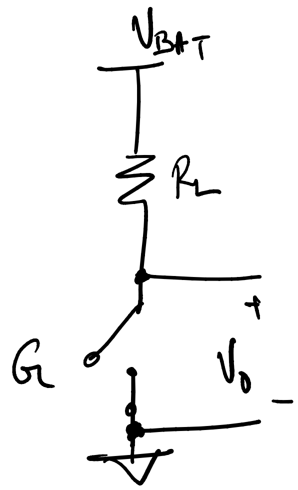
Lecture 12a

21 August 2024 01:34



When V_G is high
Switch turns on $\rightarrow V_0 \rightarrow 0$

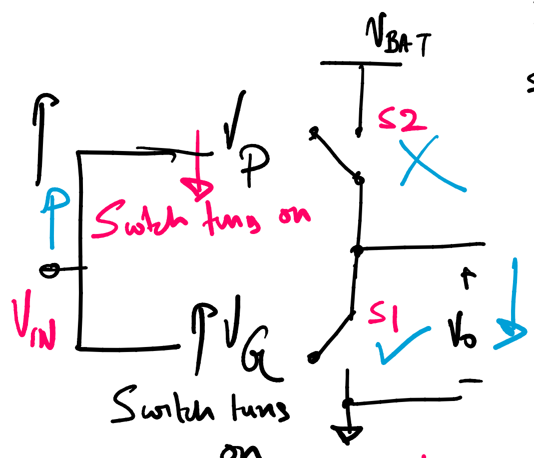


FIG:2

Switch S_2 is of opposite polarity to that of S_1

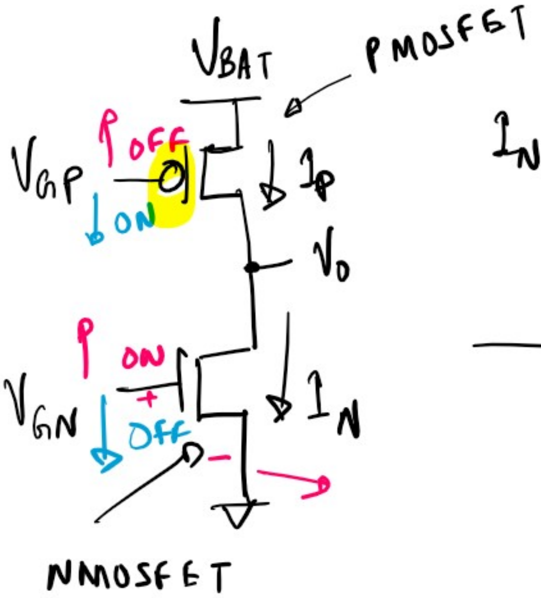
Assume S1 and S2 have ∞ off resistance.
When on, S1 offers a resistance of $R_1 = 1k\Omega$
" " S2 " " " " $R_2 = 1k\Omega$

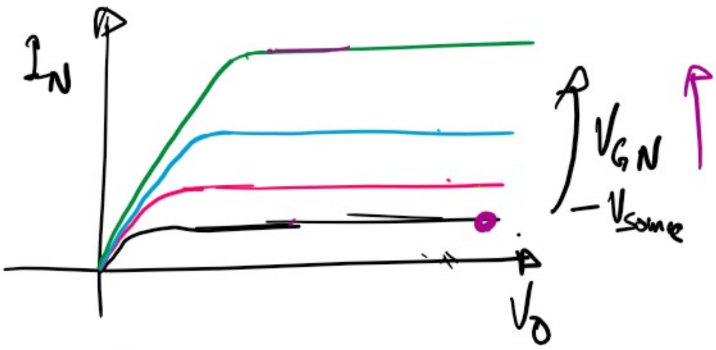
Assume S1 turns on when $V_G \geq 2V$.
" S2 " " " $(V_{BAT} - V_P) \geq 2V$.
" $V_{BAT} = 5V$.

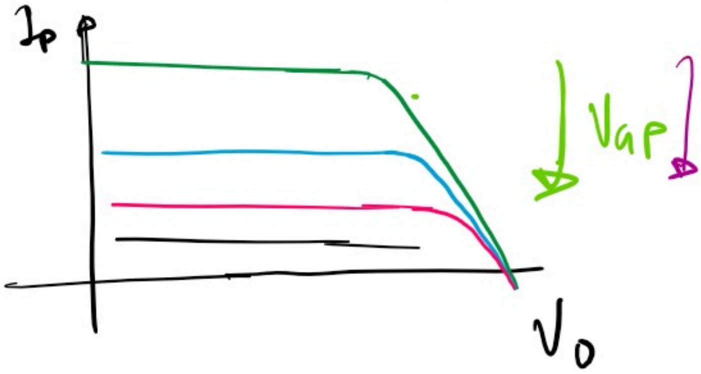
(a) Plot the VTC for Fig.2 for $0 < V_{in} < 5V$.

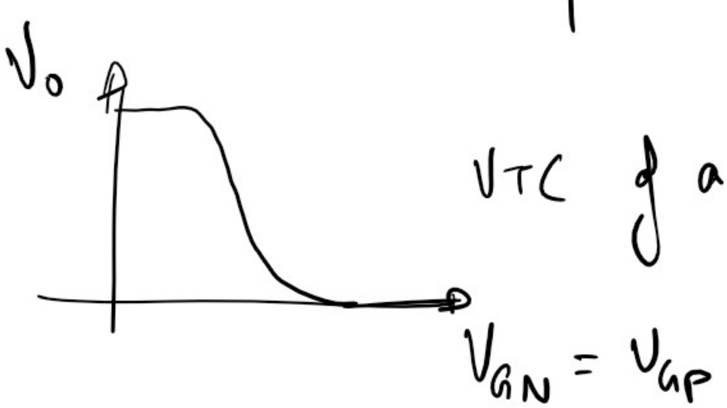
(b) Now assume $R_1 = 1k\Omega$ when $2V \leq V_G \leq 2.5V$
$R_1 = 0.5k\Omega$ " $V_G > 2.5V$
$R_2 = 1k\Omega$ " $2V \leq (V_{BAT} - V_P) < 2.5V$
$R_2 = 0.5k\Omega$ " $(V_{BAT} - V_P) \geq 2.5V$.

Scan the following QR code to upload your answer.









VTC of a realistic inverter