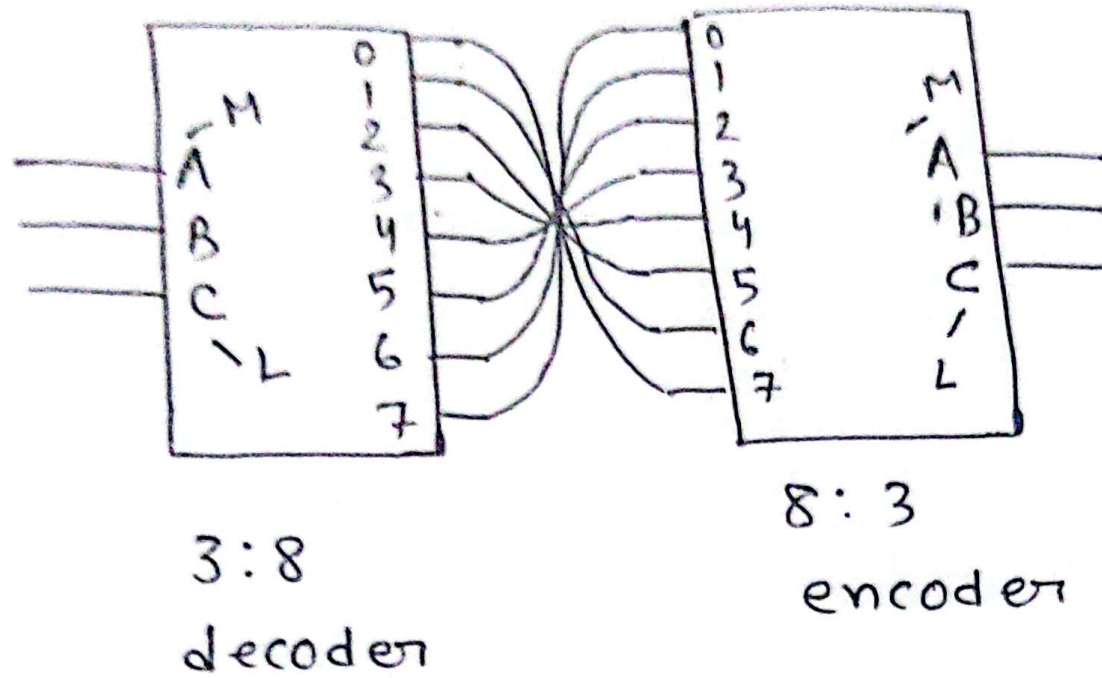
⑦ Using 3 NAND gate and no OR gates



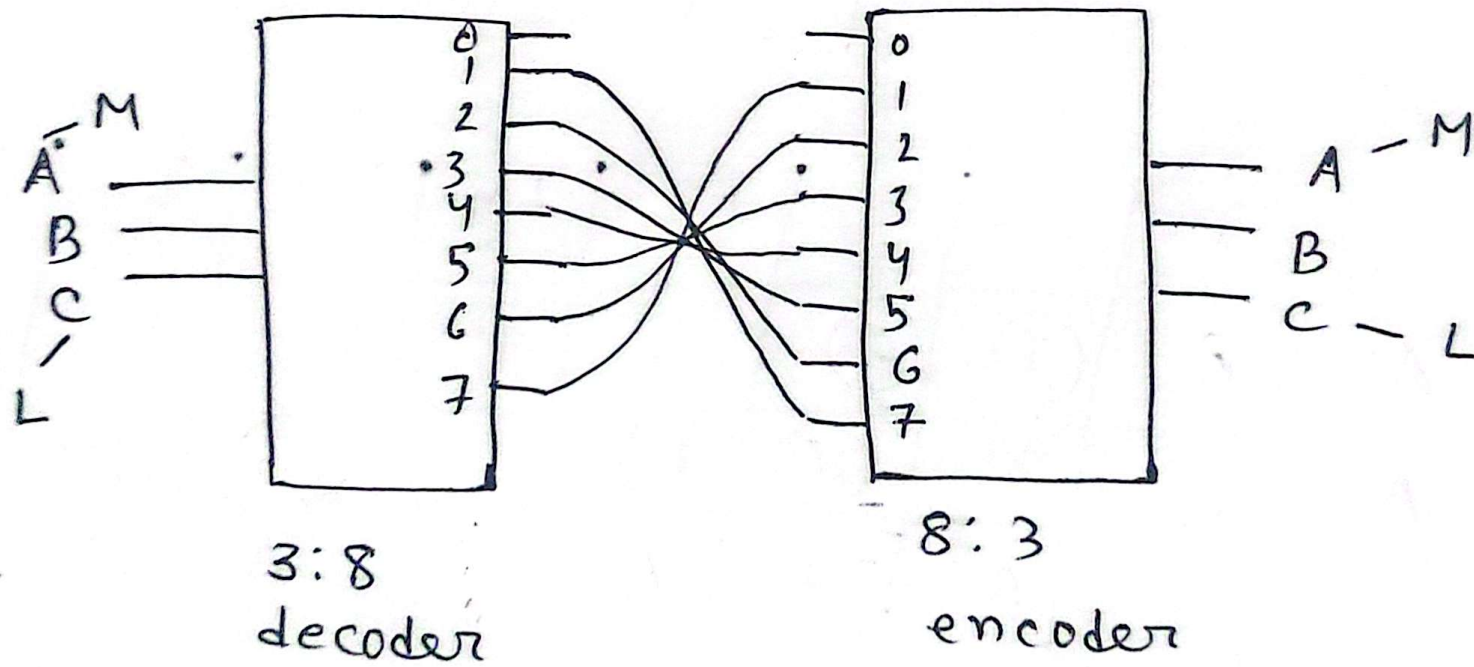
Using 2 NOR gates and no OR gates



8

