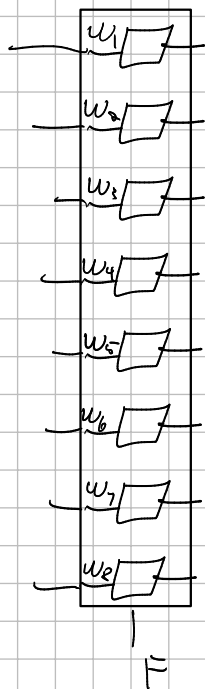


ERT 17

Übung 1)

a) Münneceller



Übung 3

a)

A	B	C	$\bar{A}$	$\bar{B}$	$\bar{C}$	$w_0$	$w_1$
0	0	0	1	1	1	1	0
0	0	1	1	1	0	0	1
0	1	0	1	0	1	0	0
0	1	1	1	0	0	0	0
1	0	0	0	1	1	0	0
1	0	1	0	1	0	0	0
1	1	0	0	0	1	0	0
1	1	1	0	0	0	0	0

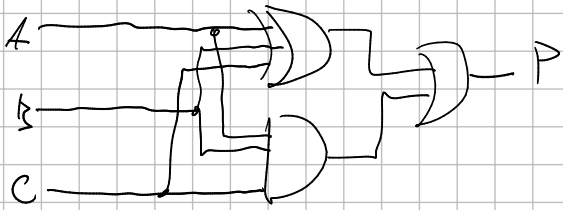
Übung 4)

a)

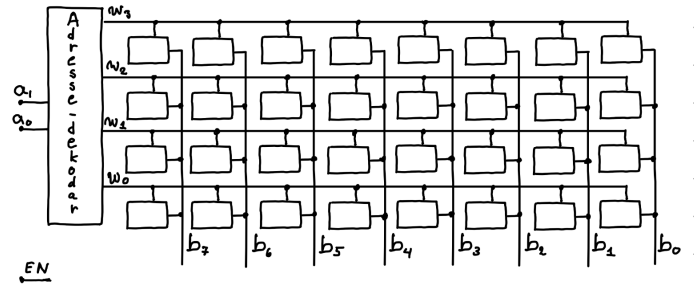
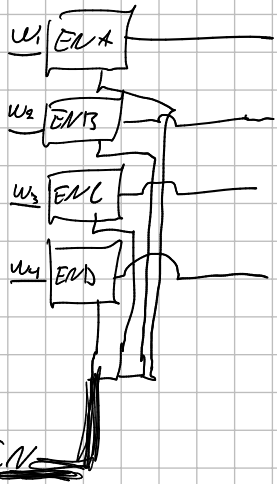
A	B	C	P
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

b)

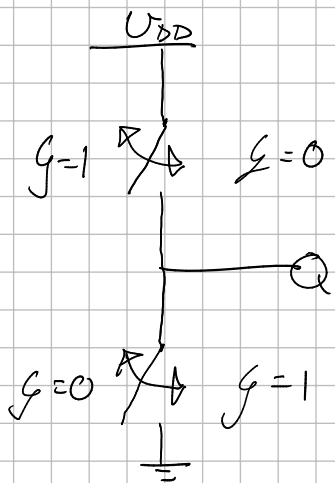
$$P = \underbrace{\bar{A} \bar{B} C + \bar{A} B \bar{C} + A \bar{B} \bar{C}}_{XOR} + \underbrace{A B C}_{AND}$$



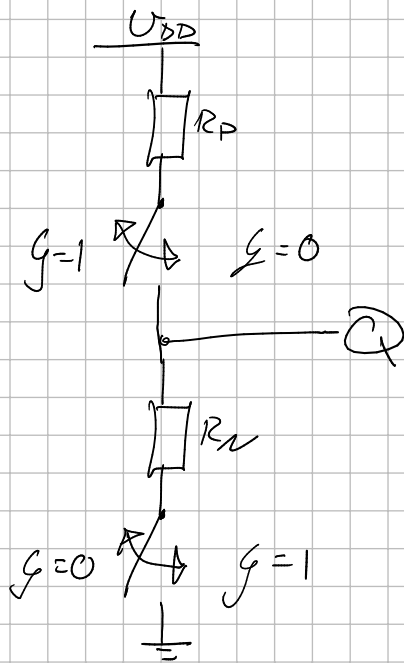
Übung 7



Übung 8)

