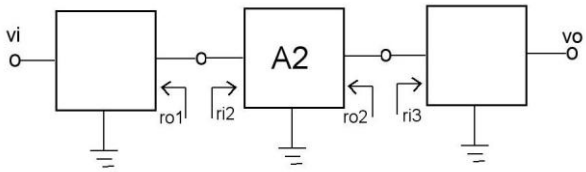
ELECTRONICS II SUMMER-2020 MT-1 13.08.2020
NAME: Number:

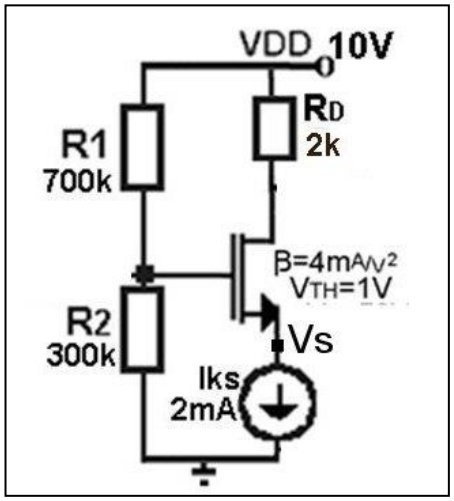
P1- Explain the trans-resistance amplifier.

P2- For the circuit in the figure
ri2<<ro1 and ro2>>ri3
are given. What is the appropriate amplifier type of A2? (voltage, current, trans-conductance, trans-resistance)



P3- Give the model of the ideal transistor.(10p)

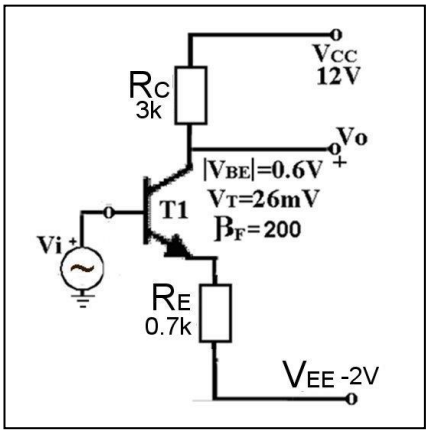
P4- For the transistor in the figure, $\beta=4mA/V^2$, $V_{TH}=1V$ and $V_A=80V$ are given. **Find Vs**.
(You can ignore rds)



Answer-4: Vs=

P5- Give the ac model of the MOS transistor in P4 (do not ignore rds).

P6-The figure shows an amplifier circuit employing a BJT. For the BJT, β_F=200 and V_{BE}=0.6V are given. $V_T \approx 25mV$.



a) Find the collector current of the transistor (I_{CQ}). Does I_{CQ} provide the maximum amplitude value for sinusoidal case? (V_{CEsat}=0)

Answer-6a: Ic=

b) Find the voltage-gain (vo/vi) of the circuit.

Answer-6b: Av=

c) Find the trans-resistance gain (vo/i_i) of the circuit.

Answer-6c: Rm=