ECE 321 - Homework #5

Common Emitter / Base / Collector Amplifiers. Due Monday, April 30th, 2018

For the following transistor amplfiers, assume

- $\beta = 200$
- The Q-point (DC operating point) is
  - Vce = 6V
  - Ic = 2mA
  - Ib = 10uA

1) Common Emitter:

- Draw the small signal model for the amplifier connected in a common-emitter configuration (note: Ce = 0)
- Determine the 2-port model

2) Common Base:

- Draw the small signal model for the amplifier connected in a common-base configuration
- Determine the 2-port model

3) Common Emitter:

- Draw the small signal model for the amplifier connected in a common-collector configuration
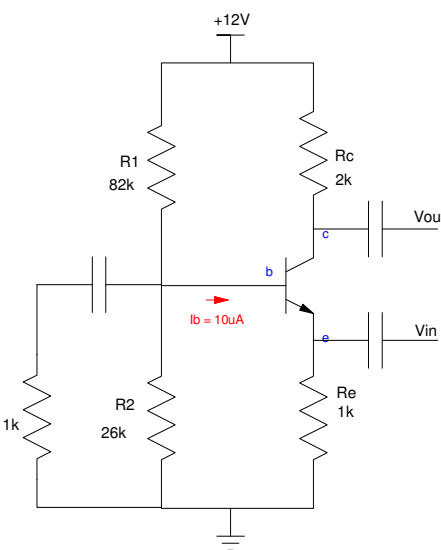- Determine the 2-port model

4) Using your resulting 2-port models, find the 2-port model for a four-stage amplifier:
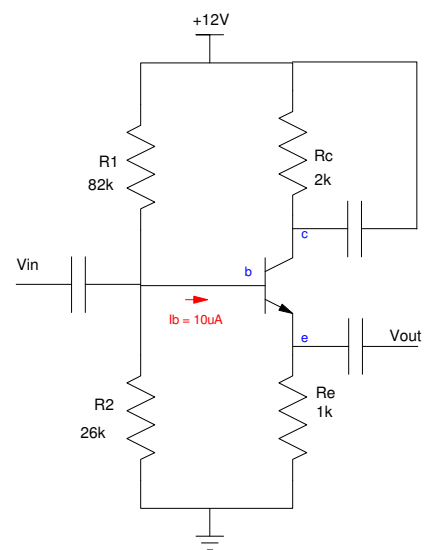
   CB : CE : CE : CC

5) (Lab - 20pt)   Build the three-stage circuit from homework #4 and collect data in lab to verify it meets the overall requirements.
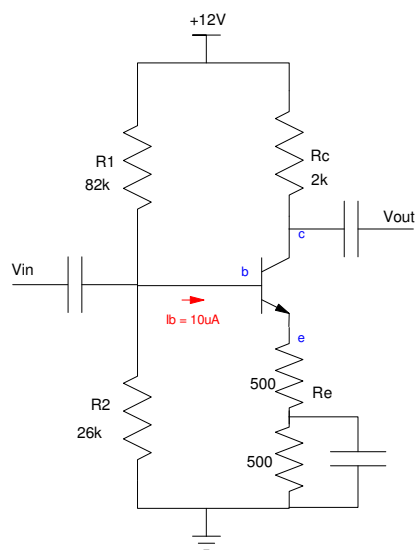
Problem 1; CE Amplifier

Problem 2: Common Base

Problem 3) Common Collector