

EE223 Test II: Student Objectives Review Sheet

- I. **Initial Conditions:** Given a circuit with two energy-storage elements (1L and 1C, 2C's, or 2L's) and any number of R's, sources, and switches
- A. find $v_c(0^+)$ and $v_c'(0^+)$ or $i_L(0^+)$ and $i_L'(0^+)$ (method: draw $t < 0$, draw $t = 0^+$)
 - B. tweaks
 - may use $u(t)$ or $u(-t)$ sources
 - may ask for something other than $v_c(0^+)$ and $v_c'(0^+)$ or $i_L(0^+)$ and $i_L'(0^+)$, e.g. may ask for $i_c(0^+)$ and $i_c'(0^+)$ or $v_R(0^+)$ and $v_R'(0^+)$. Method: find v_c and i_L first, then find requested value.
- II. **Second order RLC circuit - simple:** Given an RLC circuit
- A. If it simplifies to a series RLC circuit for $t > 0$, find the current
 - B. If it simplifies to a parallel RLC circuit for $t > 0$, find the voltage
 - C. tweaks
 - may use $u(t)$ or $u(-t)$ sources and/or switches
 - may have a number of R's that must be simplified
- III. **Second order RLC circuit - complex:** Given an RLC circuit
- A. Find something other than the current if it is in series or the voltage if it is in parallel (e.g. find the voltage across a resistor, or the current through a capacitor)
 - B. tweaks:
 - may use $u(t)$ or $u(-t)$ sources and/or switches
 - may have a number of R's that must be simplified

Test Questions

- 1. I 30%
- 2. II 35%
- 3. III 35%

Reference Materials

- You may bring a 3x5 card with both sides filled with any notes of your choosing - formulas, example problems, method steps, anything - but they must be in your handwriting (no photocopying)
- Your calculator.