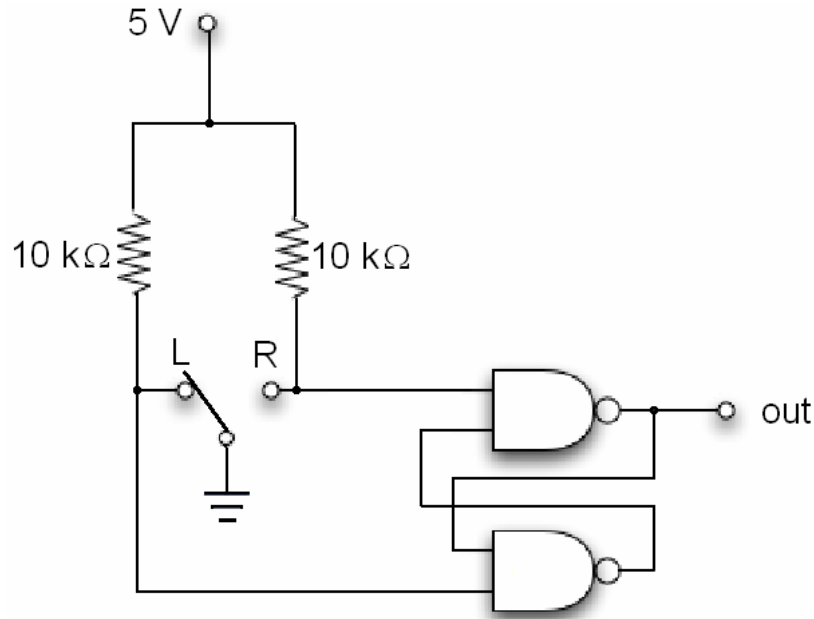# Problem T11

In the circuit below, two NAND gates are used to debounce a single-pole double-throw (SPDT) switch.

(a) Make a truth table showing the circuit output for the switch in the left position (L) and right position (R).

(b) Explain the operation of the circuit, addressing how it debounces. You may assume that (i) when the switch bounces, most of the contact/no-contact oscillations have a period ~5 ms, (ii) the NAND gates respond to changes in their input ~10 ns.

(c) Suggest additions to the circuit to improve its performance. Sketch your improved circuit.