

Solution of No. 2

$$\delta = ? \longrightarrow V_{rms} = 70\% V_{dc}$$

$$\therefore V_{rms} = \frac{4V_{dc}}{n\sqrt{2}\pi} \sin\left(\frac{n\delta}{2}\right)$$

$$V_{rms} = \frac{4V_{dc}}{\sqrt{2}\pi} \sin\left(\frac{\delta}{2}\right)$$

$$\frac{70}{100} \cdot V_{dc} = \frac{4V_{dc}}{\sqrt{2}\pi} \sin\left(\frac{\delta}{2}\right)$$

$$\therefore \frac{\delta}{2} = 51.03^\circ$$

$$\delta = 102.07^\circ$$

Solution of No. 14

$$(a) V_{rms} = V_s \sqrt{\frac{PS}{\pi}} = 220 \sqrt{\frac{5 \cdot 30}{180}} = 200.83 \text{ V} \quad \#\#$$

$$(b) \therefore \delta = 35^\circ, \therefore V_{rms(b)} = V_{rms(a)} = 200.83 \text{ V} \longrightarrow V_s = ?$$

$$\therefore V_{rms} = V_s \sqrt{\frac{PS}{\pi}}$$

$$200.83 = V_s \sqrt{\frac{5 \cdot 35}{\pi}}$$

$$\therefore V_s = 2003.68 \text{ V} \quad \#\#$$

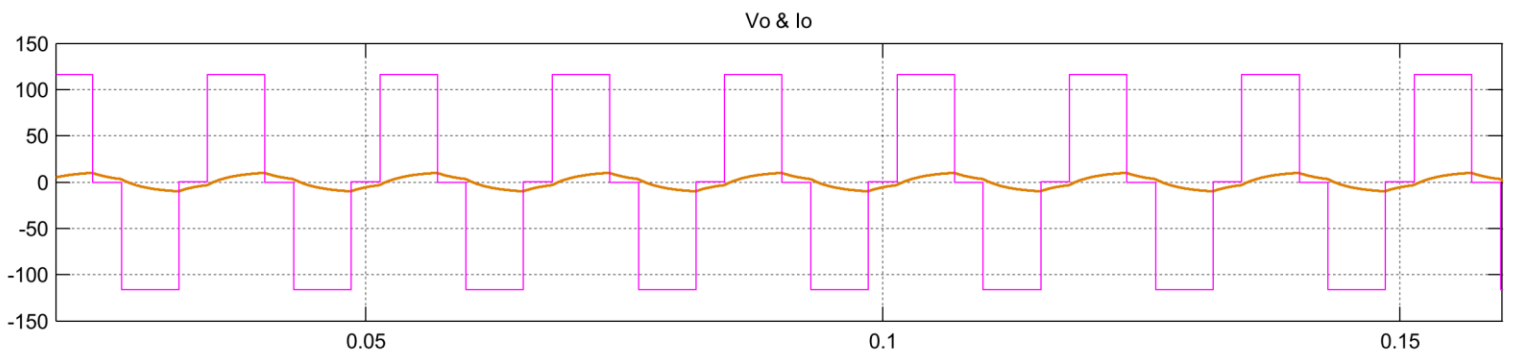
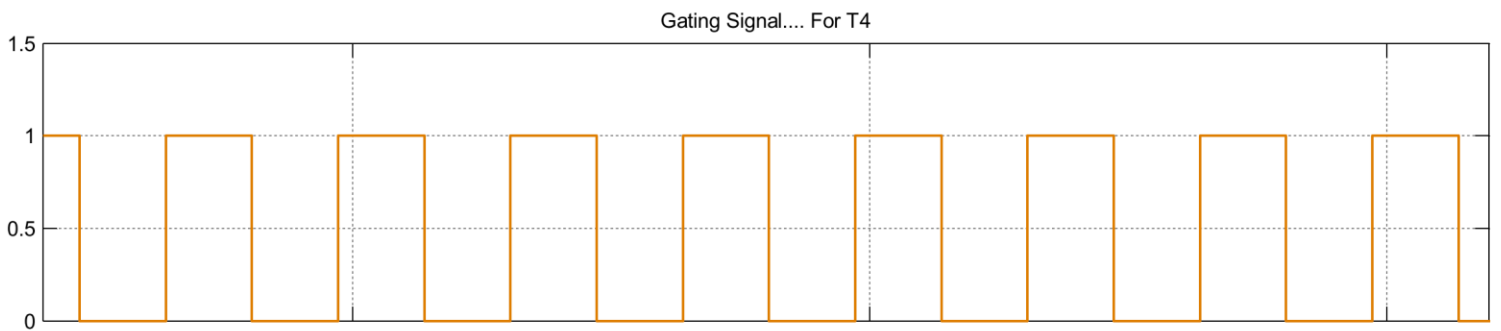
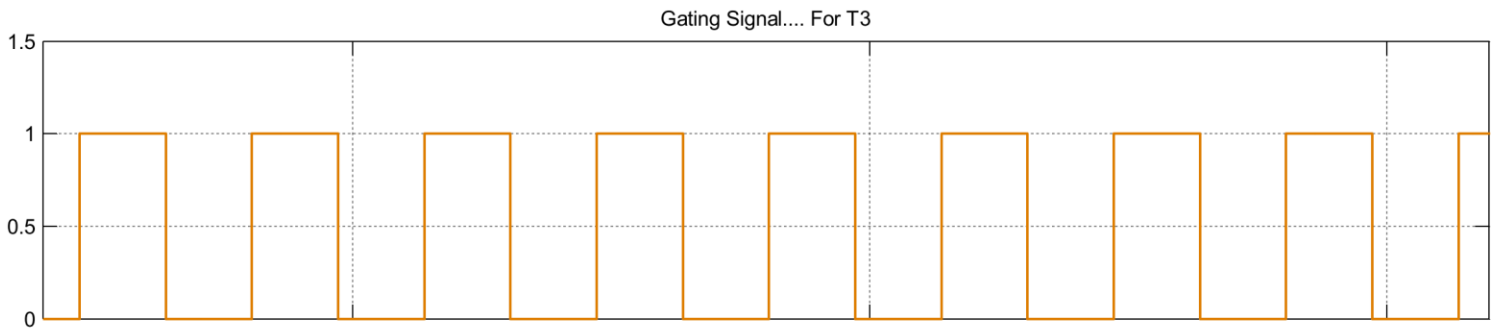
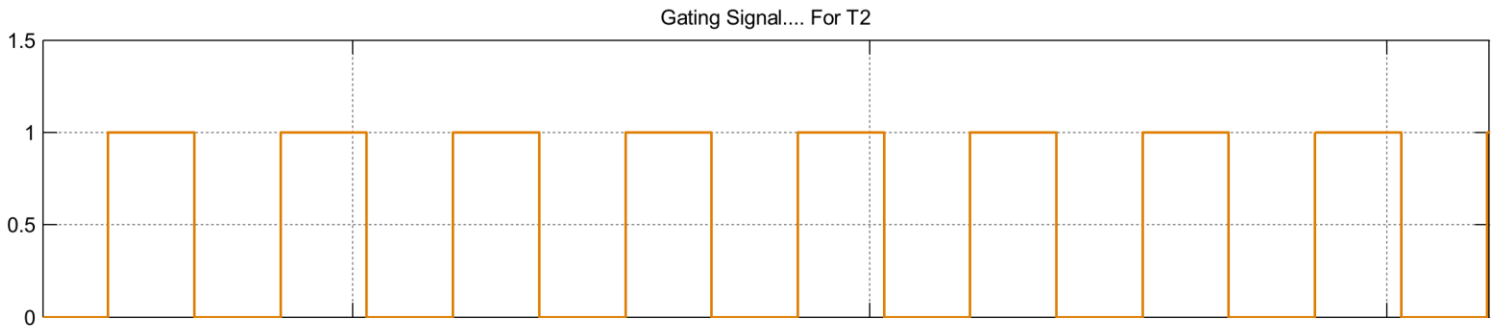
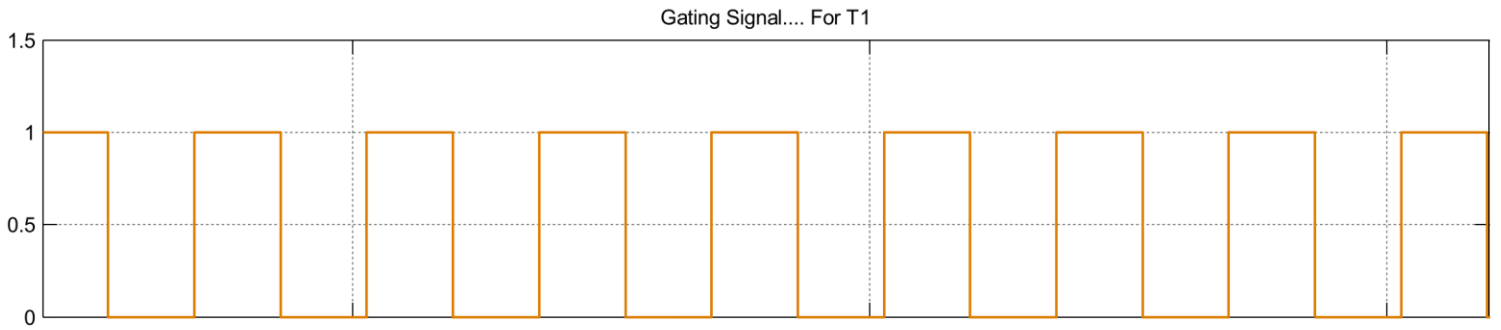
$$(c) \therefore V_s = 220 + 10\% (220) = 242 \text{ V}, \longrightarrow \delta = ? , V_{rms(c)} = V_{rms(a)}$$

