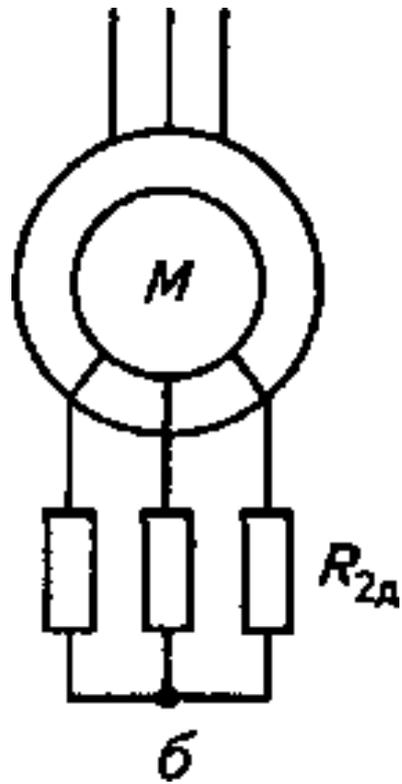
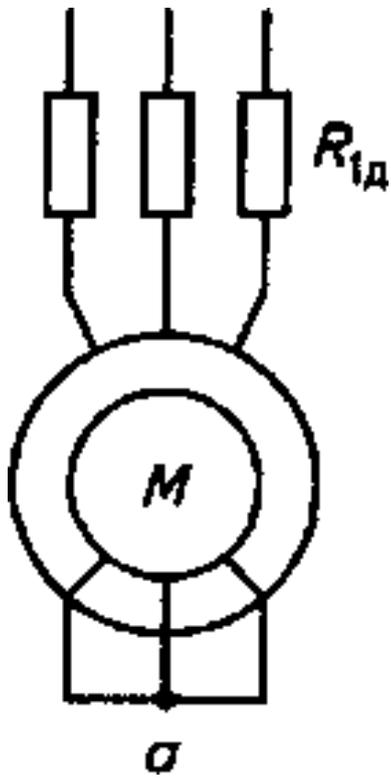




УП.3.1.

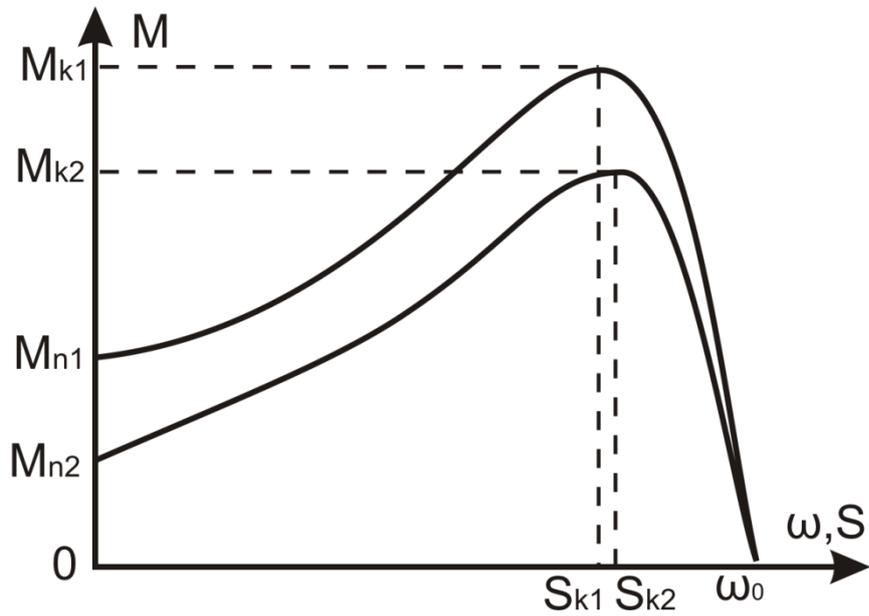
УП.3.2.

