Step and Impulse Response of an RLC Bandpass Filter

Prelab 5

Spring 2024

1 Purpose

Use Laplace transforms to find the time-domain step- and impulse-response of an RLC bandpass filter.

2 Deliverables Overview

Typed solutions for **Task 1** and **Task 2**. *Note: Be sure to show all work. All math must be solved symbolically in terms of R, L, C.*

3 Tasks

Consider the RLC circuit in figure 1.

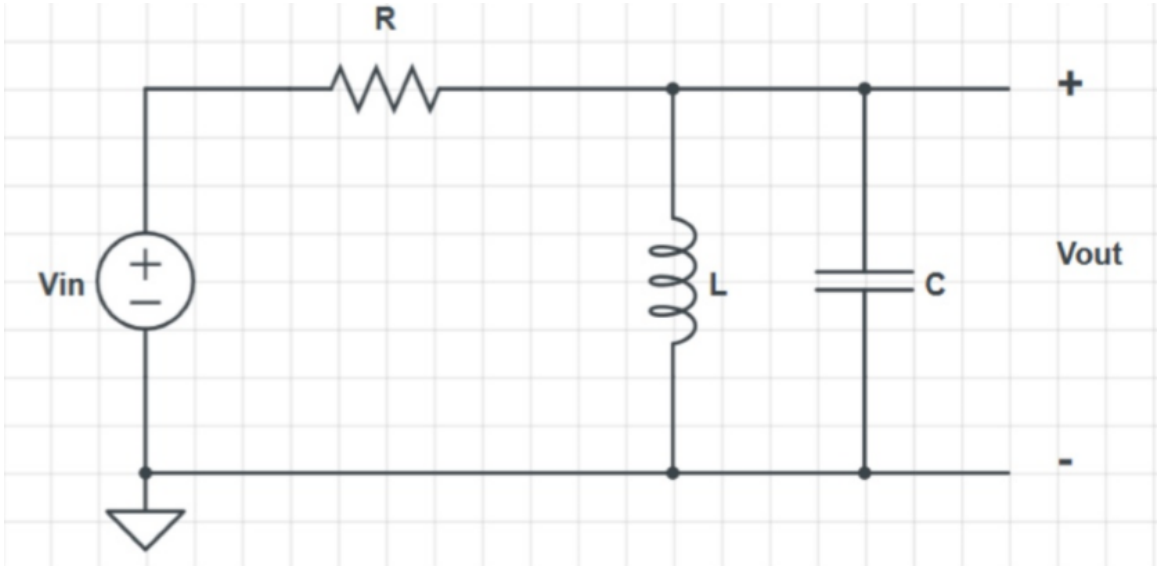

Figure 1: R = 1kΩ, L = 27 mH, C = 100 nF

1. Find the transfer function $H(s) = \frac{V_{out}(s)}{V_{in}(s)}$.
2. Find the impulse response $h(t)$.