10.

ПХ:

$$R_a'' = \frac{U_{02f}^2}{P_0/3} = \frac{U_{02}^2}{P_0} = \frac{420^2}{650} = 271{,}4\ \Omega \Longrightarrow I_a'' = \frac{U_{02f}}{R_a''} = \frac{420}{\sqrt{3}\cdot 271{,}4} = 0{,}893\ \text{A}$$

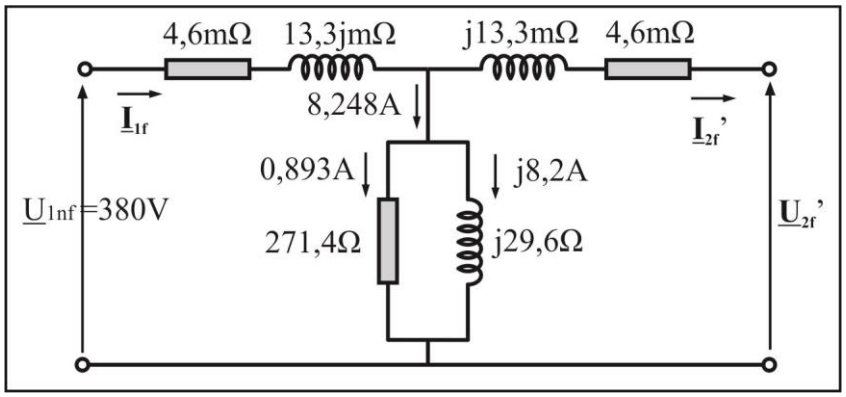
$$I_0'' = j_0 \cdot I_{2nf} = 0{,}024 \cdot 343{,}7 = 8{,}248\ \text{A} \Longrightarrow I_\mu'' = 8{,}2\ \text{A} \Longrightarrow X_\mu'' = \frac{U_{02f}}{I_\mu''} = \frac{420}{\sqrt{3}\cdot 8{,}2} = 29{,}6\ \Omega$$

КС:

$$R_k'' = \frac{P_k}{3I_{2nf}^2} = \frac{3250}{3\cdot 343{,}7^2} = 9{,}2\ \text{m}\Omega \Longrightarrow R_1'' = R_2 = \frac{R_k''}{2} = 4{,}6\ \text{m}\Omega$$

$$Z_k'' = \frac{u_k}{100}\frac{U_{02f}}{I_{2nf}} = \frac{4}{100}\cdot\frac{420}{\sqrt{3}\cdot 343{,}7} = 28{,}2\ \text{m}\Omega \Longrightarrow X_k'' = \sqrt{Z_k''^2 - R_k''^2} = 26{,}6\ \text{m}\Omega$$

$$\Longrightarrow X_{\sigma 1}'' = X_{\sigma 2} = \frac{X_k''}{2} = 13{,}3\ \text{m}\Omega$$



13.

$$u_{rn} = 2{,}4\%, \qquad u_{xn} = 3{,}81\%$$

а) Индуктивно оптерећење:

$$a = 5{,}49\%$$

$$b = 1{,}25\%$$

$$\Delta u = a + \frac{b^2}{200} = 5{,}5\%$$

$$U_2 = 207{,}9\ \text{V}$$

б) Капацитивно оптерећење:

$$a = -1{,}25\%$$

$$b = 5{,}49\%$$

$$\Delta u = a + \frac{b^2}{200} = -1{,}1\%$$

$$U_2 = 222{,}4\ \mathrm{V}$$