Показатель	ТРС - АД	ТРИ - АД	ПЧ - АД
Регулирование скорости в сторону уменьшения	1:10	1:10	1:10000
Регулирование пускового момента в сторону уменьшения	1:4	1:4	1:4
Диапазон мощностей, кВт	5..150	20..130	0,5..8000

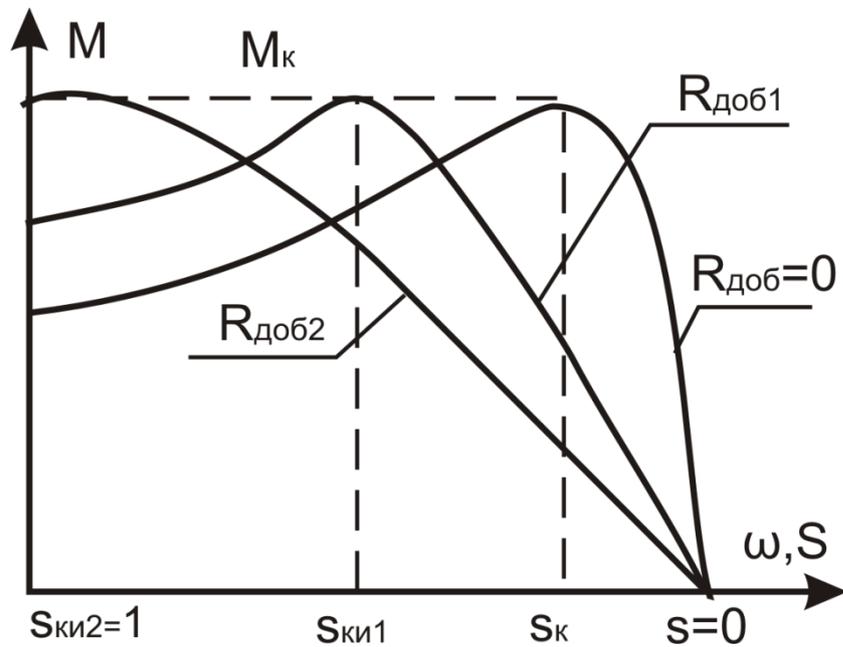


УП.3.3.

УП.3.4.



$$S_k = \frac{r_2'}{\sqrt{r_1^2 + x_k^2}} \quad M = \frac{m \cdot U_1^2 \cdot r_2' \cdot s}{\omega_0 \cdot [(r_1 \cdot r_2')^2 + x_k^2 \cdot s^2]}$$



$$s_k = \frac{r_2'}{\sqrt{r_1^2 + x_k^2}} \quad M_k = \frac{m \cdot U_1^2}{2 \cdot \omega_0 \cdot \left(\sqrt{r_1^2 + x_k^2} + r_1 \right)}$$

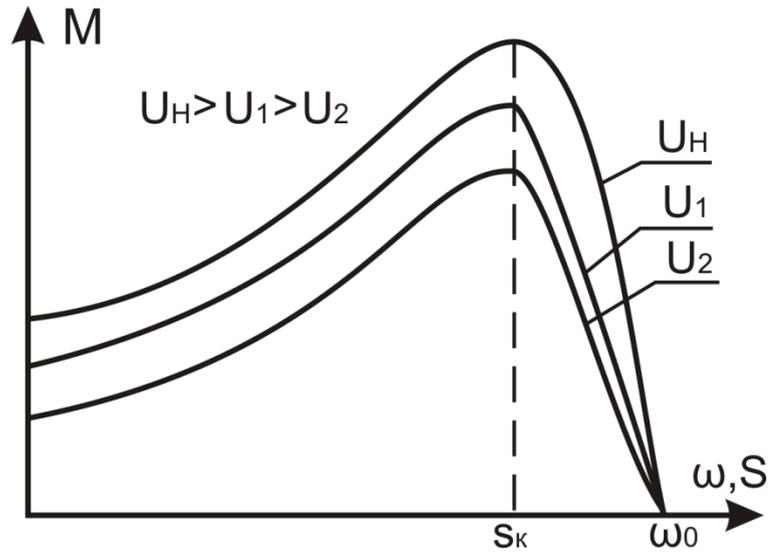
УП.3.5.

