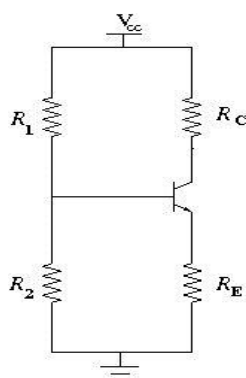# Experiment No 7: BJT biasing Simulation Exercise

Q1 Write the net list for the biasing network shown in Fig. 4.

We will use Transistor, BC547, $R_1 = 47$ k, $R_2 = 5.6$ k, $R_C = 1.8$ k, RE = 1 k.

a. Tabulate the following quantities: V_{CE}, I_C, I_E, I_B, and V_E.

b. Plot the DC load line and locate the operating point.

   Hint: To plot DC load line you have to find the intercepts on X and Y axes by making $I_C=0$ for X axis intercept and by making $V_{CE}=0$ for Y axis intercept in the following equation.

   $$V_{CC}= I_C.R_C + V_{CE} + I_E.R_E$$

c. Apply input signal of 50mVp-p through a capacitor of 10µF into the base.

   Observe the output voltage with respect to input voltage. Comment on the output

amplitude and the wave shape.

d. Replace the transistor by SL100 and tabulate the values of V_{CE}, I_C, I_E, I_B, and V_E.

e. Repeat steps a, b, c, and d for

   (i)   BC547, $R_1 = 47$ k, $R_2 = 5.6$ k , $R_C = $ 1.8 k, RE = 1 k
   (ii) BC547, $R_1 = 47$ k , $R_2 = 18$ k , $R_C = 1.8$ k, RE = 1 k
   (iii) BC547, $R_1 = $ 68 k, $R_2 = 5.6$ k , $R_C = 4.7$ k , RE = 1 k
   (iv) BC547, $R_1 = 68$ k, $R_2 = $ 33 k , $R_C = 4.7$ k, RE = 1 k

Sr. No	BC547, $R_1 = $ $R_2 = $ $R_C = $ RE =	SL100 $R_1 = $ $R_2 = $ $R_C = $ RE =	BC547, $R_1 = $ $R_2 = $ $R_C = $ $R_E = $	BC547 $R_1 = $, $R_2 = $, $R_C = $, RE =	BC547 $R_1 = $, $R_2 = $, $R_C = $, RE =	BC547 $R_1 = $, $R_2 = $, $R_C = $, RE =