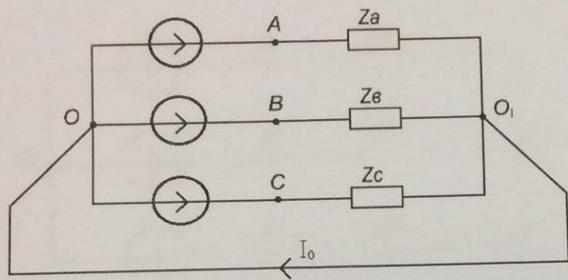


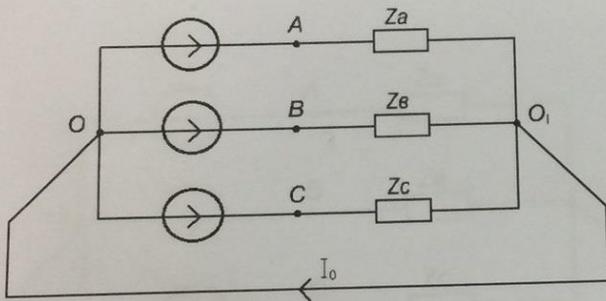
Трёхфазные цепи



$$\alpha = e^{j120}$$

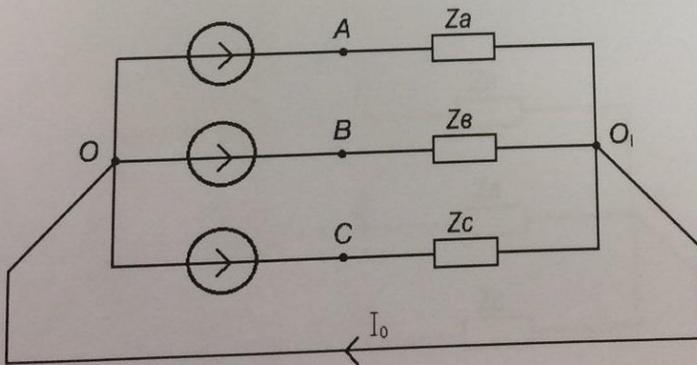
1.

$$\begin{aligned} \dot{U}_{BO} &= \alpha^2 \dot{U}_{AO}, \dot{U}_{CO} = \alpha \dot{U}_{AO}, \\ Z_A &= 20e^{j60^\circ} \text{ Ом} \quad Z_B = 20e^{-j60^\circ} \text{ Ом}, \\ Z_C &= 10 \text{ Ом}, \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



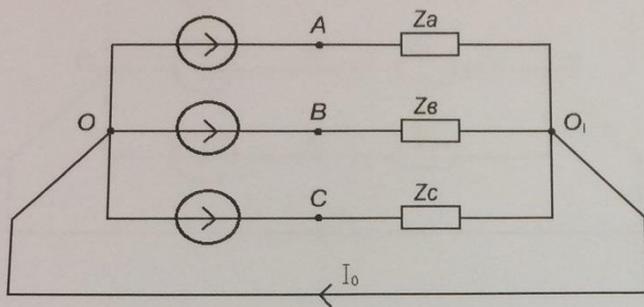
2.

$$\begin{aligned} \dot{U}_{BO} &= \alpha^2 \dot{U}_{AO}, \dot{U}_{CO} = \alpha \dot{U}_{AO} \\ Z_A &= 5 \text{ Ом}; \quad Z_B = 10e^{-j60^\circ} \text{ Ом} \\ Z_C &= 10 \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



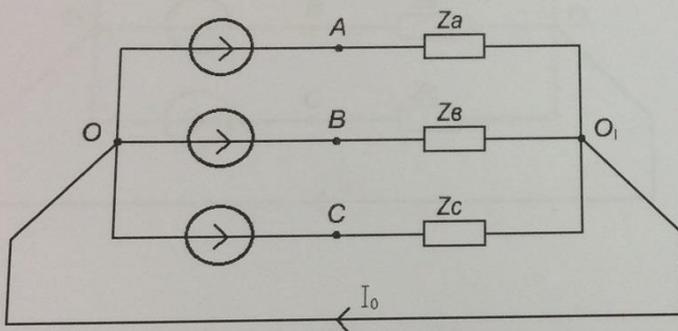
3.