УП.3.6.

$$\eta = \frac{P_2}{P_1} = \frac{P_2}{P_2 + \sum \Delta P}$$

$$\cos \varphi = \frac{P_1}{S_1} = \frac{P_1}{m_1 U_1 I_1} = \frac{P_1}{\sqrt{3} U I}$$

$$\Delta P_{эл2} = s P_{эм} = M \Delta \omega$$

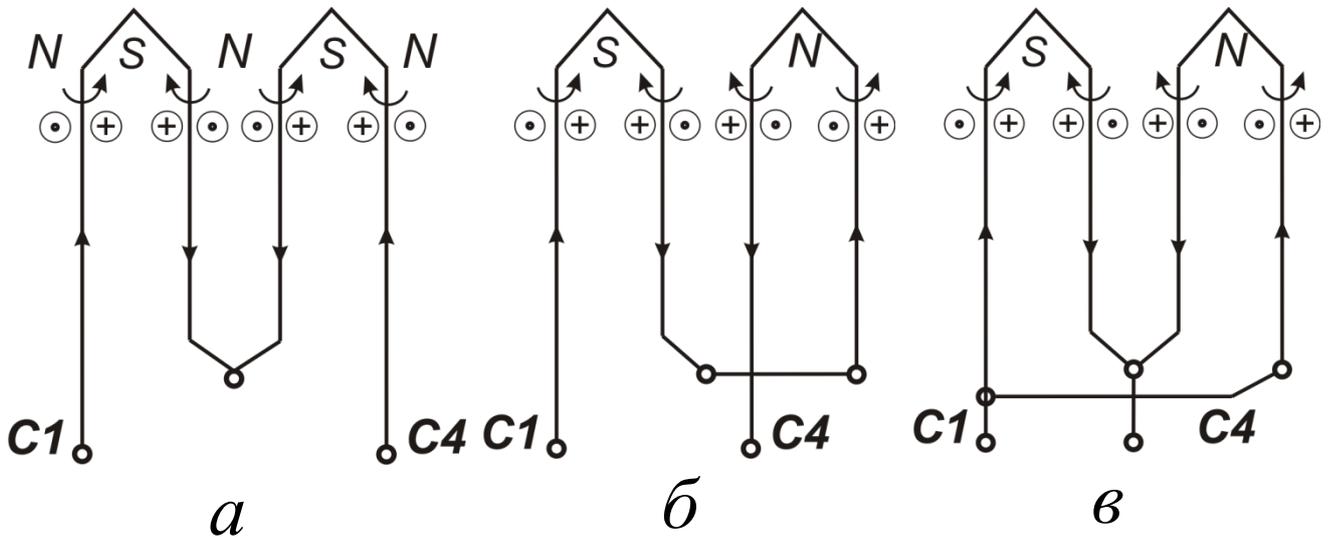


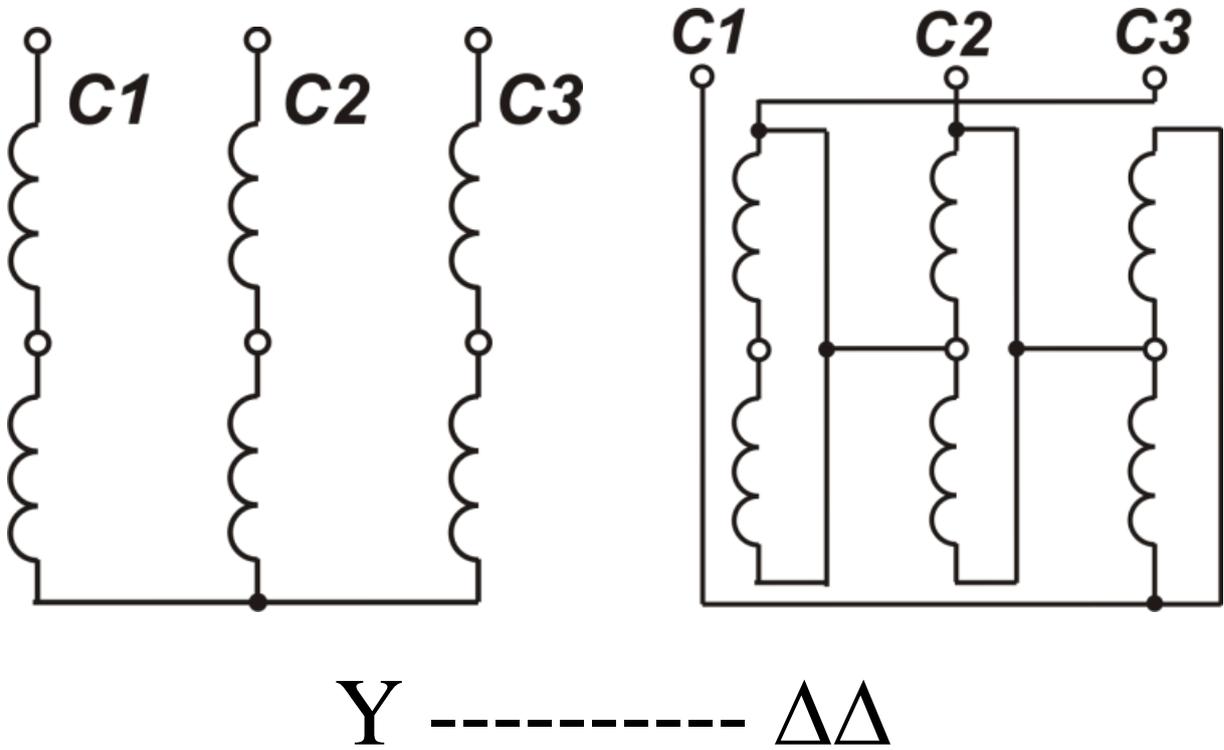
