Tutorial Sheet-11 IEC103

(Q1) Find the Q points (V_{CE1}, I_{C1}) and (V_{CE2}, I_{C2}) of transistors Q_1 and Q_2 respectively in the amplifier circuit shown in Fig. Q1

Take $I_C \simeq I_E$, $|V_{BE}| = 0.7\,V$

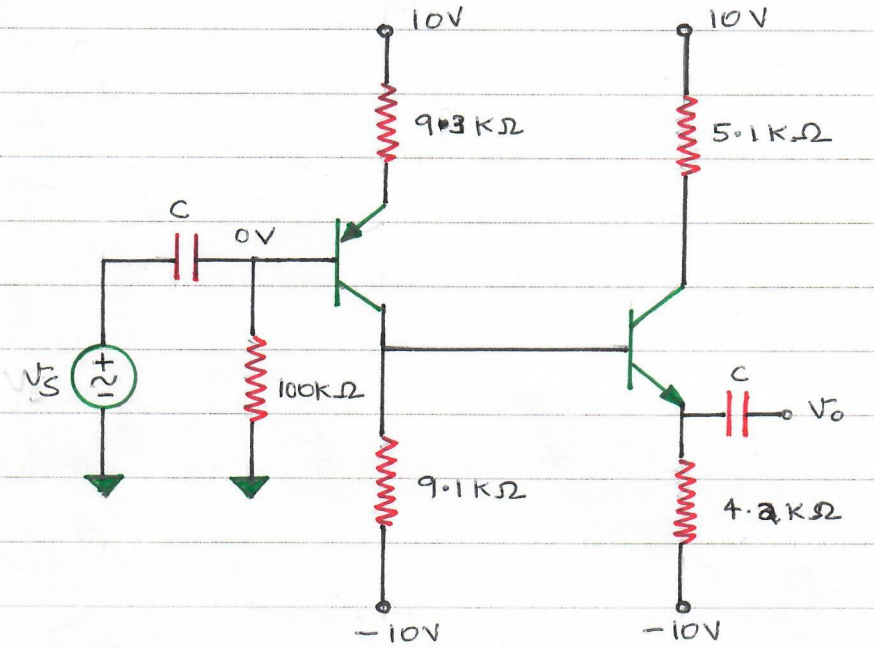

Fig. Q1

(Q2) Calculate the quiscent points of transistors Q_1 and Q_2 shown in Fig. Q2. Assume that the base currents are negligible and take $V_{BE} = 0.7\,V$ for both Q_1 and Q_2.

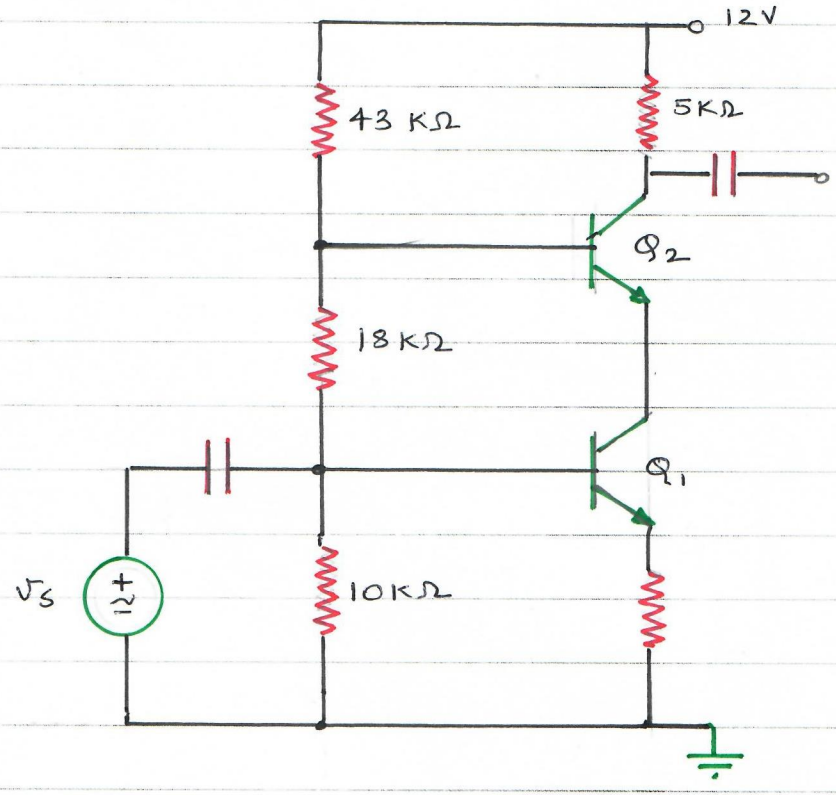

Fig. Q2

Q3 For the amplifier circuit shown below, calculate the voltage gain $A_V \left(\frac{v_o}{v_s}\right)$, current gain (i_o/i_s), input resistance (R_{in}), and output resistance (R_o). Given that the transistor is of silicon and $\beta = 100$.

