Physics 140
Analysis Exam Study Guide

1. Be able to analyze a network of resistors with a battery and determine the current through each resistor and the voltage across each resistor. You need to use parallel and series combinations of resistors.

2. Be able to recognize and work with a voltage divider circuit.

3. Be able to determine the output impedance of a device by measuring the voltage when the device has no load on it and when it has a load resistor.

4. Know the meaning of the following terms with regard to AC circuits: Amplitude, frequency, period, rms voltage or current, peak-to-peak voltage or current. Know their relationships.

5. Understand the concept of RC time in a circuit using a resistor and capacitor.

6. Be able to design a low-pass or high-pass filter using a resistor and capacitor.

7. Know how to use NPN and PNP transistors as switches and know when they will turn off or on.

8. Know how to use a MOSFET transistor as a switch.

9. Know the basic rules of op-amp design and know how to analyze a circuit that uses an op-amp. Particularly know inverting and non-inverting amplifiers.