$$\therefore V_{rms} = V_s \sqrt{\frac{PS}{\pi}}$$

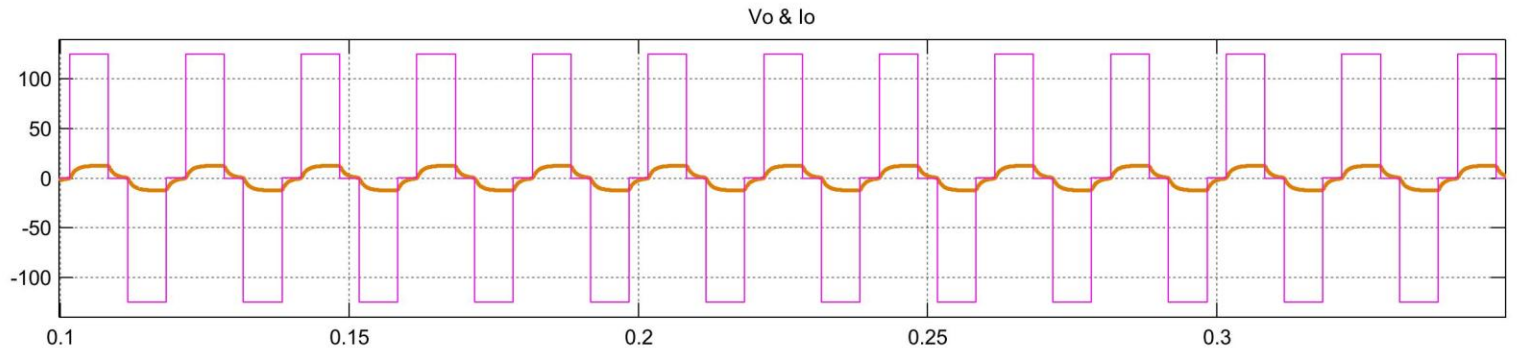
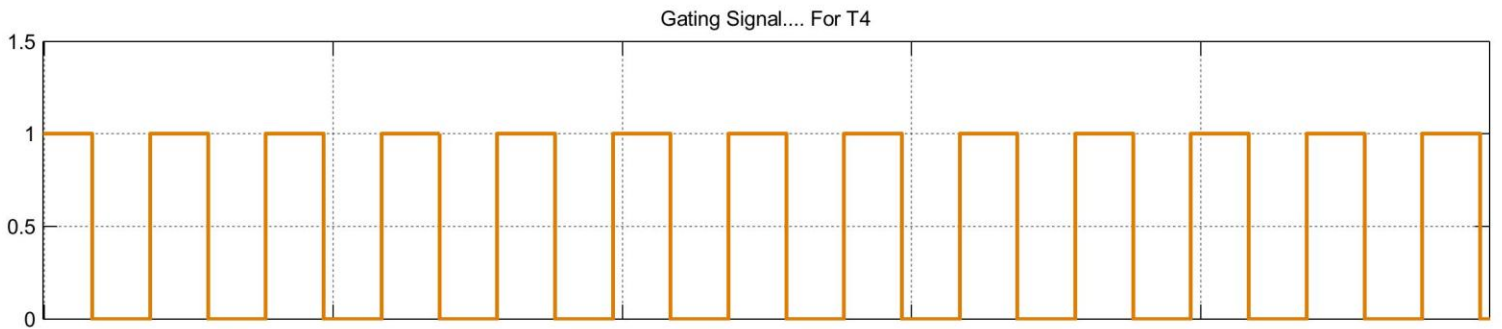