$$\begin{aligned} \dot{U}_{BO} &= \alpha^2 \dot{U}_{AO}, \dot{U}_{CO} = \alpha \dot{U}_{AO} \\ Z_A &= 10 \text{ Ом}; \quad Z_B = 10e^{j30^\circ} \text{ Ом} \\ Z_C &= 10e^{-j30^\circ} \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



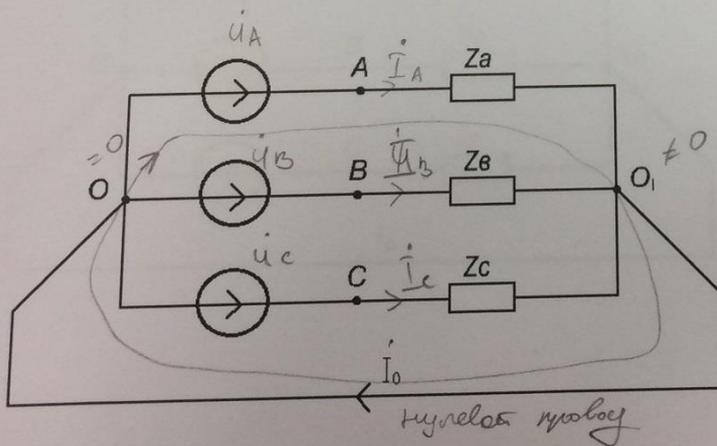
4.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \text{ Ом}; \quad Z_B = -j10 \text{ Ом} \\ Z_C &= j10 \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



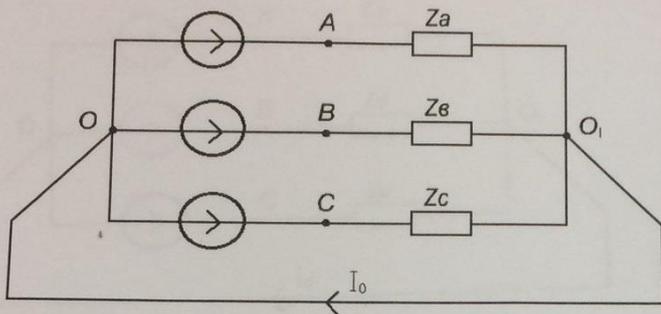
5.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \text{ Ом}; \quad Z_B = 10e^{-j30^\circ} \text{ Ом} \\ Z_C &= 10e^{j30^\circ} \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



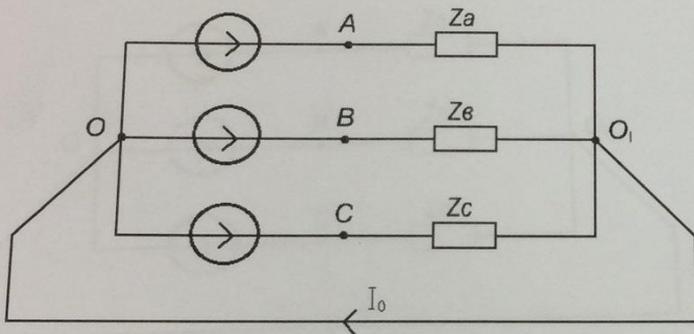
6.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 20e^{j60^\circ} \text{ Ом}; \quad Z_B = 20e^{-j60^\circ} \text{ Ом} \\ Z_C &= \frac{10}{\sqrt{3}} \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