$$s_k = \frac{r_2'}{\sqrt{r_1^2 + x_k^2}} \quad M = \frac{m \cdot U_1^2 \cdot r_2' \cdot s}{\omega_0 \cdot [(r_1 \cdot r_2')^2 + x_k^2 \cdot s^2]}$$

УП.3.5.

УП.3.6.

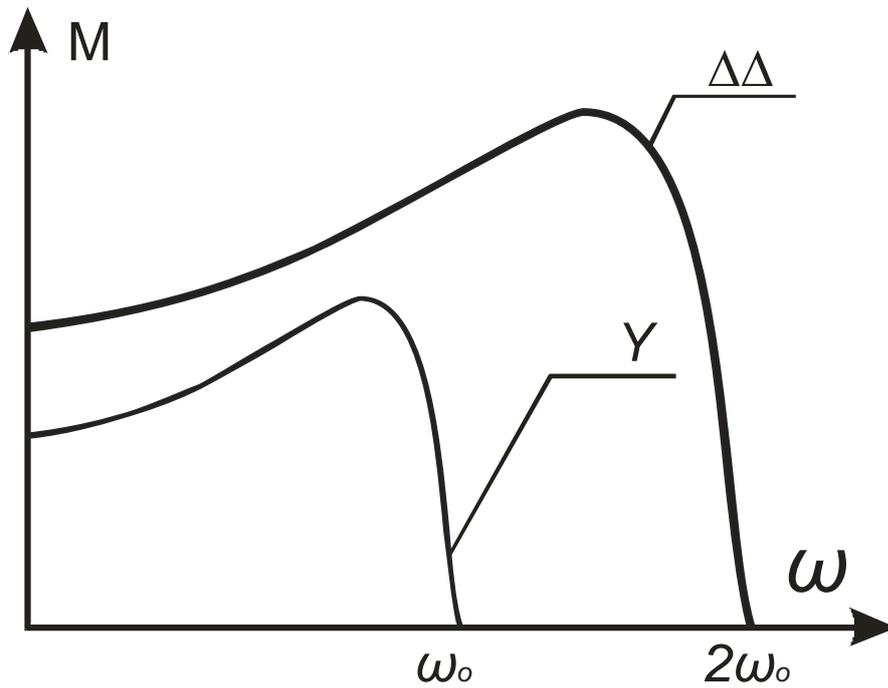
$$\omega = \omega_0(1 - s) = \frac{2\pi f_1}{p_n} (1 - s)$$



