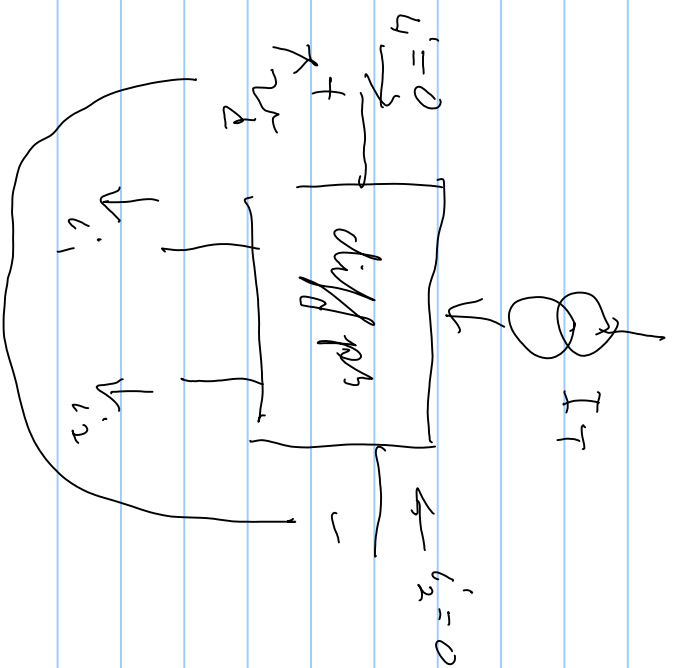
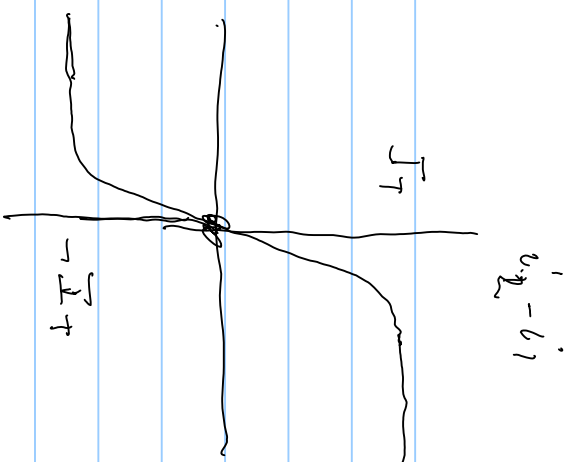
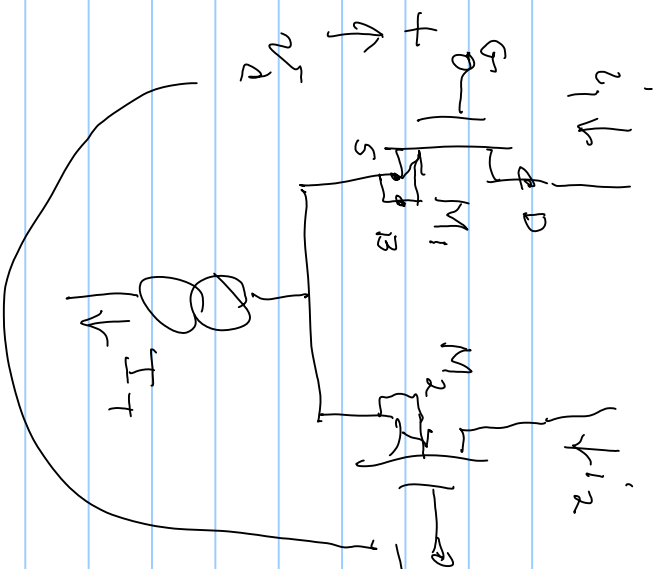


