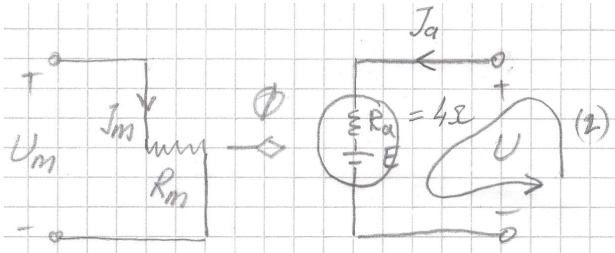
3.7



$P_2 = k_{FLÄKT} \cdot n^2 \quad \ldots (1)$ $\qquad E_I = ?$ $\qquad P_{2I} = ?$

FALL I $\qquad n_I = 2000$ RPM $\qquad U_I = 200$ V $\qquad J_{aI} = 10$ A

FALL II $\qquad n_{II} = 1500$ RPM $\qquad U_{II} = ?$ $\qquad J_{aII} = ?$

$E_{II} = ?$ $\qquad P_{2II} = ?$

$+U - R_a J_a - E = 0 \quad \ldots (2)$

FALL I $\Rightarrow \quad +200 - 4 \cdot 10 - E_I = 0 \Rightarrow \underline{E_I = 160\,V}$

$P_2 = M \cdot \omega = M \cdot \frac{2\pi n}{60} \quad \ldots (3)$

$P_2 = E J_a \quad \ldots (4)$

FALL I $\Rightarrow \quad \underline{P_{2I}} = 160 \cdot 10 = \underline{1600\,W}$

$(1) \Rightarrow \quad \frac{P_{2I}}{P_{2II}} = \frac{k_{FLÄKT} \cdot n_I^2}{k_{FLÄKT} \cdot n_{II}^2} \Rightarrow \quad \frac{1600}{P_{2II}} = \frac{2000^2}{1500^2}$

$\Rightarrow \underline{P_{2II} = 900\,W}$

JFR EKV. (1) MED EKV. (3) $\Rightarrow$

$$\Rightarrow k''_{FLAKT} \cdot n^2 = M \cdot \frac{2\pi n}{60} \Rightarrow M = \underbrace{\frac{60}{2\pi} \cdot k''_{FLAKT}}_{k} \cdot n$$

$$M = k_2 \Phi J_a \Rightarrow$$

$$\frac{k_2 \Phi J_{aI}}{k_2 \Phi J_{aII}} = \frac{n_I}{n_{II}} \Rightarrow \frac{10}{J_{aI}} = \frac{2000}{1500} \Rightarrow$$

$$J_{aII} = 7{,}5 \text{ A}$$

$$E = k_1 \Phi n \Rightarrow$$

$$\frac{E_I}{E_{II}} = \frac{k_1 \Phi n_I}{k_1 \Phi n_{II}} \Rightarrow \frac{160}{E_{II}} = \frac{2000}{1500} \Rightarrow E_{II} = 120 \text{ V}$$

FALL II INS I (2) $\Rightarrow$

$$+U_{II} - 4 \cdot 7{,}5 - 120 - 0 \Rightarrow U_{II} = 150 \text{ V}$$