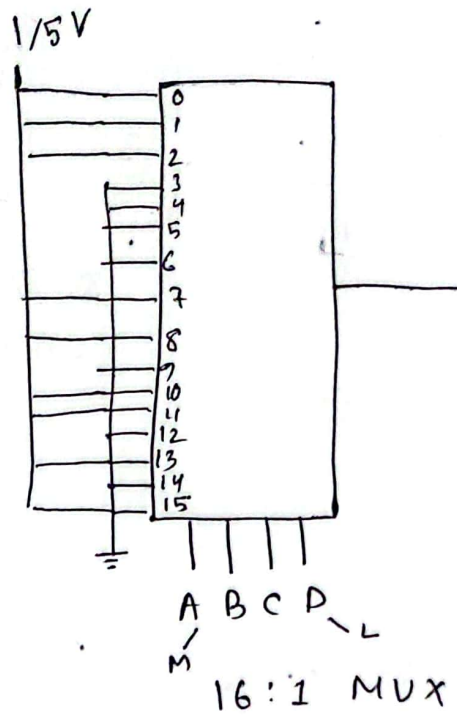


9

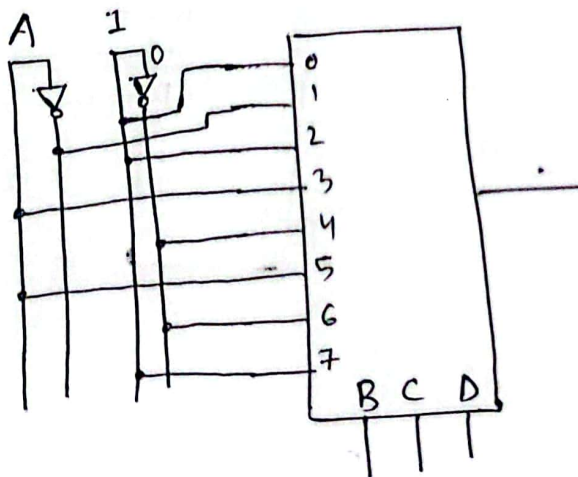


⑩

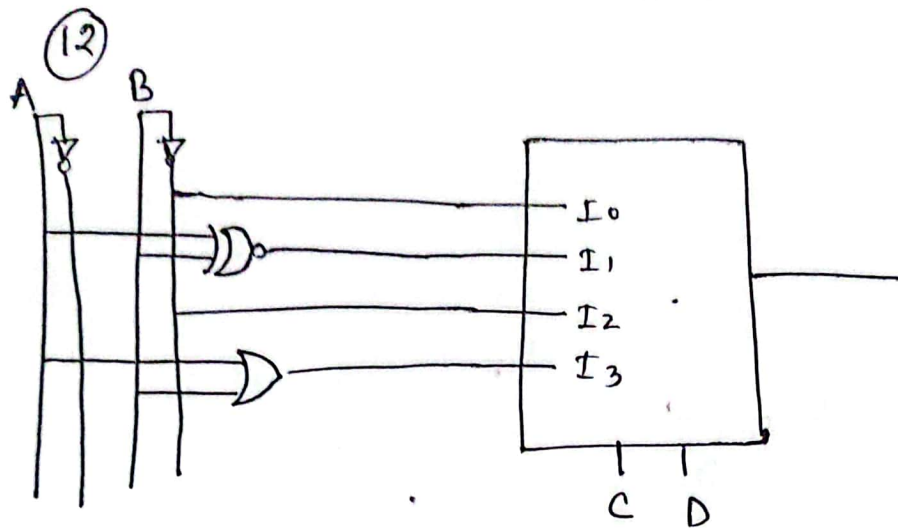
$$F(A, B, C, D) = \sum (0, 1, 2, 7, 8, 10, 11, 13, 15)$$