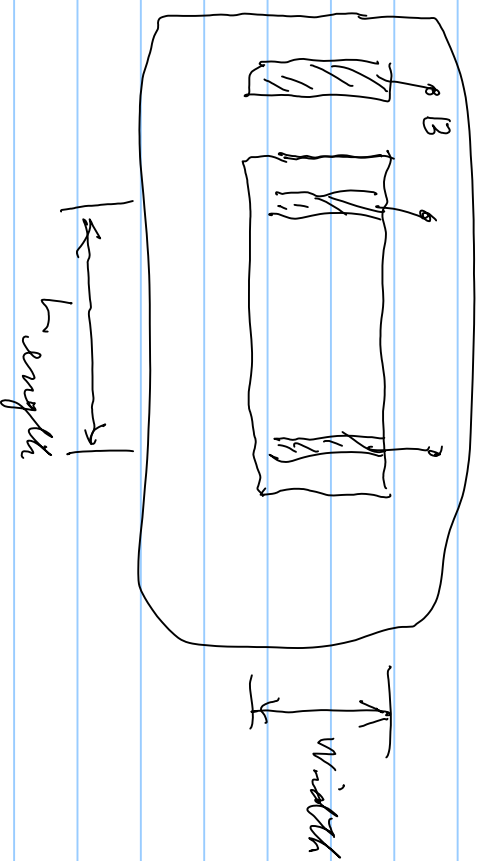
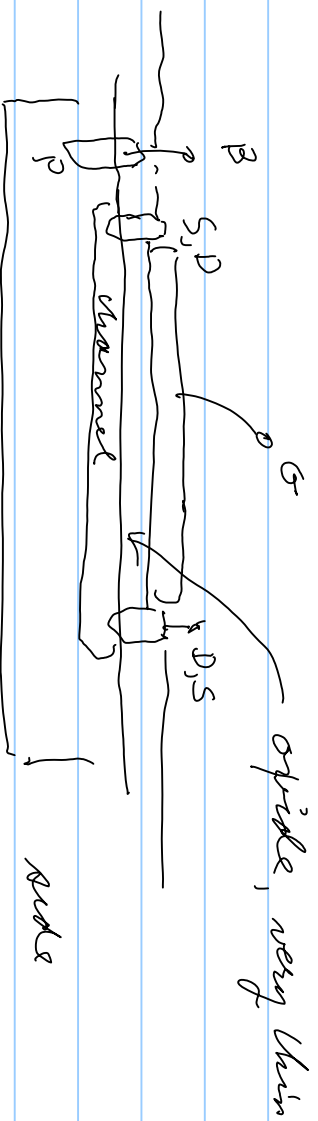
EE307
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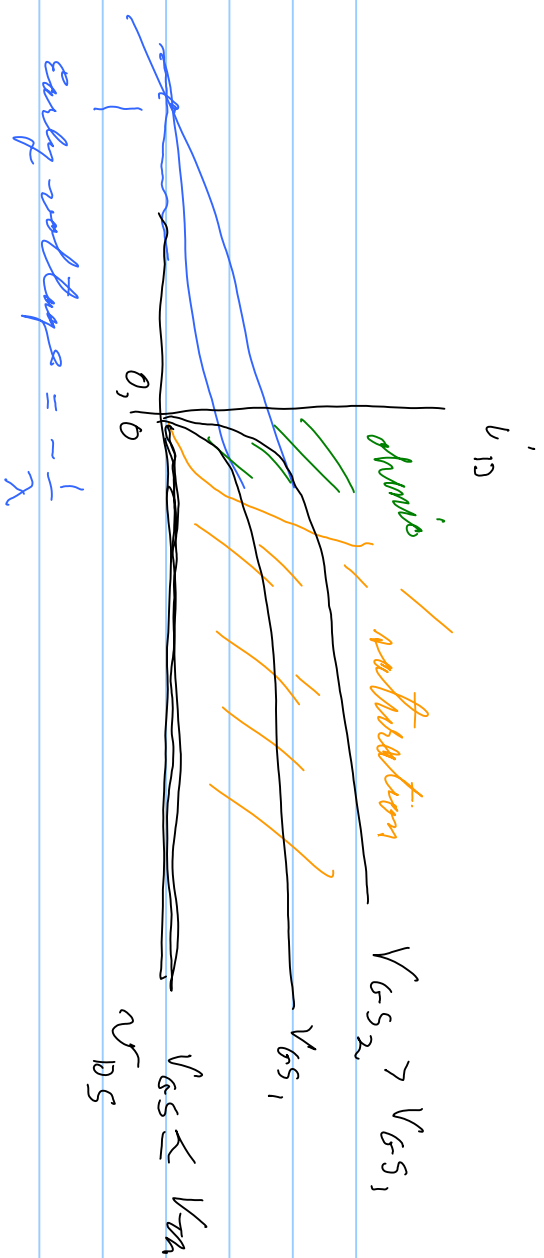


max ramp rather than n.p.m
2m3906 2m3904



NMOS





$$i_D = \begin{cases} 0 & V_{GS} - V_{th} < 0 \quad \text{off} \\ \frac{k_P}{2} \frac{W}{L} \left\{ (V_{GS} - V_{th})^2 (1 + \lambda V_{DS}) \quad V_{DS} \geq V_{GS} - V_{th} \geq 0 \quad \text{saturation} \right. \\ \left. \left[\frac{1}{2} (V_{GS} - V_{th}) V_{DS} - \frac{V_{DS}^2}{2} \right] (1 - \lambda V_{DS}) \quad V_{GS} - V_{th} \geq 0, V_{DS} \geq 0 \quad \text{ohmic} \right. \end{cases}$$

very nonlinear