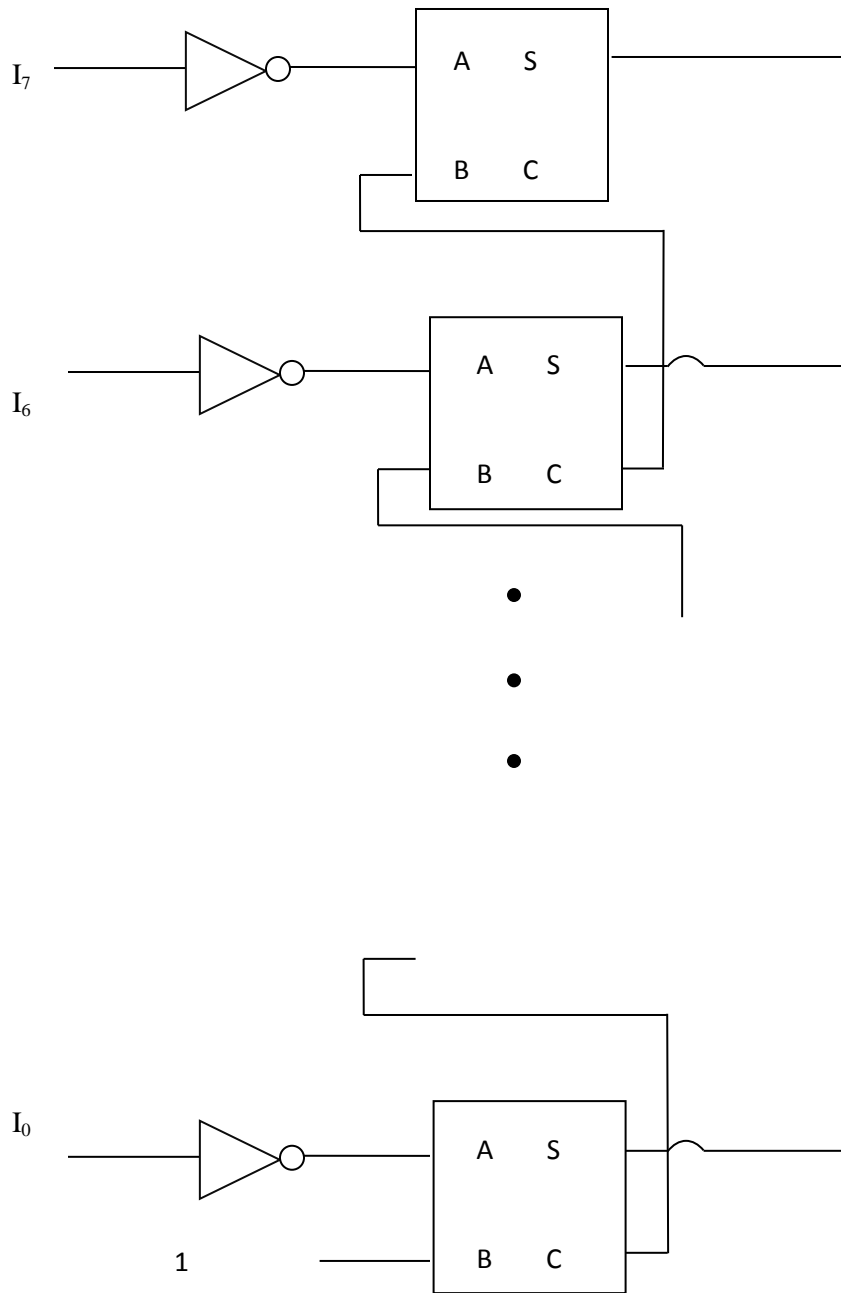


Homework #2-1



## Homework 2-2

(a). Bollinger B-5

$$\text{a. } \underbrace{11011}_{\text{B}} \underbrace{0111}_7 = 1\text{B}7_{16}$$

$$\text{b. } \underbrace{10}_2 \underbrace{1000}_8 = 28_{16}$$

$$\text{c. } 0.111 = 0.\text{E}_{16}$$

$$\text{d. } \underbrace{1011}_{\text{B}} . \underbrace{0111}_7 = \text{B}.7_{16}$$