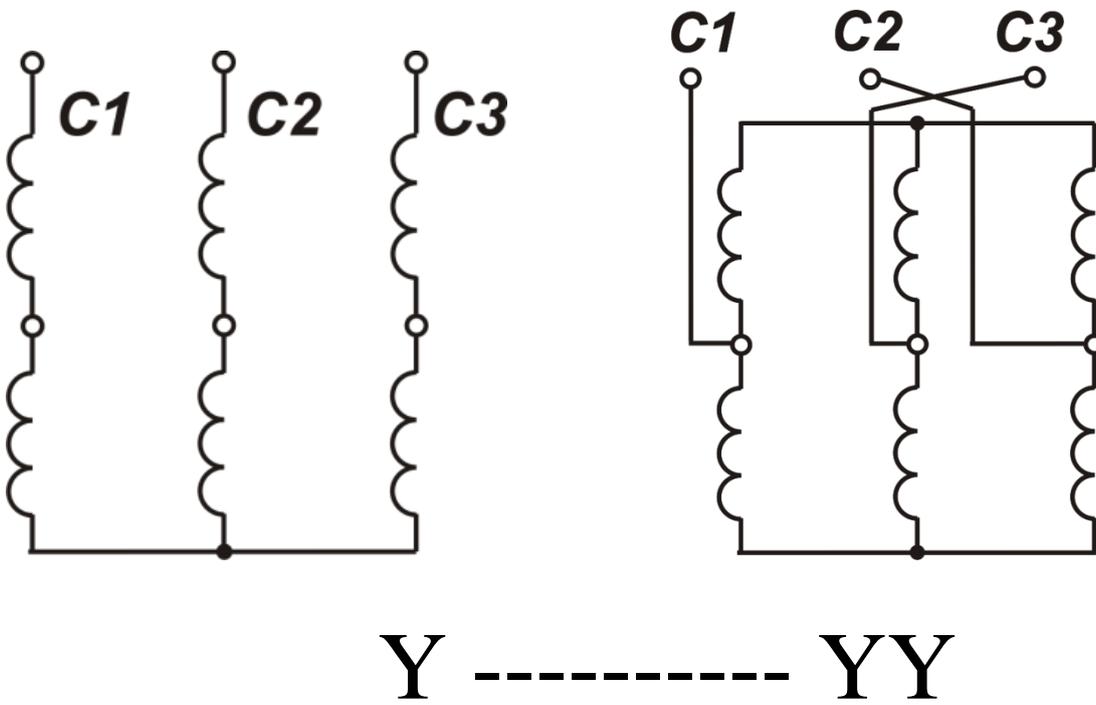


УП.7.

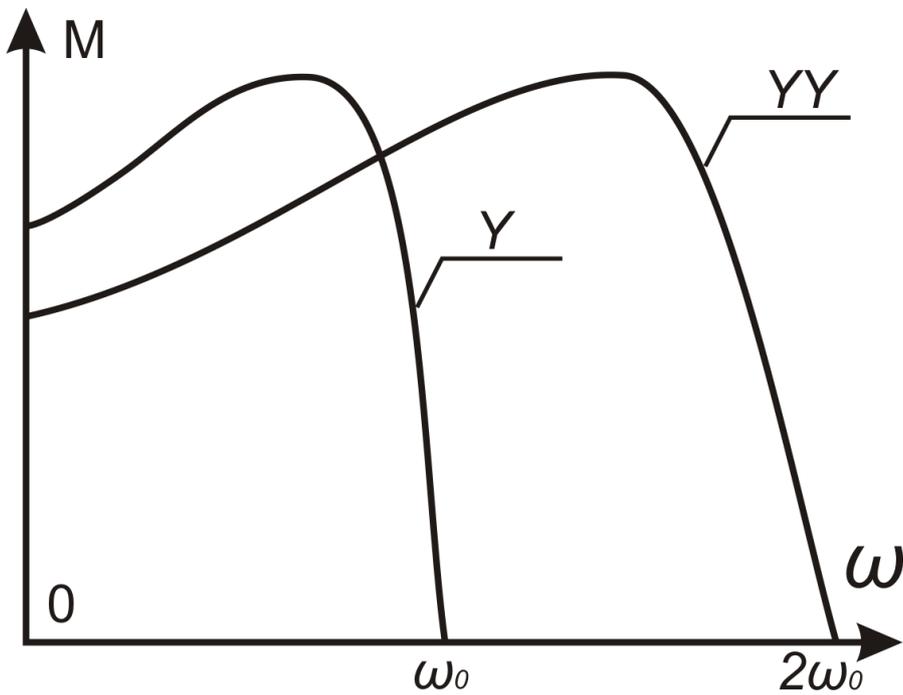
УП.8.



