BD SCHOOL SHOP

Problem - 1:

My student ID's last 3 digits are 036.

So, the BJT model is BC548.

From Datasheet $I_c = 2 mA$

Now.

$$V_{\rm E} = \frac{1}{10} \, V_{\rm cc} = \frac{1}{10} \times 10V = 1V$$

$$V_{E} = \frac{10}{10} \text{ Vec} = \frac{10}{10} \text{ A 10V}$$

$$R_{E} = \frac{V_{E}}{I_{E}} \cong \frac{V_{E}}{I_{C}} = \frac{1V}{2mA} = 500 - 2$$

$$R_{E} = \frac{V_{E}}{I_{E}} \stackrel{?}{=} \frac{I_{c}}{I_{c}} = \frac{2mA}{2mA}$$

$$R_{C} = \frac{V_{RC}}{I_{C}} = \frac{V_{CC} - V_{CE} - V_{E}}{I_{C}} = \frac{(10 - 5 - 1)V}{2mA} = 2K\Omega$$

$$V_B = \frac{R_1}{R_1 + R_2} V_{ec}$$

$$V_B = \frac{1}{R_1 + R_2} V_{CC}$$
 $R_1 + R_2$
 $R_2 \leq \frac{1}{10} (10) \times (0.5 \times -2) = 15.5 \times 2$

(5.5 \times -2)

$$\frac{2}{10} \frac{100}{(5.5 \text{ K-Q})(100)}$$

$$\frac{1.7 \text{ V}}{R_1 + R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ K}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V}}{R_1 + 6.5 \text{ V}} \frac{1.7 \text{ V}}{R_2} = \frac{1.7 \text{ V$$

$$R_2 = 5.5 \text{ K} \Omega$$

$$VI = VOI \times \frac{1}{01} = 50 \text{ V} \frac{1}{01} = 3 \text{ V}$$

$$R_2 = 2 \text{ K} \Omega$$

$$R_{\text{E}} = \frac{2 \times \Omega}{500 - \Omega + m \cdot S} = \frac{3V}{3I} = \frac{3V}{3I} = \frac{3V}{3I}$$

$$R_{\text{E}} = \frac{500 - \Omega + m \cdot S}{3I} = \frac{3V}{3I} = \frac$$

$$RE = 500 - 2 - 100 = 3$$

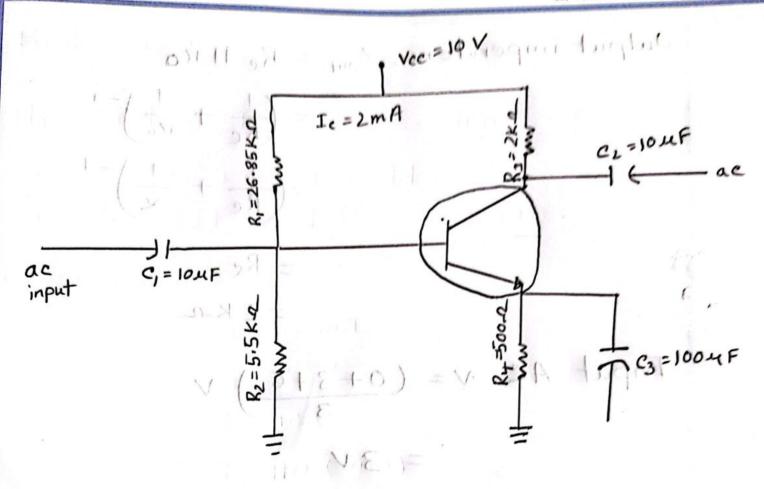
$$R_{c} = \frac{V_{RC}}{T_{c}} = \frac{V_{CC} - V_{CE} - V_{E}}{T_{C}} = \frac{(100 - 5 - 1)V}{2mA}.$$

Now

$$R_{2} \leq BR_{E}$$
 $V_{B} = \frac{R_{1}}{R_{1} + R_{2}} V_{CC}$
 $R_{1} + R_{2}$
 $R_{2} \leq \frac{1}{10} (110) \times (0.5 \text{ K} - \Omega) = 5.5 \text{ K} \Omega$

Herce,

 $V_{B} = \frac{R_{1}}{R_{1} + R_{2}} V_{CC} \Rightarrow 1.7 V = \frac{(5.5 \text{ K} - \Omega)}{R_{1} + R_{2}}$
 $\therefore R_{1} = 26.85 \text{ K} \Omega$
 $R_{1} = 26.85 \text{ K} \Omega$
 $R_{2} = 5.5 \text{ K} \Omega$
 $R_{2} = 5.5 \text{ K} \Omega$
 $R_{3} = 26.85 \text{ K} \Omega$
 $R_{4} = 26.85 \text{ K} \Omega$
 $R_{5} = 26.85 \text{ K} \Omega$
 $R_{6} = 2 \text{ K} \Omega$
 $R_{7} = 26.85 \text{ K} \Omega$



Now,
$$Re = \frac{26mV}{I_E} \cong \frac{26mV}{I_c} = \frac{26mV}{2mA} = 13-\Omega$$

Input imperience,
$$Z_{in} = R_1 | 1 R_2 | 1 B Re$$

$$= \left(\frac{1}{26.85} + \frac{1}{5.5} + \frac{1}{100 \times 13 \times 10^{-3}}\right)^{-1}$$

$$= 1.089 \text{ K-D}$$