⑪



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



	I_0	I_1	I_2	I_3
$A'B'$	0	1	2	3
$A'B$	4	5	6	7
AB'	8	9	10	11
AB	12	13	14	15
	B'	$A \odot B$	B'	$A+B$

$I_0 \Rightarrow$

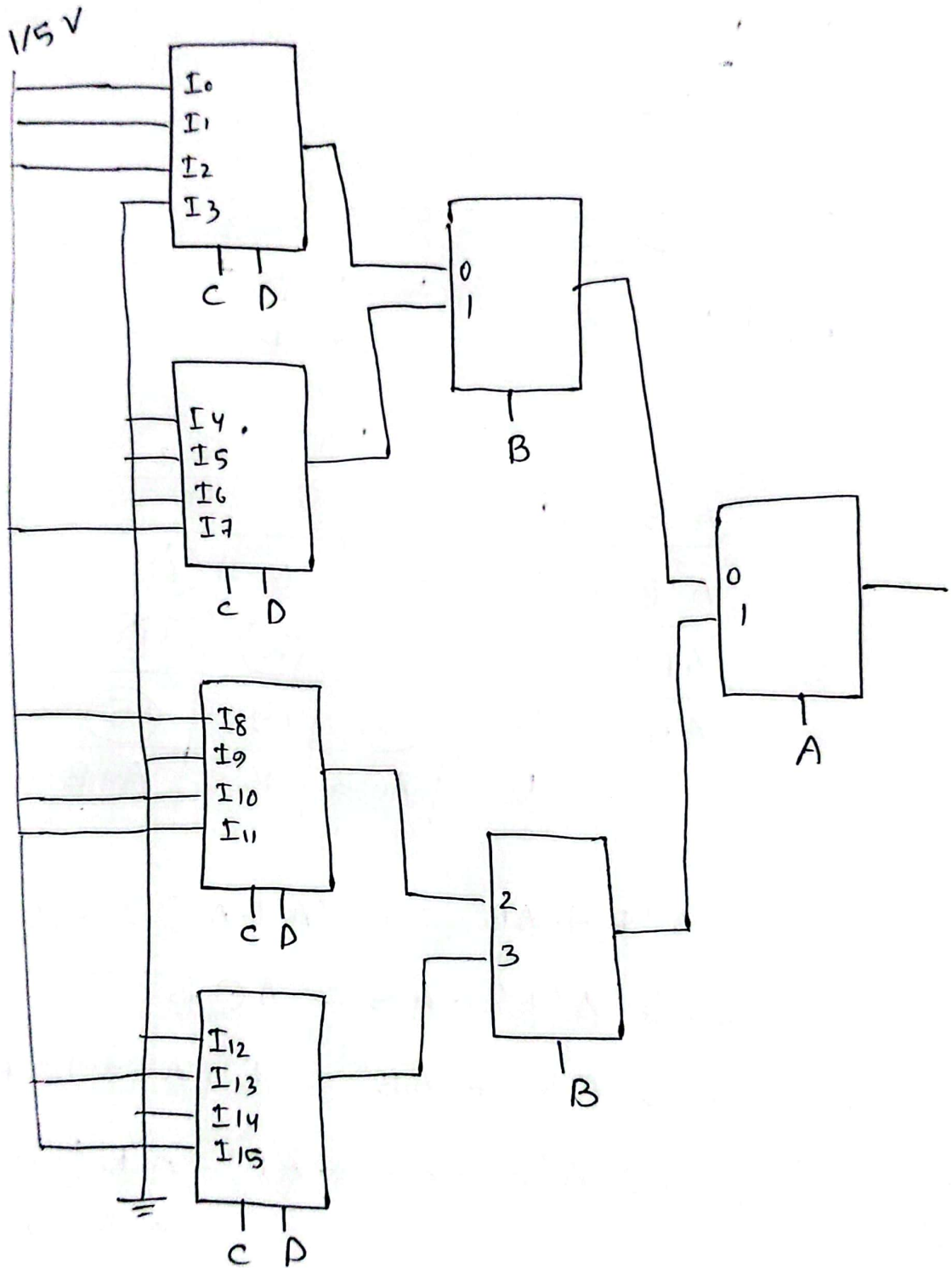
$$A'B' + AB' = B'(A + A') = B'$$

