

10.32

8/3-2011

$$a) P_2 = 15,4 \text{ kW} = M \cdot \omega$$

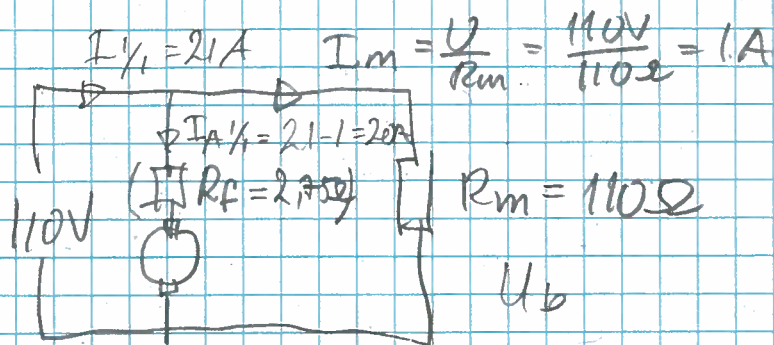
$$\Rightarrow M = \frac{P_2}{\omega} = \frac{15,4 \cdot 10^3}{\frac{2\pi \cdot 720}{60}} = \underline{\underline{204 \text{ Nm}}}$$

$$b) \eta = \frac{P_2}{P_1} = \frac{15,4 \cdot 10^3 \text{ W}}{442 \text{ V} \cdot 42,3 \text{ A}} = \underline{\underline{0,824}}$$

Opgave 10.38

114ELT1

4/11-2010



$$R_{A+V} = 0.25\Omega$$

Ved fuldlast: $E = U - U_b - I \cdot R_{A+V}$
 $= 110V - 2V - 20A \cdot 0.25\Omega = 103V$

a) Startstrøm uden fremstand:

$$I_A = \frac{U - U_b}{R_{A+V}} = \frac{110 - 2}{0.25} = 432A$$

$$I_{start} = I_A + I_m = 432A + 1A = 433A$$

b) Startstrøm med fremstand:

$$I_A = \frac{U - U_b}{R_{A+V} + R_f} = \frac{110 - 2}{0.25 + 2.75} = 36A$$

$$I_{start} = I_A + I_m = 36A + 1A = 37A$$

c) Ved fuldlast uden fremstand: $E_1 = 103V$

Med fremstand: $E = U - U_b - I_A \cdot (R_{A+V} + R_f) =$
 $110 - 2 - 20(0.25 + 2.75) = 48V$

$$\frac{n_1}{n_2} = \frac{E_1}{E_2} \Rightarrow n_2 = n_1 \cdot \frac{E_2}{E_1} = 1000 \cdot \frac{48}{103} = 466 \text{ rpm}$$