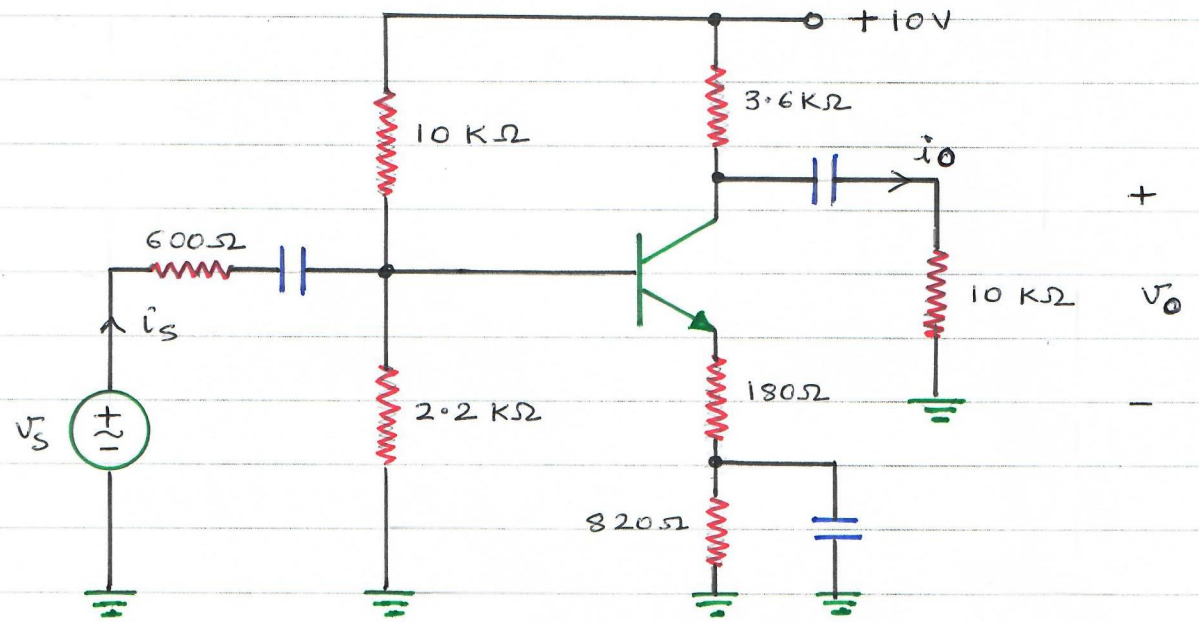

Fig. Q3

(24) For the CC amplifier shown in Fig. Q4 shown below draw the small signal equivalent of the circuit and compute the voltage gain of the circuit $= A_V = \frac{V_o}{V_s}$

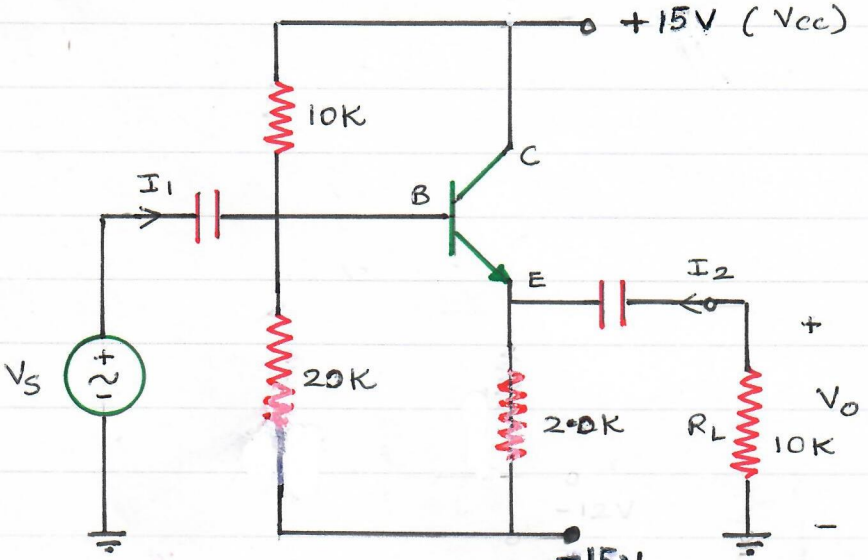

Fig. Q4

Assume that capacitors act as short circuit in the frequency range of interest. Take $\beta = 100$, $V_{BE} = 0.7V$