

# \*Contoh aplikasi Model Nisbah Alih:

## Konsep Impedansi

Diagram of a resistor circuit: A current source  $i(t)$  is connected to a resistor  $R$ . The voltage across the resistor is  $v_R(t)$ .

$$v_R(t) = R i(t) \xrightarrow{\mathcal{L}} V_R(s) = R I(s)$$
$$Z_R = \frac{V_R(s)}{I(s)} = R$$

Diagram of an inductor circuit: A current source  $i(t)$  is connected to an inductor  $L$ . The voltage across the inductor is  $v_L(t)$ .

$$v_L(t) = L \frac{di(t)}{dt} \xrightarrow{\mathcal{L}} V_L(s) = L s I(s)$$

Property #3

$$Z_L = \frac{V_L(s)}{I(s)} = L s$$

Diagram of a capacitor circuit: A current source  $i(t)$  is connected to a capacitor  $C$ . The voltage across the capacitor is  $v_C(t)$ .

$$v_C(t) = \frac{1}{C} \int i(t) dt \rightarrow V_C(s) = \frac{1}{C s} I(s)$$
$$Z_C = \frac{V_C(s)}{I(s)} = \frac{1}{C s}$$