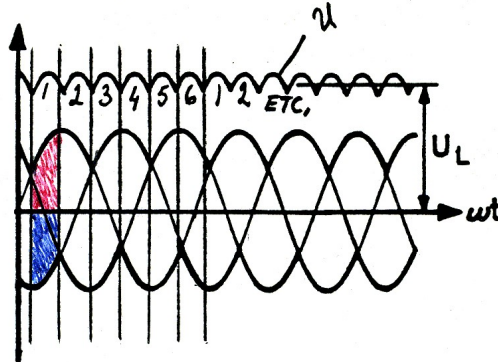
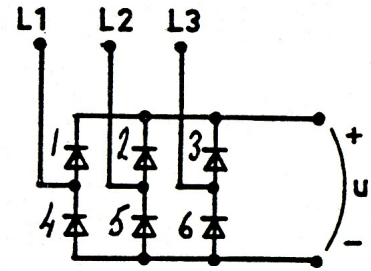


9.7

För en sexpulslikriktare enligt vidstående kopplingsschema, gäller tidsdiagrammet nedan. Beräkna medelvärdet av den likriktade spänningen om likriktaren kopplas till ett 400 V 50 Hz trefasnät.



FUNKTIONSBESKRIVNING

PULS NR	$u =$	DIODER SOM LEDER
1	$u_1 - u_2$	NR 1 & 5
2	$u_1 - u_3$	NR 1 & 6
3	$u_2 - u_3$	NR 2 & 6
4	$u_2 - u_1$	NR 2 & 4
5	$u_3 - u_1$	NR 3 & 4
6	$u_3 - u_2$	NR 3 & 5

$$\hat{U}_H = 400\sqrt{2} \text{ V} \Rightarrow \hat{U}_F \approx 230\sqrt{2} \text{ V}$$

\Rightarrow

$$u_1(t) = 230\sqrt{2} \sin(\omega t) \text{ V}$$

$$u_2(t) = 230\sqrt{2} \sin(\omega t - 120^\circ) \text{ V}$$

$$u_3(t) = 230\sqrt{2} \sin(\omega t - 240^\circ) \text{ V}$$

$$U_L = \frac{1}{T} \int_0^T u(t) dt =$$

$$= \frac{6}{T} \int_{T/12}^{T/4} (u_1 - u_2) dt =$$

$$= \frac{6}{T} \left(\int_{T/12}^{T/4} u_1 dt - \int_{T/12}^{T/4} u_2 dt \right) =$$

$A_{\text{RÖD}} = A_{\text{BLA}}$

$$= 2 \cdot \frac{6}{T} \int_{T/12}^{T/4} u_1 dt =$$

$$= \frac{12}{T} \int_{T/12}^{T/4} 230\sqrt{2} \sin(\omega t) dt = \left| T = \frac{2\pi}{\omega} \right| =$$

$$= \frac{12}{2\pi} \cdot 230\sqrt{2} \left[\frac{-\cos(\omega t)}{\omega} \right]_{\frac{\pi}{6\omega}}^{\frac{\pi}{2\omega}} =$$

$$= \frac{12 \cdot 230\sqrt{2}}{2\pi} \left[-\cos \frac{\pi}{2} + \cos \frac{\pi}{6} \right] = \underline{\underline{540 V}}$$