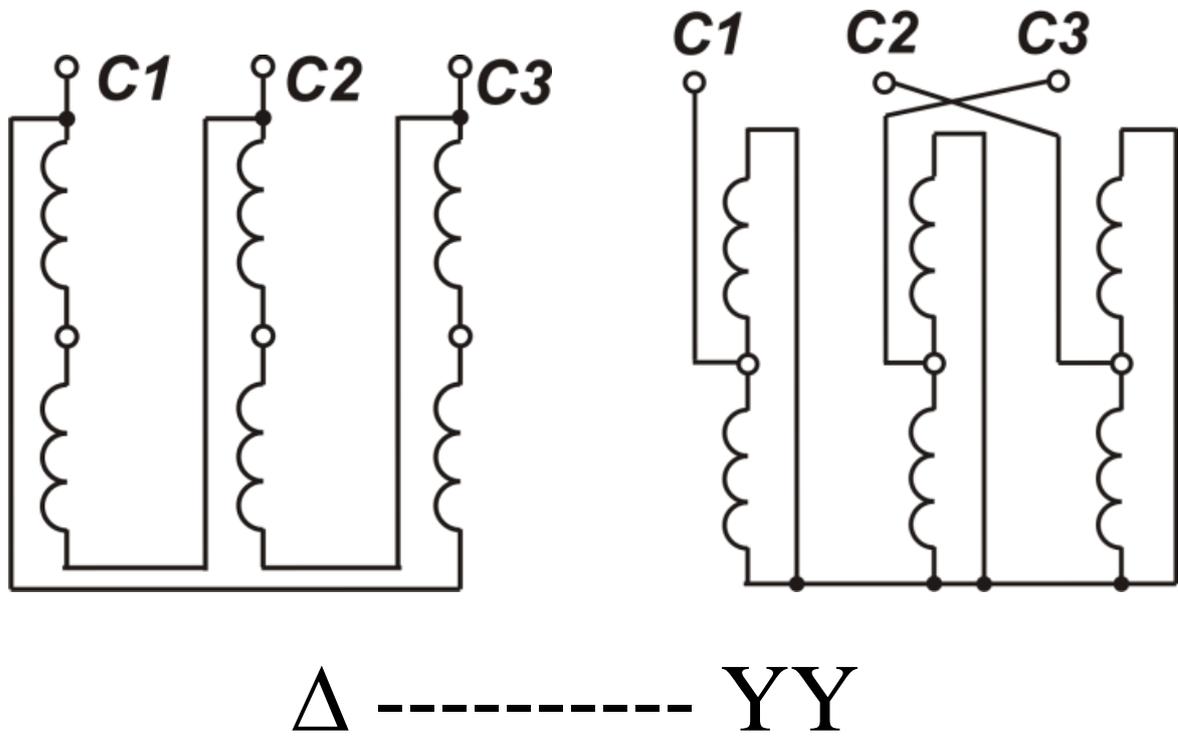
$$\frac{P_Y}{P_{\Delta\Delta}} = \frac{\sqrt{3} U I_H \cos\varphi_Y}{3U 2I_H \cos\varphi_{\Delta\Delta}} = \frac{\sqrt{3}}{2\sqrt{3}} \approx \frac{1}{4}$$