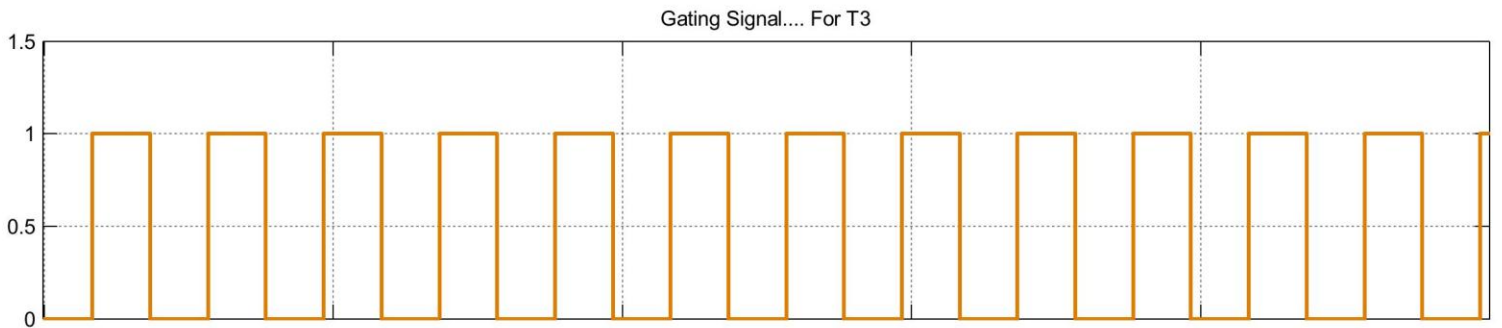
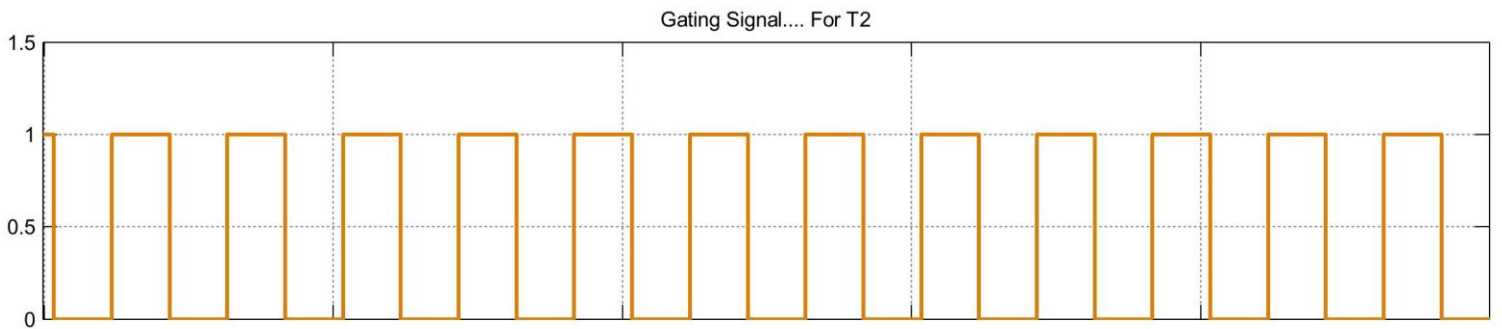
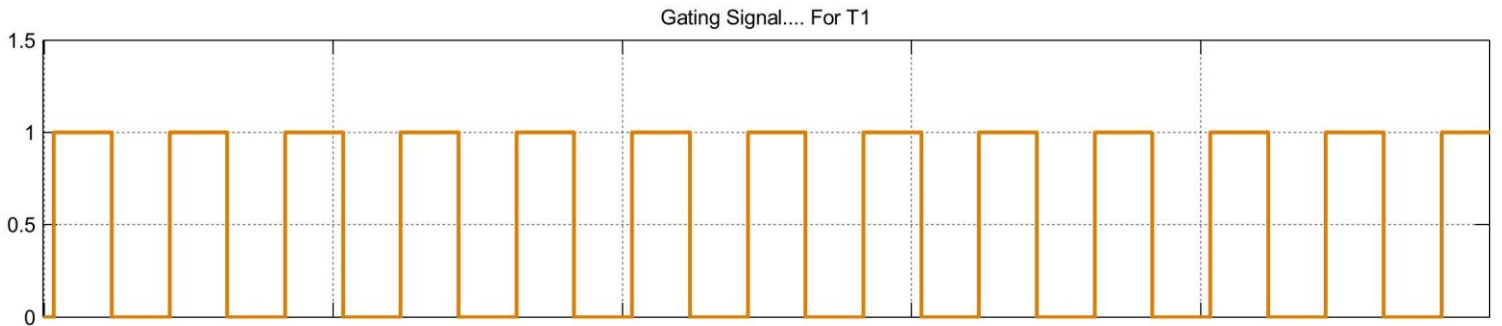
$$200.83 = 242 \sqrt{\frac{5 \cdot \delta}{\pi}}$$

