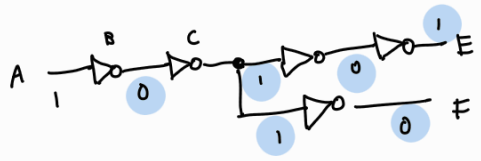
3.1

2.

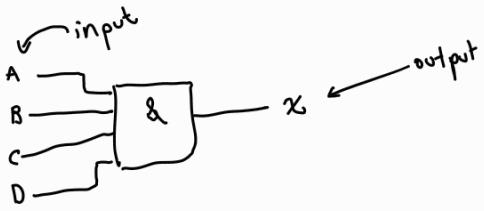


E = 1

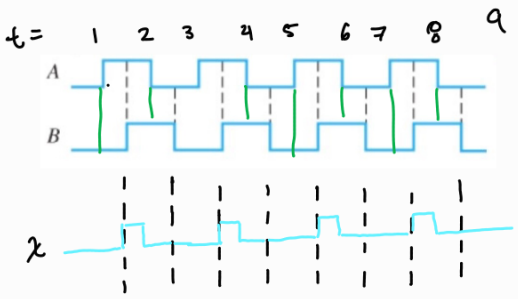
F = 0

3-2

4.



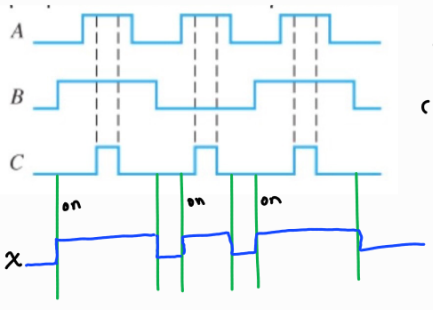
6.



A	B	x
0	0	0
1	0	0
1	1	1
0	1	0
0	0	0
1	0	0

3.3

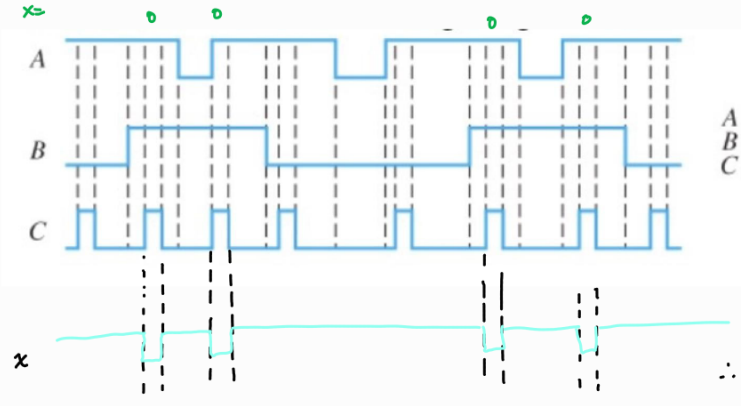
12. Repeat #7 for a 3 input OR

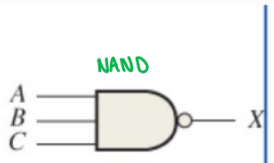


∴ At least one input must be on

3.4

18.

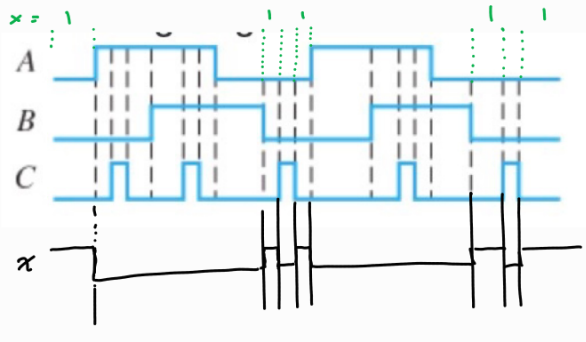


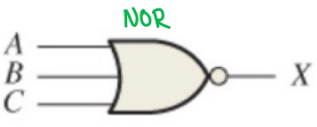


∴ output = 0 when all inputs are on

3-5

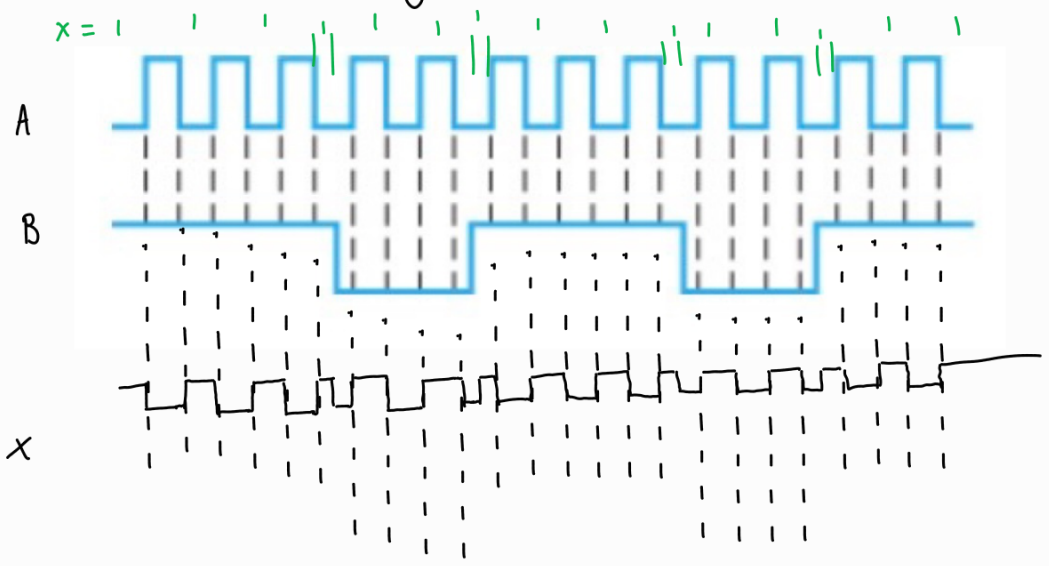
22.

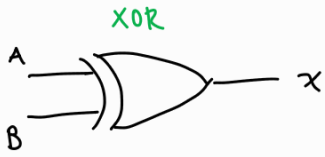




∴ inputs A, B, C must = 0 for x = 1

3-6 26. #17 for XOR gate





∴ when A or B is exclusively on x = 1

3-8

36.

6 ns

Gate A = $t_{PLH} = t_{PLH} = 6ns$

Gate B = $t_{PLH} = t_{PLH} = 10ns$