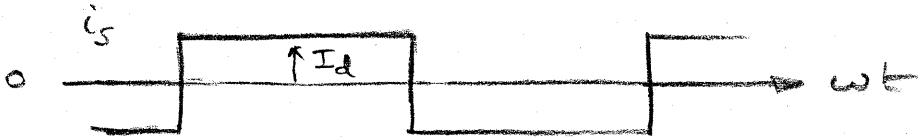
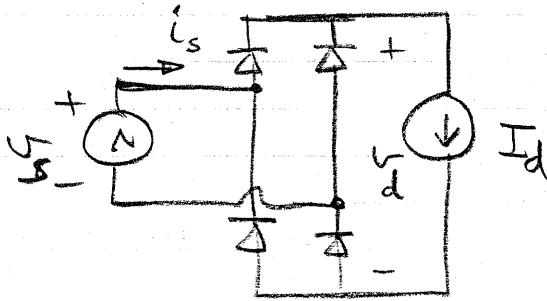


Problem 5-14



$$I_s(\text{rms}) = I_d$$

From Fourier analysis:

$$I_{s1}(\text{rms}) = \frac{4}{\pi} \sqrt{2} I_d = 0.9 I_d$$

Dpf angle $\phi_1 = 0$

$$\% \text{THD} = 100 \frac{\sqrt{I_s^2 - I_{s1}^2}}{I_{s1}} = 100 \times \frac{\sqrt{1 - 0.9^2}}{0.9} = 48.4\%$$

$$\text{DPF} = 1.0$$

$$\text{PF} = \frac{I_{s1}}{I_s} \cdot \text{DPF} = 0.9$$

$$\text{CF} = \frac{I_{s, \text{peak}}}{I_s(\text{rms})} = 1$$