$$I_1 \Rightarrow A'B' + AB = A \odot B$$

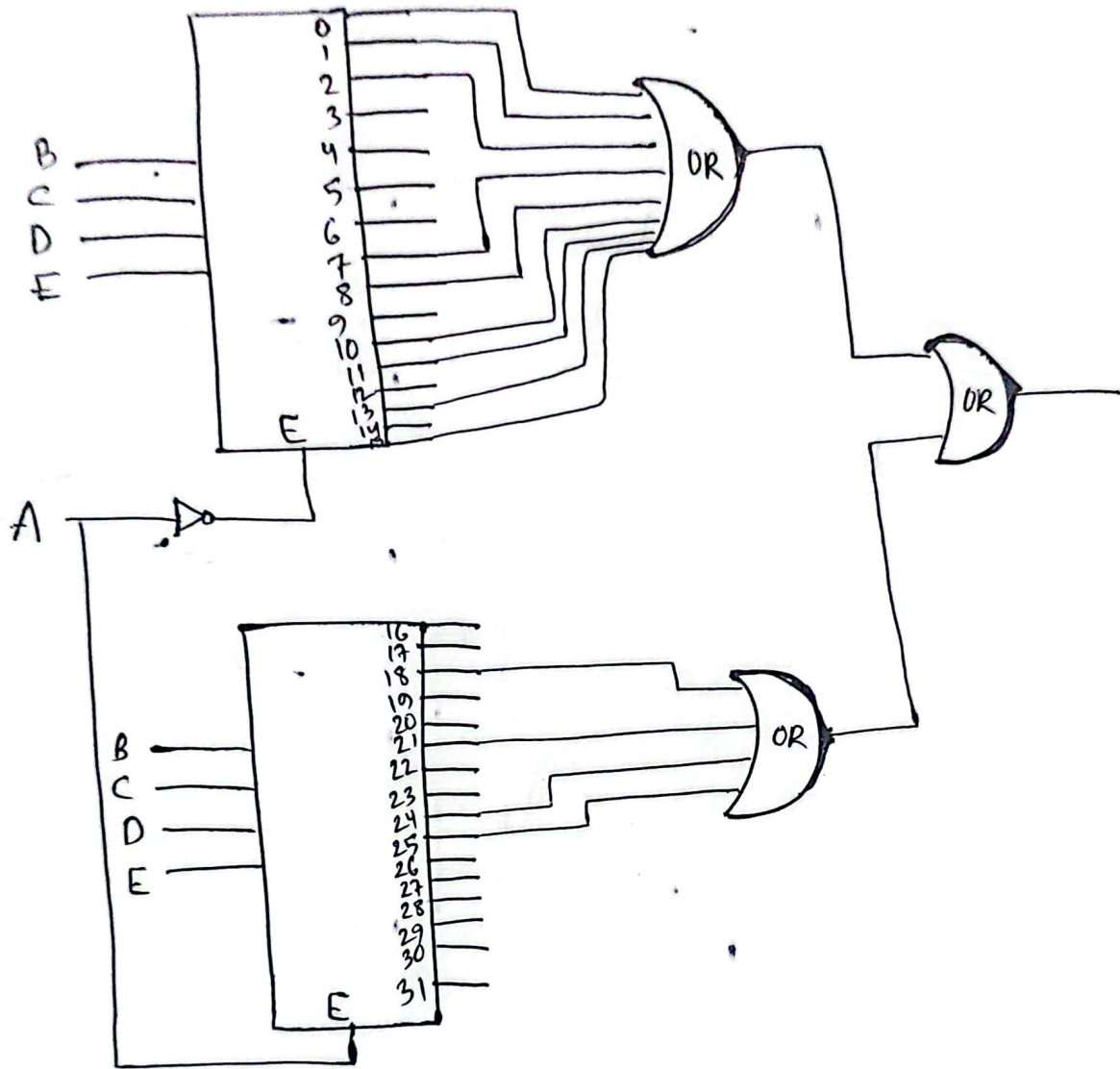
$$I_2 \Rightarrow A'B' + AB' = B'(A + A') = B'$$

$$\begin{aligned}
 I_3 \Rightarrow A'B + AB' + AB &= A'B + A(B + B') \\
 &= A'B + A \\
 &= (A' + A)(B + A) \\
 &= A + B
 \end{aligned}$$

