

Homework 5: Due Tuesday, Feb, 4th

Problem 1

Design a two-stage op-amp that meets the following requirements. Use only a compensation capacitor (not a compensation resistor) to do the compensation.

$V_{dd}=5V$, $V_{ss}=-5V$, $C_{load}=20pF$, slew rate $>2V/\mu\text{sec}$, input CMR = $-3V$ to $+3V$, $A_{vd} > 4000$,
GB = 1MHz , and the output voltage swings within $1.0V$ of either rail. Assume that $K_n = 17\mu\text{A}/V^2$,
 $K_p = 8\mu\text{A}/V^2$, $V_{tn} = 0.7V$, $V_{tp} = -0.9V$, $\lambda_n = 0.01$ and $\lambda_p = 0.02$.