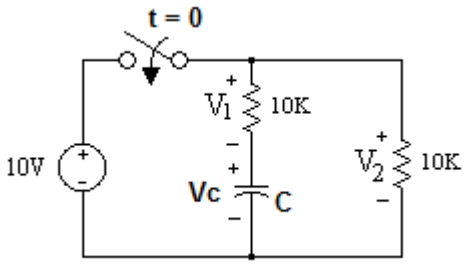
EE 210
Hour Exam 3 Review1

1. You are given two RLC networks – one is in series and one is in parallel. Both are adjusted for critical damping. Fill in the table below to indicate whether the network will become overdamped, underdamped, or will remain unchanged for each case.

Case	Series	Parallel
Decrease R only		
Decrease C only		
Decrease L only		

2. For the circuit at right the switch closes at t = 0. Find the expression for $v_C(t)$ for t > 0. Take C = 0.2 farads. Show all work.



3. For the circuit at right, find the following:

$i_1(0^-)$ = _____

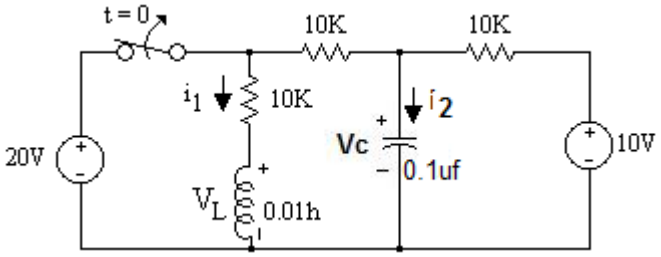
$i_1(0^+)$ = _____

$i_1(\infty)$ = _____

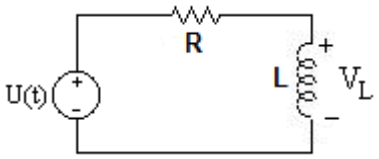
$v_C(0^-)$ = _____

$v_C(0^+)$ = _____

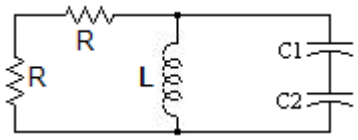
$v_C(\infty)$ = _____



4. For the circuit below find the equation for $V_L(t)$ for t > 0. Take L = 2H and R = 1K. Show all work.



5. In the circuit below C1 = .1μf , C2 = .4μf, and L = 1H. Find the value of R necessary for critical damping.



6. In the circuit at right the input is a step function. The output is given by

$V_c(t) = 1 - e^{-100t}$

What is the output if the input is an impulse given by

$V_{in}(t) = \delta(t)$

Write the equation for the output and sketch the output waveform on the axis shown.