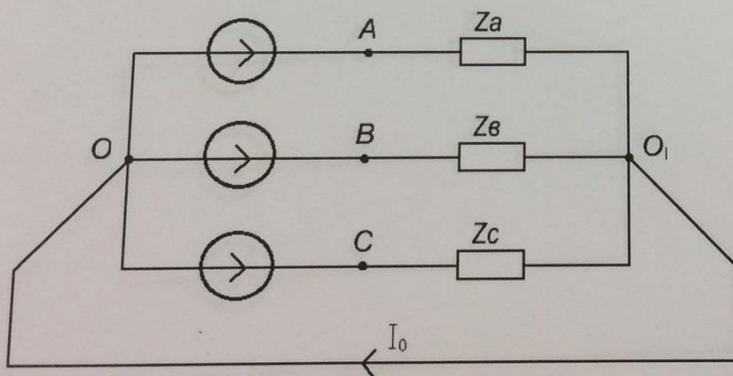
7.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= \frac{10}{\sqrt{3}} \text{ } \Omega \text{ M}; \quad Z_B = 10e^{j30^\circ} \text{ } \Omega \text{ M} \\ Z_C &= 10e^{-j30^\circ} \text{ } \Omega \text{ M}; \quad \dot{U}_{AO} = 220 \text{ B} \end{aligned}$$



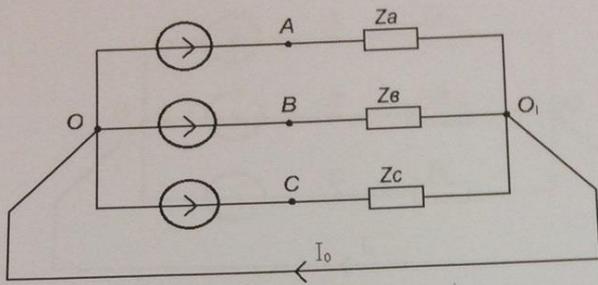
8.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \text{ } \Omega \text{ M}; \quad Z_B = j10 \text{ } \Omega \text{ M} \\ Z_C &= -j10 \text{ } \Omega \text{ M}; \quad \dot{U}_{AO} = 220 \text{ B} \end{aligned}$$



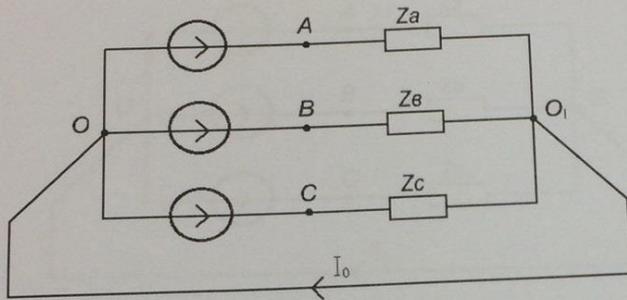
9.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= \frac{10}{\sqrt{3}} \text{ } \Omega \text{ M}; \quad Z_B = 10e^{-j60^\circ} \text{ } \Omega \text{ M} \\ Z_C &= 10e^{j60^\circ} \text{ } \Omega \text{ M}; \quad \dot{U}_{AO} = 220 \text{ B} \end{aligned}$$



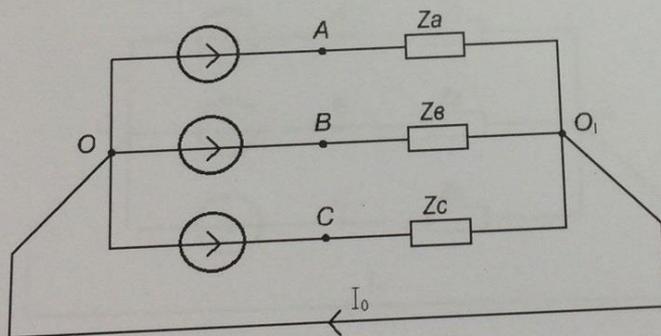
10.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \, \Omega; \quad Z_B = 10 \, \Omega \\ Z_C &= 10e^{j60^\circ} \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