$$\therefore \delta = 24.79 \quad \#\#$$

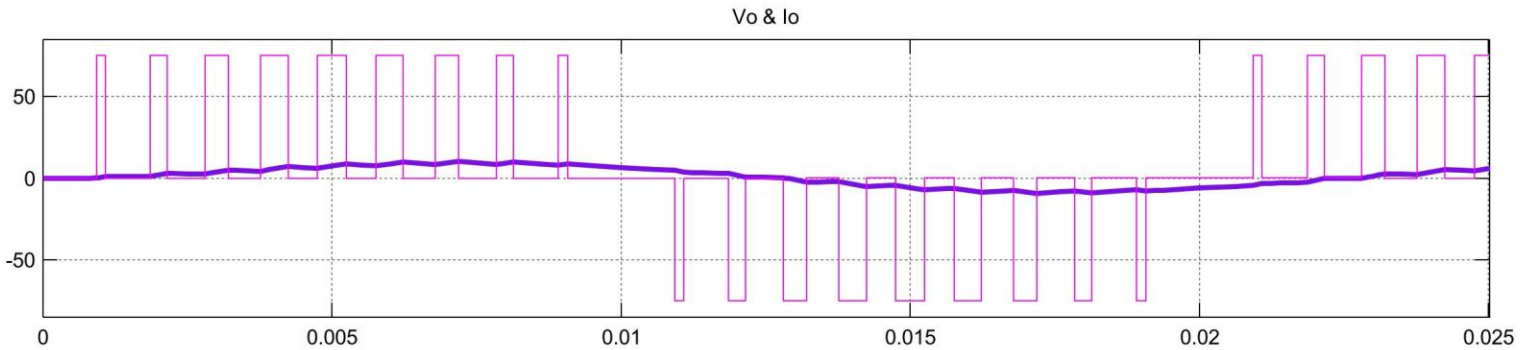
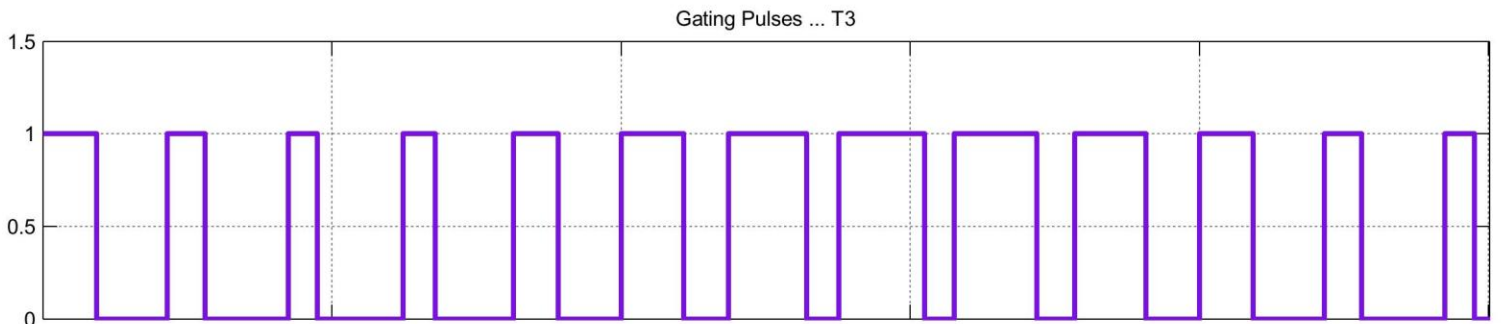
