

3.1.16. feladat

$$a) R_0 = \frac{U_k}{I_{ameg}} = \frac{220}{30} = 7,33 \, \Omega$$

$$a = \sqrt[n]{\frac{R_b}{R_0}} = \sqrt{\frac{1,2}{7,33}} = 0,636$$

$$R_1 = a \cdot R_0 = 0,636 \cdot 7,33 = 4,66 \, \Omega$$

$$R_2 = a^2 \cdot R_0 = 0,636^2 \cdot 7,33 = 2,96 \, \Omega$$

$$R_3 = a^3 \cdot R_0 = 0,636^3 \cdot 7,33 = 1,88 \, \Omega$$

$$R_4 = a^4 \cdot R_0 = 0,636^4 \cdot 7,33 = 1,2 \, \Omega$$

$$r_1 = R_0 - R_1 = 7,33 - 4,66 = 2,67 \, \Omega$$

$$r_2 = R_1 - R_2 = 4,66 - 2,96 = 1,7 \, \Omega$$

$$r_3 = R_2 - R_3 = 2,96 - 1,88 = 1,08 \, \Omega$$

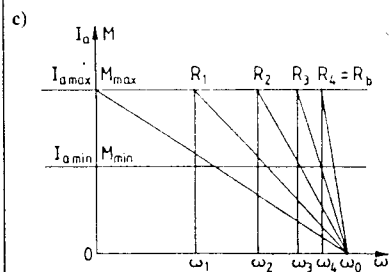
$$r_4 = R_3 - R_4 = 1,88 - 1,20 = 0,68 \, \Omega$$

$$b) P_1 = I_n^2 \cdot r_1 = 20^2 \cdot 2,67 = 1068 \, \text{W}$$

$$P_2 = I_n^2 \cdot r_2 = 20^2 \cdot 1,7 = 680 \, \text{W}$$

$$P_3 = I_n^2 \cdot r_3 = 20^2 \cdot 1,08 = 432 \, \text{W}$$

$$P_4 = I_n^2 \cdot r_4 = 20^2 \cdot 0,68 = 272 \, \text{W}$$



$$d) K \cdot \Phi = \frac{U_{kn}}{\omega_0} = \frac{220}{2 \cdot \pi \cdot 25} = 1,4 \, \text{V} \cdot \text{s}$$

$$M_{\max} = K \cdot \Phi \cdot I_{am} = 1,4 \cdot 30 = 42,01 \, \text{N} \cdot \text{m}$$

$$r_1 = 2,67 \, \Omega$$

$$r_2 = 1,7 \, \Omega$$

$$r_3 = 1,08 \, \Omega$$

$$r_4 = 0,68 \, \Omega$$

$$P_1 = 1068 \, \text{W}$$

$$P_2 = 680 \, \text{W}$$

$$P_3 = 432 \, \text{W}$$

$$P_4 = 272 \, \text{W}$$

$$M_{\max} = 42,01 \, \text{N} \cdot \text{m}$$