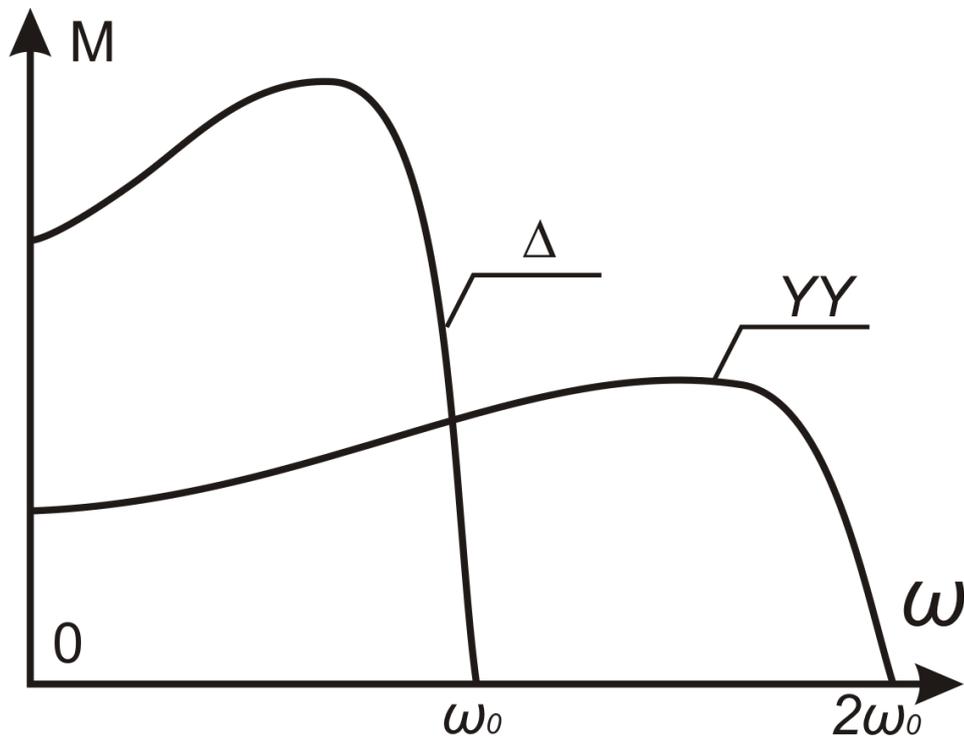
УП.9.
УП.10.



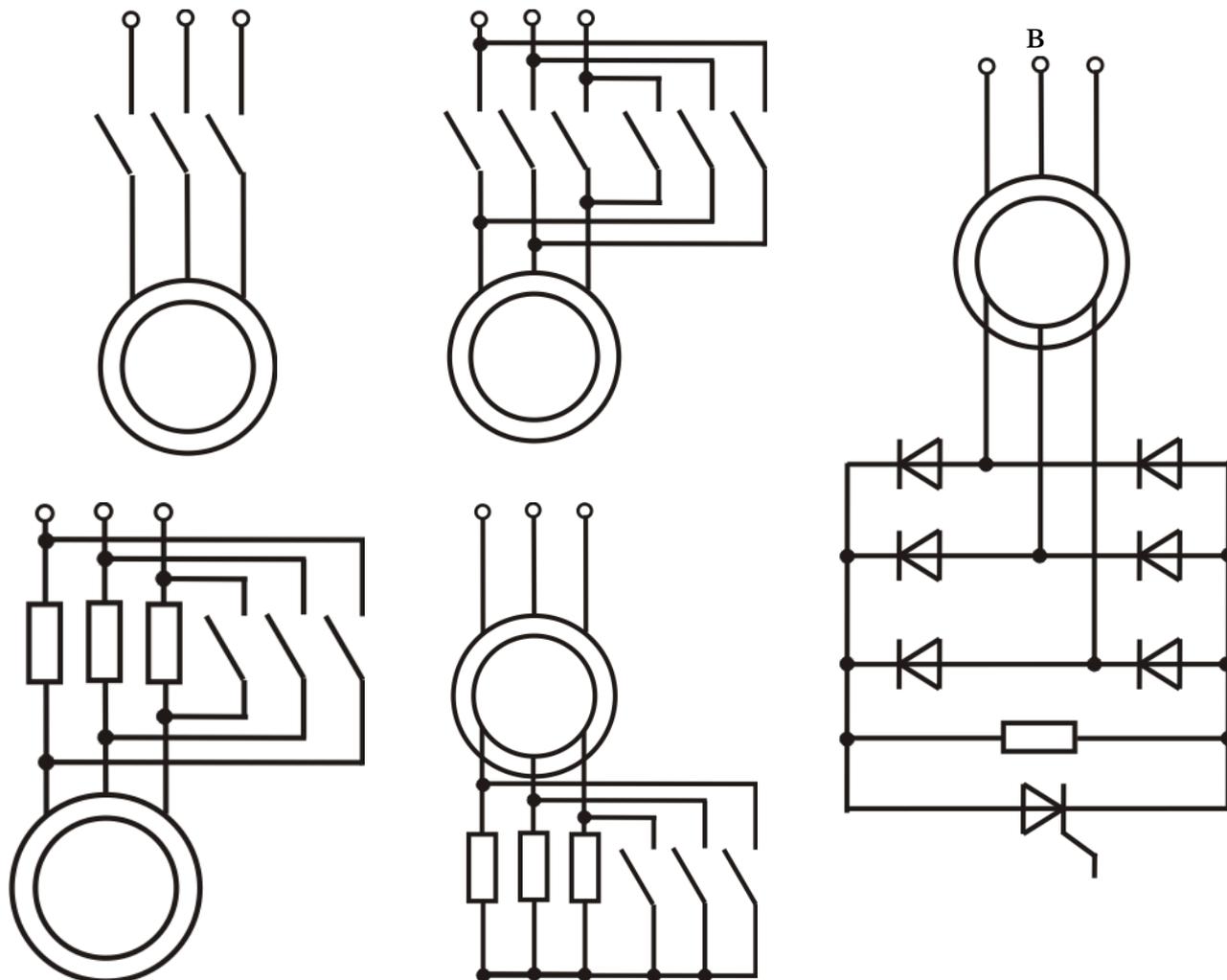
$$\frac{P_Y}{P_{YY}} = \frac{\sqrt{3} U I_H \cos \varphi_Y}{\sqrt{3} U 2 I_H \cos \varphi_{\Delta\Delta}} = \frac{1}{2}$$



