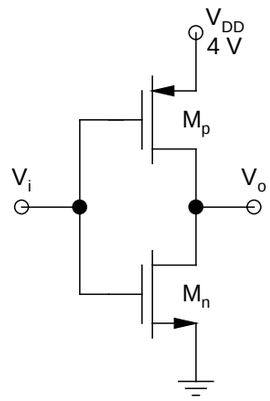
DEPARTMENT OF ELECTRICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

EE 210 **MINI-QUIZ #8B** **31.3.21**
Total Marks: 10 **Total Time: 10 mins.**



V_i,V_o have both DC (V_I,V_0) and ac (v_i,v_o) components. Data: For M_n: V_{TN0} = 0.6 V, k'_N = 50 μA/V^2, λ_n = 0.15 V^{-1}; for M_p: V_{TP0} = –0.6 V, k'_p = 20 μA/V^2, λ_p = 0.1 V^{-1}.

a) If $(W/L)_p$ = 50, choose $(W/L)_n$, such that the stage is *unmatched by nature, but matched by performance*.
b) Hence, evaluate the ac midband voltage gain v_o/v_i.
c) If $V_{TN0} \neq |V_{TP0}|$, how will the result of part a) change? Discuss.