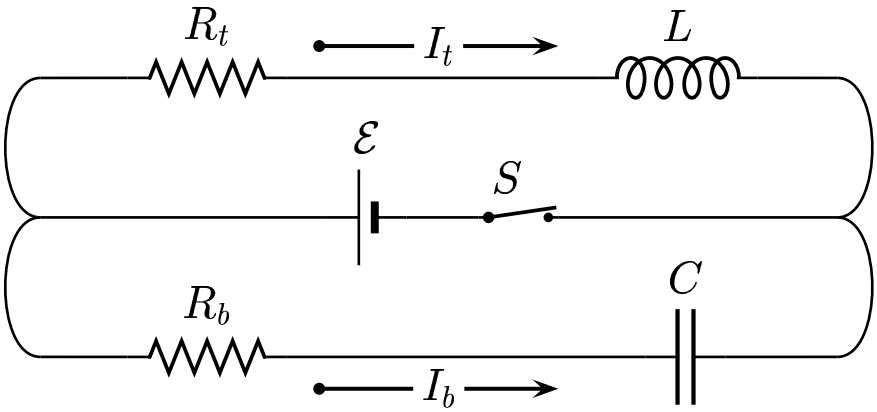

Find I_t, I_b, V_L, and V_C after the switch S has been closed for a long time.

A) $I_t = \dfrac{\mathcal{E}}{R_t}$, $V_L = \mathcal{E}$, $I_b = 0$, and $V_C = \mathcal{E}$.

B) $I_t = 0$, $V_L = \mathcal{E}$, $I_b = \dfrac{\mathcal{E}}{R_b}$, and $V_C = 0$.

C) $I_t = \dfrac{\mathcal{E}}{R_t}$, $V_L = 0$, $I_b = 0$, and $V_C = \mathcal{E}$.

D) $I_t = 0$, $V_L = 0$, $I_b = \dfrac{\mathcal{E}}{R_b}$, and $V_C = 0$.

For the top loop, $\mathcal{E} - V_L - I_t\, R_t = 0$. At $t = \infty$, $\dfrac{d\, L}{dt} = 0$, so $V_L = 0$ and

$$I_t = \frac{\mathcal{E}}{R_t}\,.$$

For the bottom loop, $\mathcal{E} - V_C - I_b\, R_b = 0$. At $t = \infty$, $I_b = 0$, and the loop equation implies that $V_C = \mathcal{E}$.

Answer **C**.