УП.11.
 УП.12.



$$\frac{P_{\Delta}}{P_{YY}} = \frac{3 U I_H \cos \varphi_{\Delta}}{3 U 2 I_H \cos \varphi_{YY}} = \frac{3}{2\sqrt{3}} \approx 1$$



УП.13.

УП.14.

$$\gamma = \frac{t_1}{t_1 + t_2}$$

$$R_{\text{эКв}} = (1 - \gamma) R \vartheta$$

$$\omega_0 = \frac{2\pi f_1}{p} \quad M_k = \frac{M_{k \text{ CT}}}{\varphi^2}$$

$$M = kU_H^2 u^2 \quad S_k = \frac{S_{k \text{ CT}}}{\varphi}$$

$$M = \frac{2M_{k \text{ CT}} \frac{u^2}{\varphi^2} \left(1 + \frac{\varepsilon_{\text{CT}}}{\varphi}\right)}{\frac{S\varphi}{S_{\text{CT}}} + \frac{S_{\text{CT}}}{S\varphi} + 2\frac{S_{\text{CT}}}{\varphi}}$$

УП.15.

УП.16.

Параметры	$\frac{M}{M_H}$	$\frac{U}{U_H}$	$\frac{P}{P_H}$	$\frac{\Phi}{\Phi_H}$	$\frac{I}{I_H}$
Постоянная мощность $M = M \frac{f_H}{f}$	$\frac{f_H}{f}$	$\sqrt{\frac{f_H}{f}}$	const	$\sqrt{\frac{f_H}{f}}$	$\sqrt{\frac{f_H}{f}}$
Постоянный момент $M = M_H = \text{const}$	const	$\frac{f}{f_H}$	$\frac{f}{f_H}$	const	const
Вентиляцион- ный закон $M = M \left(\frac{f}{f_H}\right)^2$	$\left(\frac{f}{f_H}\right)^2$	$\left(\frac{f}{f_H}\right)^2$	$\left(\frac{f}{f_H}\right)^3$	$\frac{f}{f_H}$	$\frac{f}{f_H}$