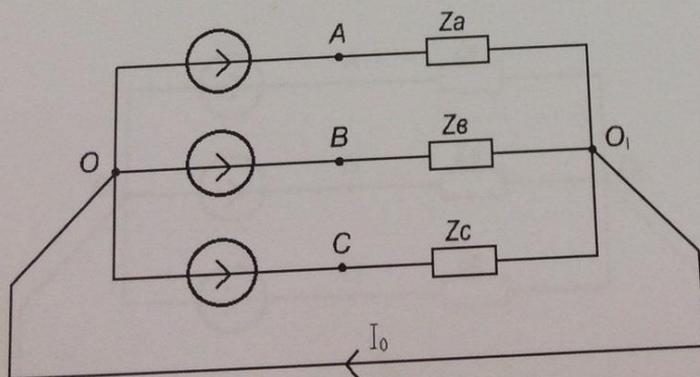
11.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= \frac{10}{\sqrt{3}} \, \Omega; \quad Z_B = 20e^{j60^\circ} \, \Omega \\ Z_C &= 20e^{-j60^\circ} \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



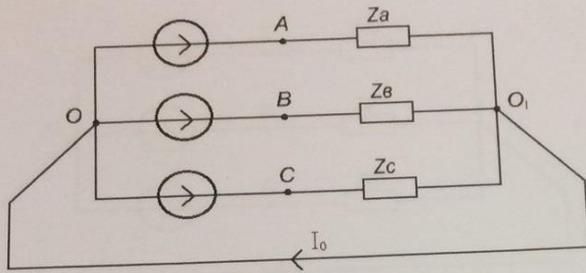
12.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= -j10 \, \Omega; \quad Z_B = j10 \, \Omega \\ Z_C &= 10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



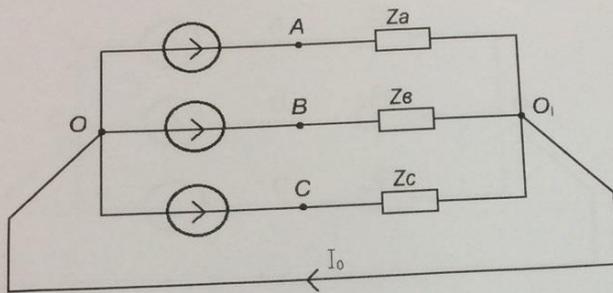
13.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= \frac{10}{\sqrt{3}} \, \Omega; \quad Z_B = j10 \, \Omega \\ Z_C &= -j10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



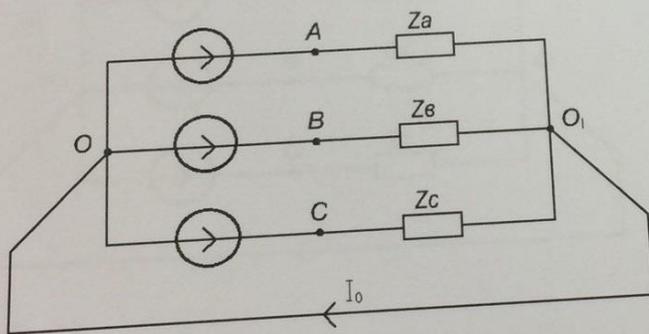
14.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10e^{j60^\circ} \text{ Ом}; \quad Z_B = 10 \text{ Ом} \\ Z_C &= 10e^{-j60^\circ} \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



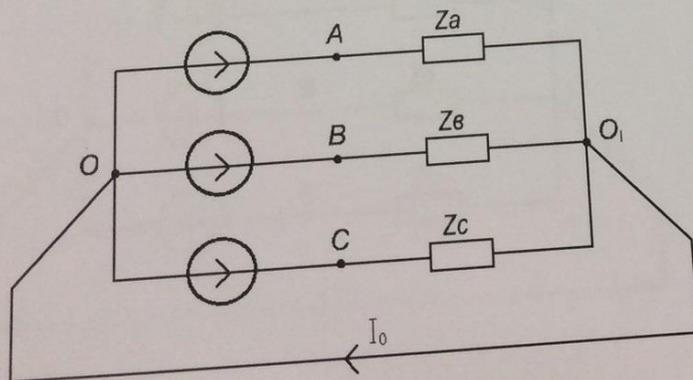
15.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \text{ Ом}; \quad Z_B = 10e^{-j60^\circ} \text{ Ом} \\ Z_C &= 10 \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