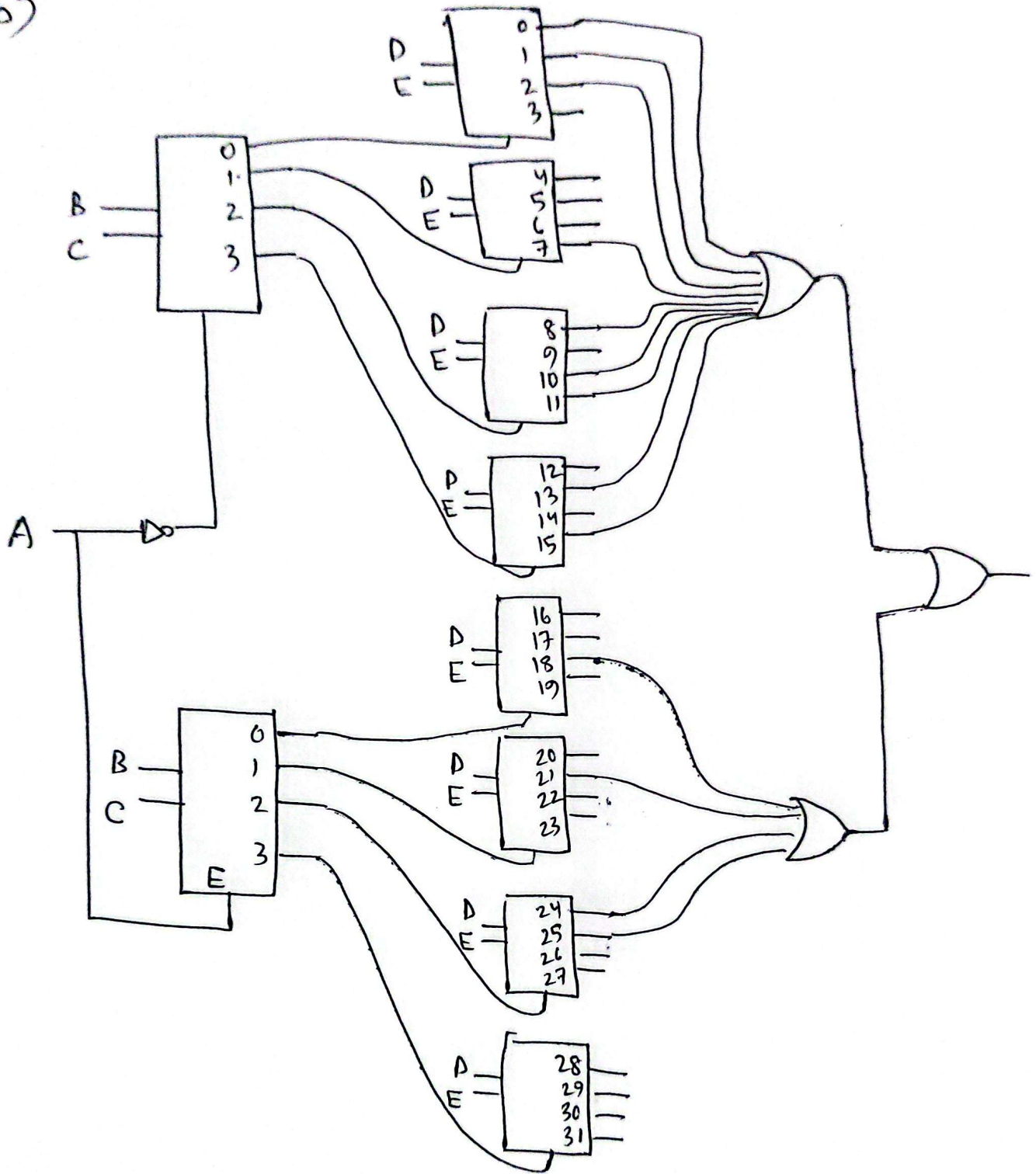
(13)



