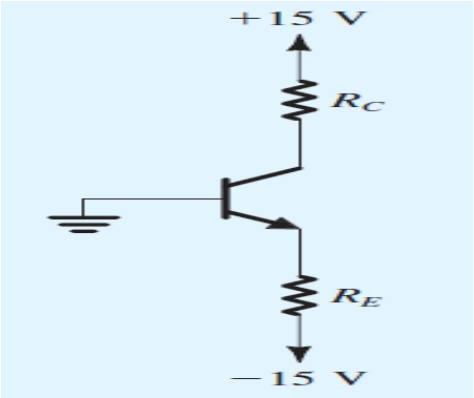
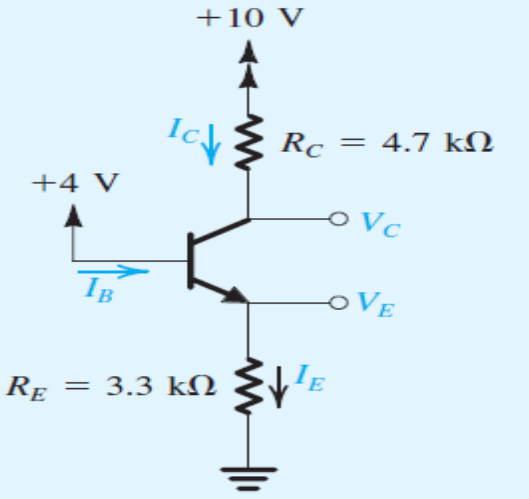
Assignment 2: Bipolar Junction Transistors

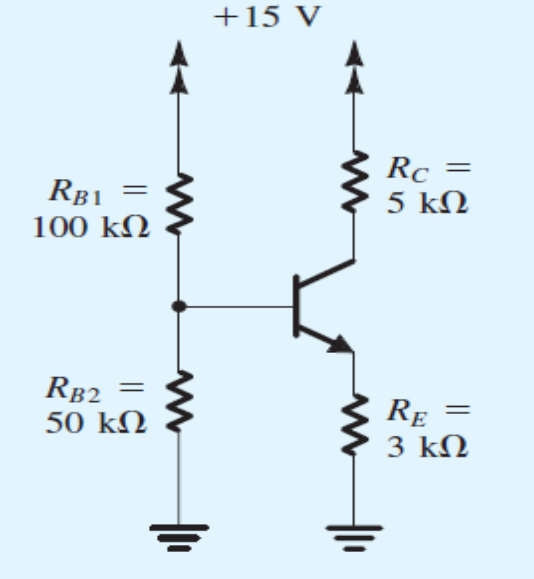
1. **Explain the operation of NPN transistor in active mode with neat diagram?**
2. **What is early effect? How does it modify the V-I characteristics of a BJT?**
3. **Draw V-I Characteristics of a Transistor in CE Configurations and identify various region of operation?**
4. **The transistor in the circuit of figure shown has β =100 and exhibits a v_{BE} of 0.7V at i_C =1mA.Design the circuit so that a current of 2 mA flows through the collector and a voltage of +5V appears at the collector**



5. **Analyze the circuit shown in the figure to determine the voltages at all nodes and the currents through all branches. Assume β = 100.**



6. **Analyze the circuit shown in the figure to determine the voltages at all nodes and the currents through all branches. Assume β = 100.**



7. **Explain the applications of BJT as a switch and amplifier**

8. **Explain the various biasing methods in BJT**

9. **Draw the Small signal Low Frequency Equivalent Circuit of a CE Transistor Amplifier and derive the expression for Voltage gain, input and output impedance (or) Explain in detail about BJT small signal model**