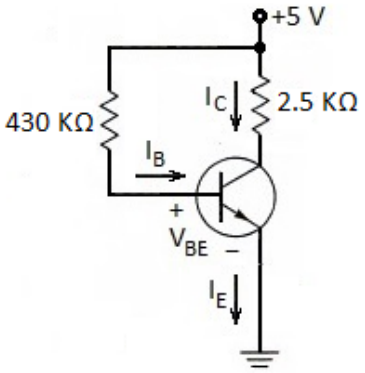
TUTORIAL-IX

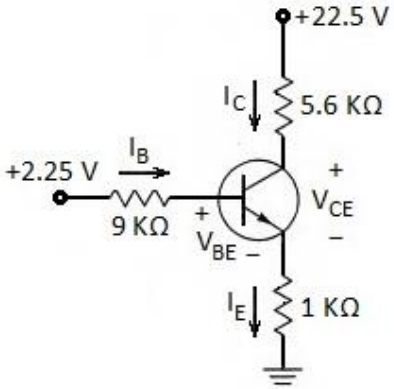
SEM-III, B.Tech(Computer Engineering), SVNIT, Surat

Topic: BJT biasing and MOSFET

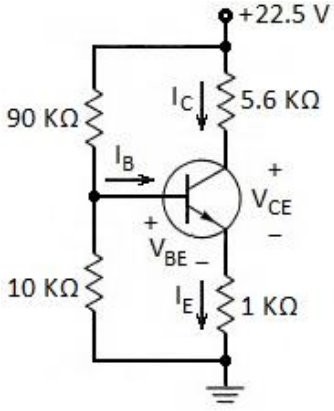
1) For the circuit shown in below figure, if V_{BE} = 0.7 V, then determine the dc voltage at the collector for β = 100, 150 and 200. Comment on the results.



2) Determine the operating point of silicon transistor circuit shown in below figure for β =100, 150 and 200. Comment on the results.



3) A silicon transistor is used in circuit given in figure. Calculate the operation point for this transistor circuit for β = 100 and β = 200. Comment on the results.



4) Design a voltage-divider biasing circuit to fix the operating point at (6 V, 4 mA) for the silicon BJT with β = 200, operating at 12 V supply.

5) In the given circuit, the n-channel MOS device has K is 1.67 milli-siemens per volt, and V_T is 0.5 volts. In the circuit $R_1 = 635.3\ K\Omega$ and $R_2 = 100\ K\Omega$. What is the maximum value of R_D for which the device is in saturation?