

# EE210: Analog Electronics - Quiz 4

NAME (in capital)

Roll No



Time: 15 minutes

1) : For the transistor in the following circuit  $\mu_n C_{ox} = 200 \mu A/V^2$ ,  $V_{tn} = 1V$ , Also,  $V_{DD} = 5V$ .

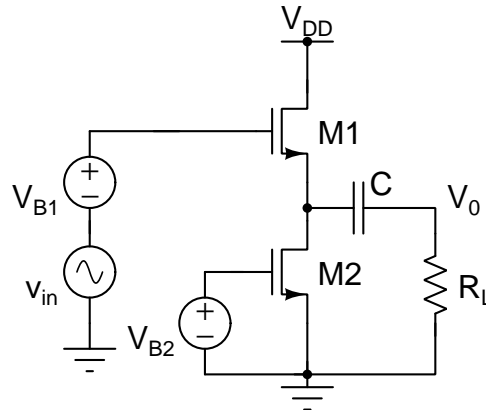


Fig. 1. Problem 1

a) : Assume  $W/L = 10$  for both transistors. Find the minimum  $V_{B1}$  and  $V_{B2}$  such that a quiescent current of 1 mA flows through stack while keeping both transistors in saturation. [3]

Same as Set 1

b) : What changes in the  $W/L$  would you do to ensure M2 is in saturation and away from the edge of linear region by 500 mV while maintaining 1 mA of quiescent current? [4]

Same as Set 1

c) : What is the constraint on  $R_L$  to ensure that  $v_0$  is independent of  $R_L$ ? (Assume  $C$  is ) [3]

Same as Set 1