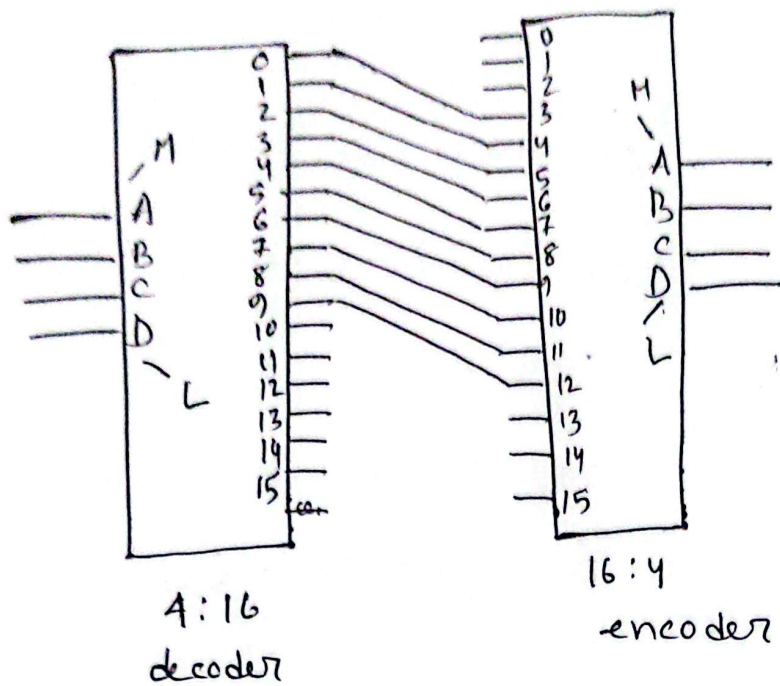
(H) a)



b)



15



16

