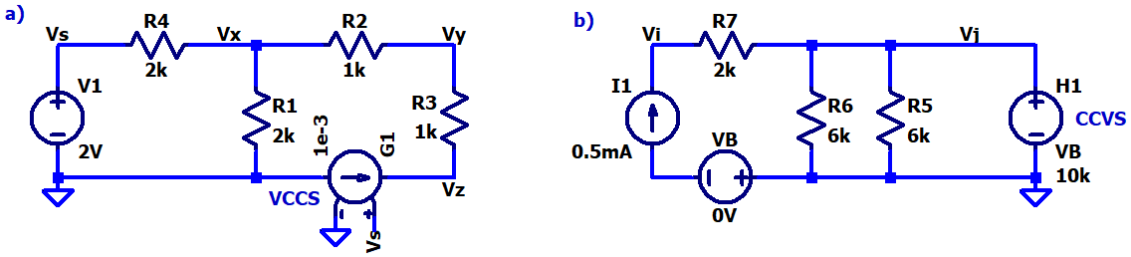
HW10 – Due Wednesday, March 23
EE220 – Circuits I
Spring 2022

To get full credit:

- Show your work.
- Put a box around each of your answers.
- Make sure to **follow all instructions.**

1. Determine the **total instantaneous power dissipation** in each of the circuits given below. Verify your work using transient simulations in LTspice. (Note: VCCS – Voltage-Controlled Current Source, CCVS – Current-Controlled Voltage Source) (6 points)



2. A particular capacitor can store up to 50µC of charge. What is the capacitance of this capacitor if its voltage rating is 50V? (2 points)

3. A different capacitor is rated for 16V. It has a capacitance of 10µF. How much charge can this capacitor store? (2 points)

4. A capacitor bank is designed for the output of a 5V voltage regulator. The capacitor bank consists of a 1nF, 10nF, 100nF, and 1µF capacitor connected in parallel. What is the equivalent capacitance of the capacitor bank (in microfarads)? Assuming the output voltage Vout is 5V, how much charge is stored in the capacitor bank? (2 points)