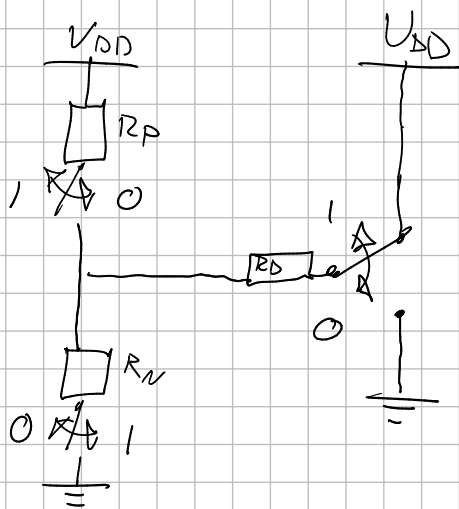


Opptg 9



Opptg 10

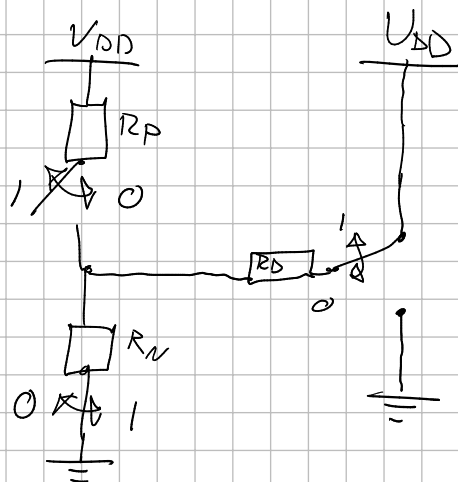
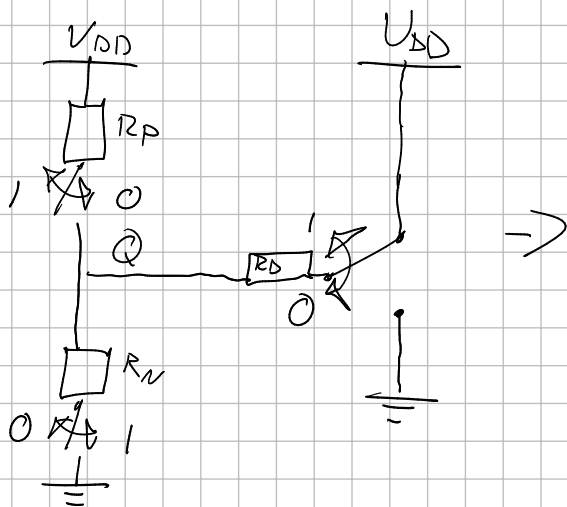
u)



0/4/9 11

a)  $V_{DD} = 5V$  Steigmargin  $V_{IL} = 0,8V$

$$R_P = R_N = 10\Omega$$



$$Q > 4,2V$$

$$\frac{V_{DD}}{R_D} = \frac{Q}{R_N}$$

$$R_D = \frac{V_{DD}}{Q} \cdot R_N$$

$$R_D = \frac{5V}{4,2V} \cdot 10\Omega$$

$$\underline{R_D = 12\Omega}$$

$$V_Q > 5 - 0,8 = 4,2V$$

$$V_{DD} \cdot \frac{R_N}{R_N + R_D} > V_Q$$

$$V_{DD} \cdot R_N > V_Q (R_N + R_D)$$

$$V_{DD} \cdot R_N > V_Q R_N + V_Q R_D$$

$$V_{DD} R_N - V_Q R_N > V_Q R_D$$

$$R_N (V_{DD} - V_Q) \cdot \frac{1}{V_Q} > R_D$$

$$R_D < 10(5 - 4,2) \cdot \frac{1}{4,2}$$

$$R_D < \frac{8}{4,2}$$

$$\underline{R_D < 1,9\Omega}$$

