Class Note 23: Summary of Chapter 6

A. Summary Table for Inductors and Capacitors

	Inductor	Capacitor
Voltage Equation	$v(t) = L\frac{di(t)}{dt}$	$v(t) = \frac{1}{C}\int_{t_0}^{t} i(x)dx + v(t_0)$
Current Equation	$i(t) = \frac{1}{L}\int_{t_0}^{t} v(y)dy + i(t_0)$,	$i(t) = C\frac{dv(t)}{dt}$
Power Equation	$p(t) = v(t) \cdot i(t)$ or $p(t) = L \cdot i(t) \cdot \frac{di(t)}{dt}$ or $p(t) = v(t) \cdot \{\frac{1}{L}\int_{0}^{t} v(y)dy + i(0)\}$	$p(t) = v(t) \cdot i(t)$ or $p(t) = C \cdot v(t) \cdot \frac{dv(t)}{dt}$ or $p(t) = i(t) \cdot \{\frac{1}{C}\int_{0}^{t} i(x)dx + v(0)\}$
Energy Equation	$w = \frac{1}{2}L \cdot i(t)^2$	$w = \frac{1}{2}C \cdot v(t)^2$
Series Combination	$L_{eq} = \sum_{k=1}^{n} L_k$	$\frac{1}{C_{eq}} = \sum_{k=1}^{n} \frac{1}{C_k}$
Parallel Combination	$\frac{1}{L_{eq}} = \sum_{k=1}^{n} \frac{1}{L_k}$	$C_{eq} = \sum_{k=1}^{n} C_k$
Behavior at DC	Short Circuit	Open Circuit
Variable that cannot change abruptly	Voltage, *v*	Current, *i*