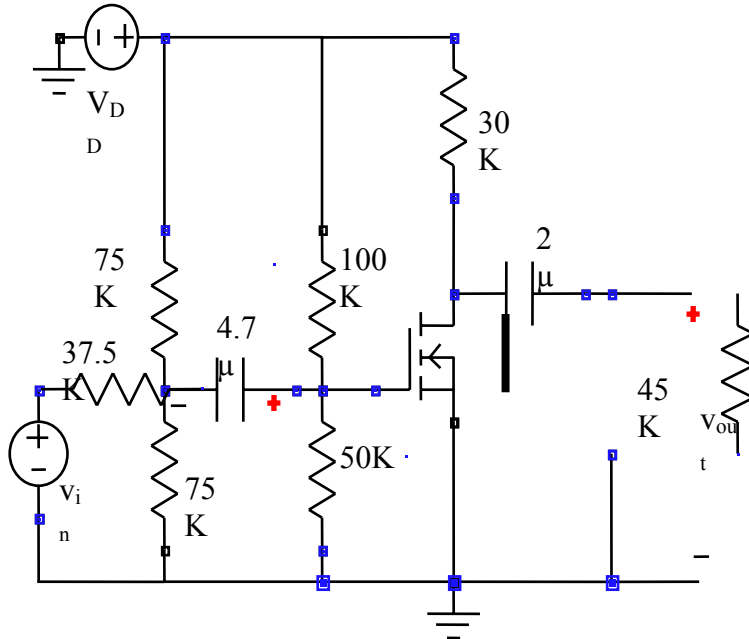


HW 11

ECE255

F05

11.1 (a) Using the time constant method estimate the high frequency f_H for the following circuit. At the operating point $C_{gs}=10\text{pF}$, $C_{gd}=4.0\text{pF}$, $C_{ds}=2\text{pF}$, $r_d=100\text{K}\Omega$ and $g_m=330\mu\Omega^{-1}$ for the FET. Which capacitive component causes ω_H to be limited? (b) Use SPICE to determine f_H more accurately. Hand in the plot and SPICE code. HINT use decades and log f axis. Use 40 points per decade



11.2 At the operating point $C_{gs}=12\text{pF}$, $C_{gd}=5.0\text{pF}$, $C_{ds}=3\text{pF}$, $r_d=100\text{K}\Omega$ and $g_m=500\mu\Omega^{-1}$ for the FET.

(a) Estimate ω_H the circuit. Which capacitive component causes ω_H to be limited?

(b) Use SPICE to determine ω_H . HINT use decades and log f axis. Use ≥ 40 points per decade.

