ECE 321 - Homework #5

DC Analsis of Transtor Amplfiers, 2-Ports, CE Amplifiers. Due Monday, May 3rd

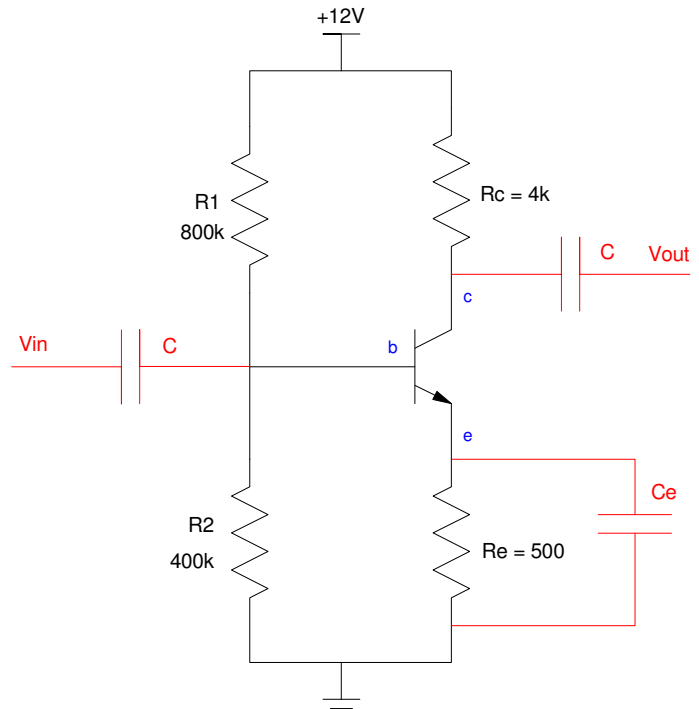1) Determine the Q-point for the following transistor circuit. Assume C's are large and assume 3904 transistors:

- Vbe = 0.7V
- β=200

2) Modify this circuit so that

- The Q-point is stabilized for variations in β, and
- The Q-point is Vce = 6.0V

From this point on, use the circuit you designed for problem #2

3) Draw the small-signal model for the circuit of problem #2. From this, determine the 2-port model for the Common Emitter amplifier

4) Simulate this circuit in CircuitLab. Verify each of the 2-port parameters at 1kHz

- Rin
- Rout
- Ao

5) Remove Ce. Now draw the small-signal model for the circuit of problem #2. From this, determine the 2-port model for the Common Emitter amplifier

6) Simulate this circuit in CircuitLab. Verify each of the 2-port parameters at 1kHz

- Rin
- Rout
- Ao