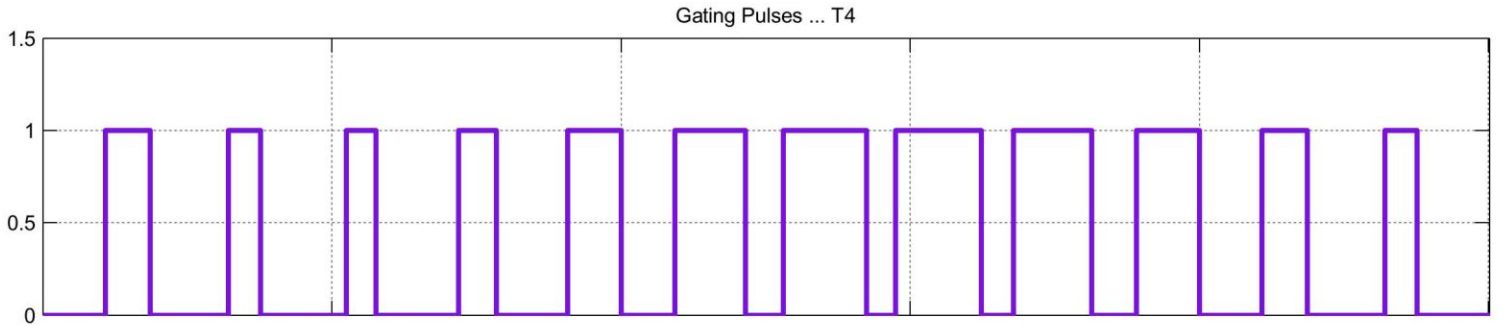
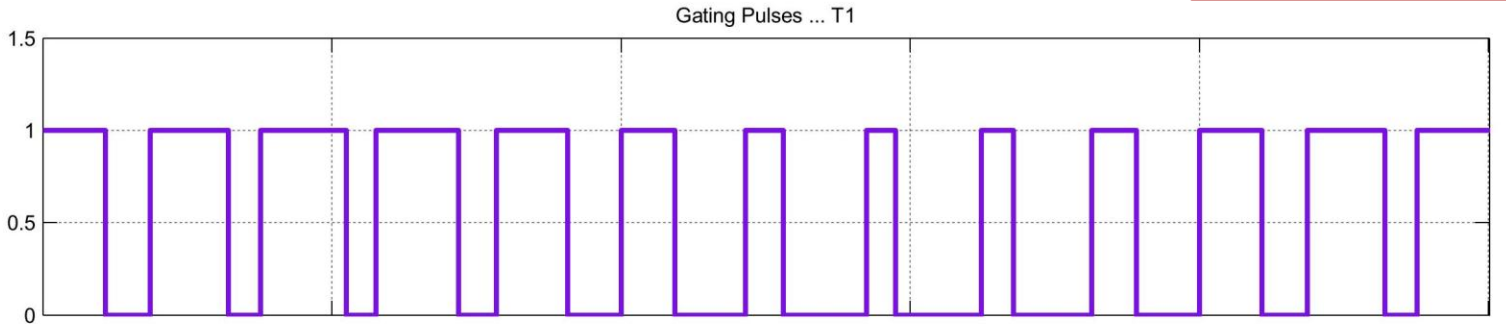




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