(b). Bollinger B-7

$$127_{10} = 0000000000111111_2$$

$$-346_{10} = 1111111010100110_2$$

$$2242_{10} = 0000100011000010_2$$

$$-3465_{10} = 1111001001110111_2$$

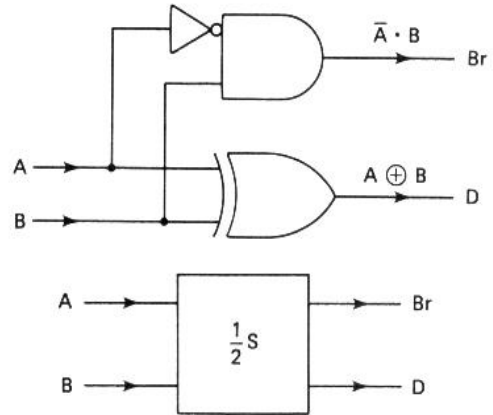
$$18543_{10} = 0100100001101111_2$$

$$-32015_{10} = 1000001011110001_2$$

3.

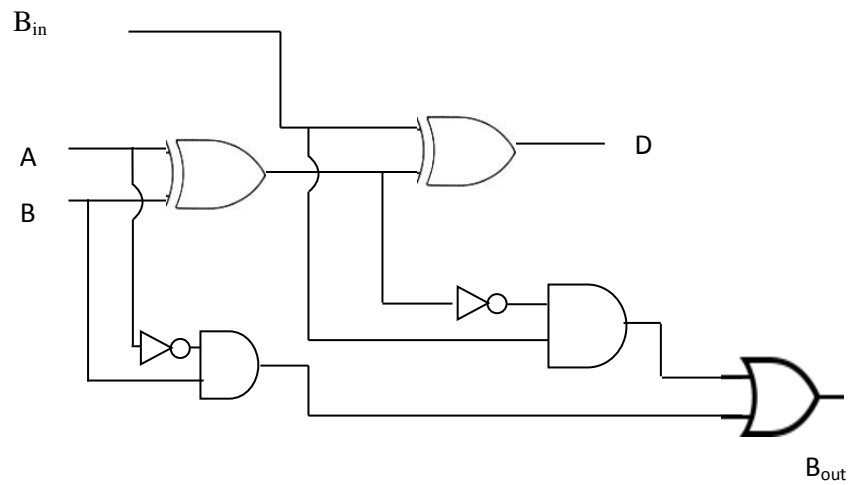
a) half subtractor

A	B	D	B
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	0



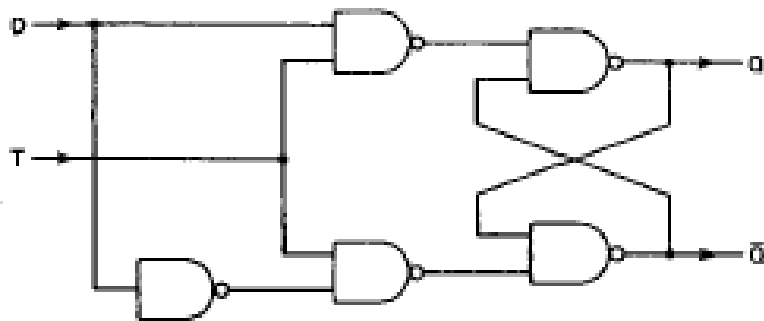
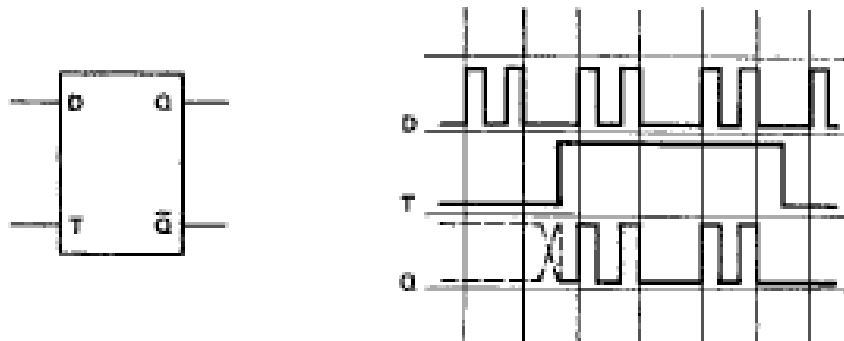
b) Full borrow

A	B	B <sub>in</sub>	D	B <sub>out</sub>
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