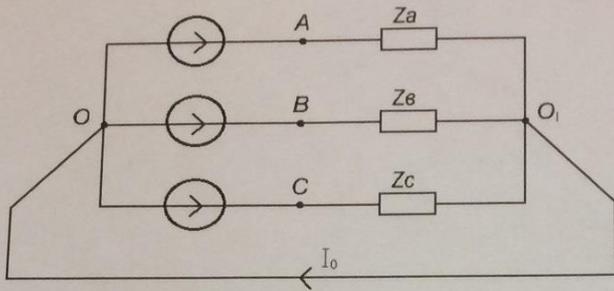
16.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \text{ Ом}; \quad Z_B = 10e^{-j60^\circ} \text{ Ом} \\ Z_C &= 10e^{j60^\circ} \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



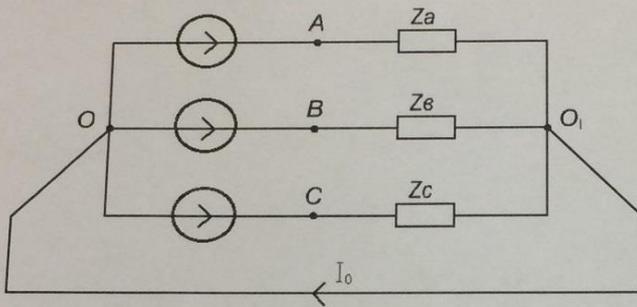
17.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10e^{-j60^\circ} \text{ Ом}; \quad Z_B = 10e^{j60^\circ} \text{ Ом} \\ Z_C &= \frac{10}{\sqrt{3}} \text{ Ом}; \quad \dot{U}_{AO} = 220 \text{ В} \end{aligned}$$



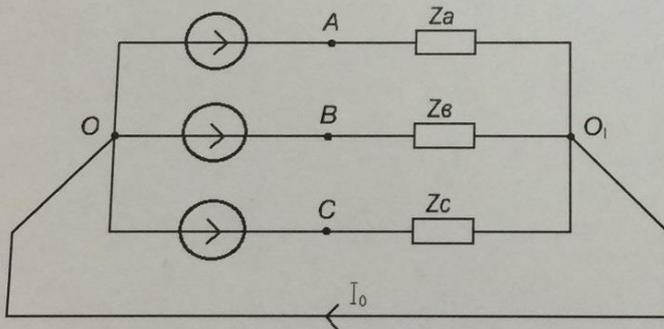
18.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \, \Omega; \quad Z_B = -j10 \, \Omega \\ Z_C &= 10e^{-j30^\circ} \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



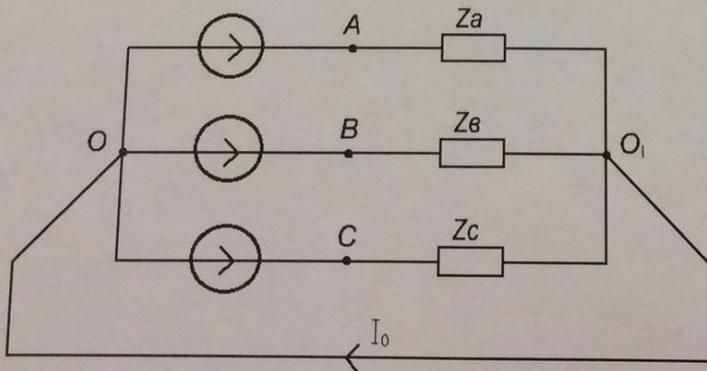
19.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 20e^{-j60^\circ} \, \Omega; \quad Z_B = 10 \, \Omega \\ Z_C &= 20e^{j60^\circ} \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



