1. After being closed for a long time, the switch opens at \( t = 0 \).

Calculate the energy stored on the inductor as \( t \to \infty \).

2. Use the circuit in 1 above to write a numerical expression for \( v_o(t) \) for \( t > 0 \).

3. After being open for a long time, the switch closes at \( t = 0 \).

   a) Write an expression for \( V_c(t = 0^+) \)

   b) Write an expression for \( V_c(t > 0) \) using not more than \( R_1, R_2, V_s, I_s, \) and \( C \).
4. a) Calculate the value of $R_L$ that would absorb maximum power.

b) Calculate that value of maximum power $R_L$ could absorb.

5. Using superposition, derive an expression for $V_1$ that contains no circuit quantities other than $i_s$, $V_S$, $R_1$, $R_2$, $R_3$, and $\alpha$, where $\alpha > 0$. 