## 8.5.3: RLC Circuit Response (40 points total)

1. Provide below the differential equation governing the circuit. Attach your derivation of this differential equation to this worksheet. (8 pts)
2. Attach, to this worksheet, plots of the input step function you applied to the circuit and the resulting circuit step response. Annotate your plot to indicate the rise time, overshoot, and oscillation frequency. Provide the rise time, overshoot, and oscillation frequency in the space below. (7 pts)
3. Provide below your estimate of the damping ratio, DC gain, and natural frequency, as determined from the step response data. (6 pts)
4. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuits’ operation. (9 pts)

**TA Initials: \_\_\_\_\_\_\_**

1. Compare your measured vs. expected parameters (e.g. damping ratio, natural frequency, damped natural frequency, rise time, steady state response). Where appropriate, express differences in terms of a percent of the expected value. Provide at least one reason why measured values might disagree with expectations based on your pre-lab analysis (10 pts)