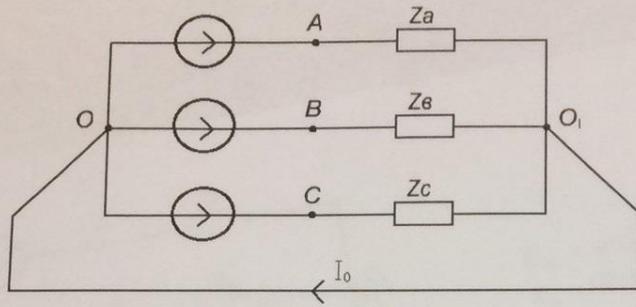
20.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10e^{-j60^\circ} \, \Omega; \quad Z_B = 10e^{j60^\circ} \, \Omega \\ Z_C &= 10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



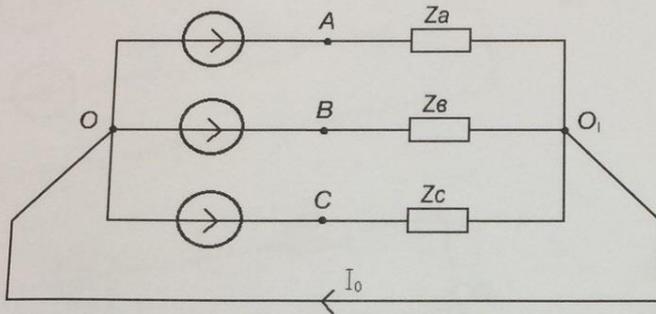
21.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= j10 \, \Omega; \quad Z_B = 10 \, \Omega \\ Z_C &= -j10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



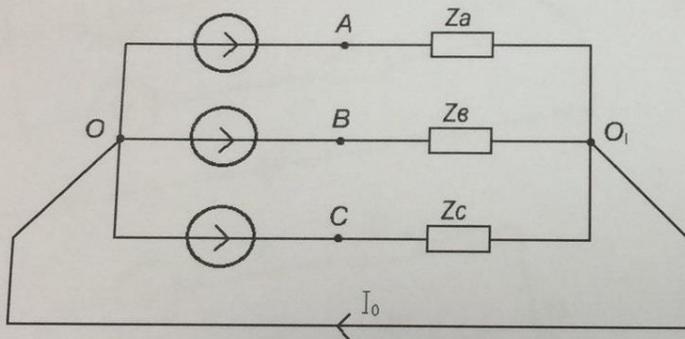
22.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10 \, \Omega; \quad Z_B = 10e^{j30^\circ} \, \Omega \\ Z_C &= j10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



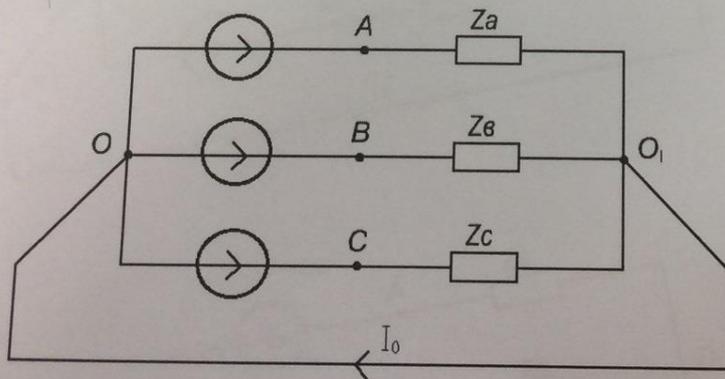
23.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 10e^{j30^\circ} \, \Omega; \quad Z_B = 10e^{-j30^\circ} \, \Omega \\ Z_C &= 10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



24.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= 5 \, \Omega; \quad Z_B = 10e^{j30^\circ} \, \Omega \\ Z_C &= j10 \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$



25.

$$\begin{aligned} \dot{U}_{BO} &= a^2 \dot{U}_{AO}, \quad \dot{U}_{CO} = a \dot{U}_{AO} \\ Z_A &= j10 \, \Omega; \quad Z_B = -j10 \, \Omega \\ Z_C &= \frac{10}{\sqrt{3}} \, \Omega; \quad \dot{U}_{AO} = 220 \, \text{V} \end{aligned}$$