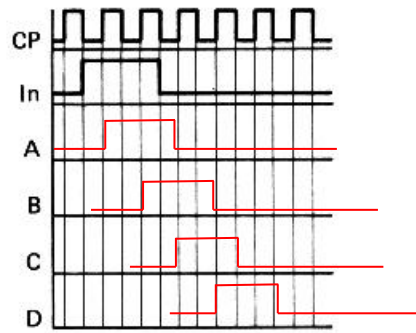
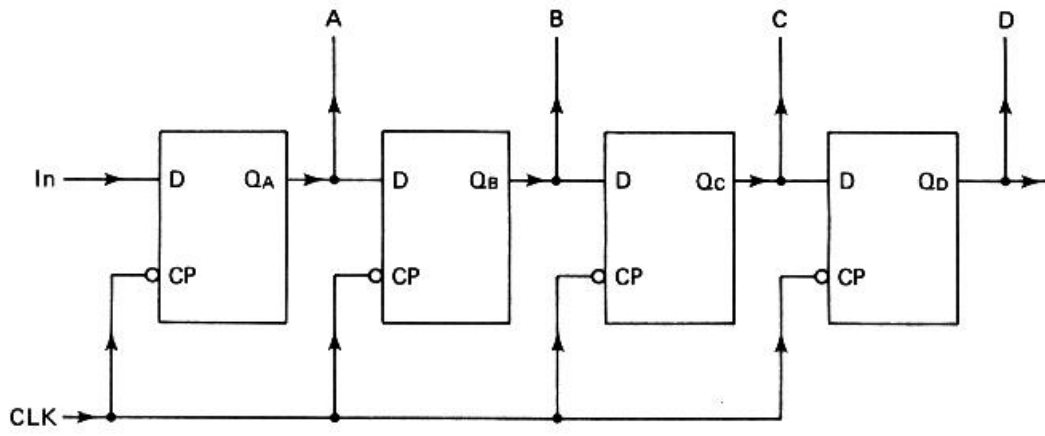


Type equation here.

#2-4

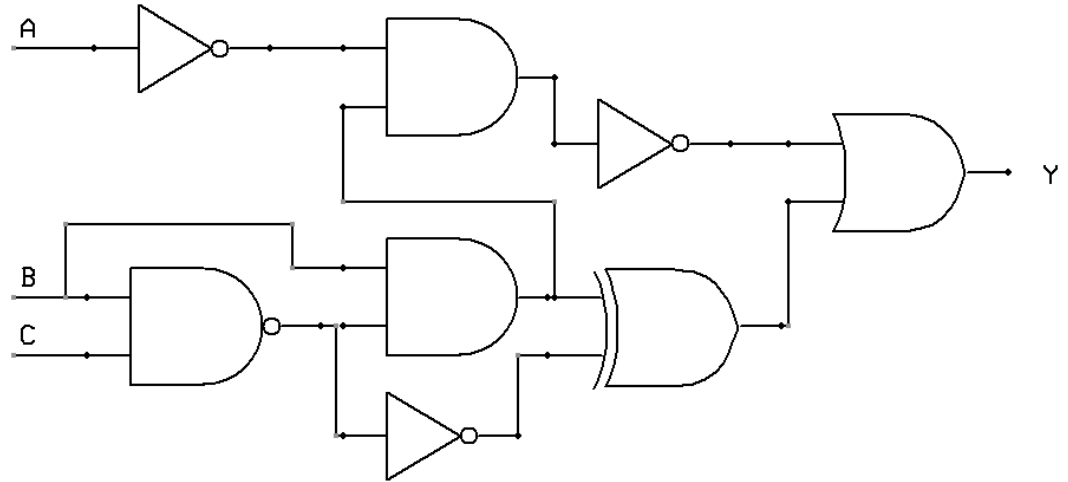


(b)



(a) Complete the truth table for the following circuit

A	B	C	Y
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	



$$\begin{aligned}
 y &= \overline{(\overline{A} \cdot B \cdot \overline{(B \cdot C)})} + B \cdot C \oplus B \cdot \overline{(B \cdot C)} \\
 &= A + \overline{B} + B \cdot C + (\overline{B \cdot C}) \cdot B \cdot \overline{(B \cdot C)} + B \cdot C \cdot (\overline{B \cdot (B \cdot C)}) \\
 &= A + \overline{B}(1 + C) + B \cdot C + B(\overline{B} + \overline{C}) + B \cdot C \cdot (\overline{B} + B \cdot C) \\
 &= A + \overline{B} + C + B \cdot \overline{C} + B \cdot C \\
 &= A + \overline{B} + C + B \\
 &= A + 1 + C = 1
 \end{aligned}$$