Period 2 Formulas

Series Circuits

$$R_T = R_1 + R_2 + R_3 \ldots$$

$$V_T = V_1 + V_2 + V_3 \ldots$$

$$I_T = I_1 + I_2 + I_3 \ldots$$

Parallel Circuits

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \ldots$$

$$\frac{1}{V_T} = \frac{1}{V_1} + \frac{1}{V_2} + \frac{1}{V_3} \ldots$$

$$\frac{1}{I_T} = \frac{1}{I_1} + \frac{1}{I_2} + \frac{1}{I_3} \ldots$$

Ohms Law

$$E = I \times R$$

$$I = \frac{E}{R}$$

$$R = \frac{E}{I}$$

Generator Formulas

$$f = \frac{p \times n}{120}$$

$$p = \frac{f \times 120}{n}$$

Power Formulas

$$P = I \times E \qquad P = I^2 R \qquad P = \frac{E^2}{R}$$

$$I = \frac{P}{E} \qquad I = \sqrt{\frac{P}{R}} \qquad R = \frac{E^2}{P}$$

$$E = \frac{P}{I} \qquad R = \frac{P}{I^2} \qquad E = \sqrt{P \times R}$$

Trig Formulas

$$sin(\Theta) = \frac{opposite}{hypotenuse}$$

$$cos(\Theta) = \frac{adjacent}{hypotenuse}$$

$$tan(\Theta) = \frac{opposite}{adicent}$$

Power

$$PF = 1 - \Theta = 0°$$

$$P = V \times I$$

$$P = \frac{V^2}{R}$$

$$P = I^2 \times R$$

Inductance and Inductive Reactance

Number of Turns, Permeability of the Core

$$L = \frac{N^2 \mu A}{\ell}$$

Inductance (H) ← L ; $N^2 \mu A$ ← Cross Sectional Area of the Core ; ℓ ← Length of the Core

Supply Frequency (Hz)

$$X_L = 2\pi f L$$

Inductive Reactance (Ω) ← X_L ; $2\pi f L$ ← Inductance (H)

$$L = \frac{X_L}{2\pi f L} \qquad f = \frac{X_L}{2\pi L}$$

Series Circuits	Parallel Circuits	Time Constant
$L_T = L_1 + L_2 + L_3 \ldots$ $X_{L_T} = X_{L_1} + X_{L_2} + X_{L_3} \ldots$	$\frac{1}{L_T} = \frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3} \ldots$ $\frac{1}{X_{L_T}} = \frac{1}{X_{L_T}} + \frac{1}{X_{L_T}} + \frac{1}{X_{L_T}} \ldots$	$t = \frac{L}{R}$

Capacitance and Capacitive Reactance

Charge in Coulombs

$$Q = C \times V$$

V ← Volts across Capacitor ; C ← Capacitance in Farads

Capacitive Reactance (Ω)

$$X_C = \frac{1}{2\pi f C}$$

Supply Frequency ; Capacitance (H)

Capacitance (H)

$$C = \frac{1}{2\pi f X_c}$$

Supply Frequency (Hz) ; Capacitive Reactance (Ω)

Series Circuits	Parallel Circuits	Time Constant
$\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} \ldots$ $X_{C_T} = X_{C_1} + X_{C_2} + X_{C_3} \ldots$	$C_T = C_1 + C_2 + C_3 \ldots$ $\frac{1}{C_{T_T}} = \frac{1}{X_{C_1}} + \frac{1}{X_{C_2}} + \frac{1}{X_{C_3}} \ldots$	$t = R \times C$