

$$10.3 \quad P = 40 \text{ W} \quad t = 7 \text{ h}$$

$$\begin{aligned} W &= P \cdot t = 40 \cdot 7 = 280 \text{ Wh} \\ &= 280 \cdot 3600 \text{ Ws} \\ &= 1008 \text{ kWs} = 1 \text{ MJs} \\ &= 1008 \text{ kJ} = 1 \text{ MJ} \end{aligned}$$

$$10.4 \quad t = 70' \quad U = 12 \text{ V}$$

$$P_A = 2 \cdot 40 \text{ W} \quad P_{St} = 2 \cdot 4 \text{ W}$$

$$P_{SL} = 2 \cdot 5 \text{ W} \quad P_K = 2 \cdot 4 \text{ W}$$

$$P_I = 5 \cdot 2 \text{ W}$$

$$\begin{aligned} \text{a) } P &= P_A + P_{St} + P_{SL} + P_K + P_I = \\ &= 2 \cdot 40 + 2 \cdot 4 + 2 \cdot 5 + 2 \cdot 4 + 5 \cdot 2 = \\ &= 116 \text{ W} \end{aligned}$$

$$\text{b) } P = ?$$

$$\text{c) } I = \frac{P}{U} = \frac{116}{12} = 9,6 \text{ A}$$

$$10.5 \quad t = 6 \text{ h } 15'$$

$$P = 1,5 \text{ kW} \quad I = 7,2 \text{ A}$$

$$YM-7 \quad 3 \times 1,5 \quad l = 14 \text{ m}$$

$$W = P \cdot t = 1500 \text{ W} \cdot 6,25 \text{ h} = \\ = 9375 \text{ Wh} = 9,375 \text{ kWh}$$

$$U_L = \frac{2 \cdot I \cdot l}{\gamma \cdot A} = \frac{2 \cdot 7,2 \cdot 14}{56 \cdot 1,5} = 2,4 \text{ V}$$

$$10.6 \quad t = 2,5 \text{ h}$$

$$R_i = 3333 \text{ } \Omega / \text{V}$$

$$U_{\text{Messbereich}} = 300 \text{ V}$$

$$U = 230 \text{ V}$$

$$R = R_i \cdot U_M = 3333 \frac{\Omega}{\text{V}} \cdot 300 \text{ V} \\ = 999900 \text{ } \Omega$$

$$I = \frac{U}{R} = \frac{230}{1000 \cdot 100} = 230 \mu A$$

$$P = U \cdot I = 230 \cdot 230 \mu =$$
$$= 0,0529 W$$

$$P = \frac{U^2}{R} = \frac{230^2}{1000 \cdot 100} = 0,0529 W$$

$$W = P \cdot t = 0,0529 \cdot 2,5 = 0,13225 Wh$$

$$10.7 \quad t = 8 h$$

$$W = 38,4 kWh$$

$$P = \frac{W}{t} = \frac{38,4 kWh}{8} = 4,8 kW$$

$$10.8 \quad W = 1 \text{ kWh}$$

$$P = 4.40 \text{ W}$$

$$t = \frac{W}{P} = \frac{1000}{4.40} = 227.27 \text{ h}$$

$$10.9 \quad U = 230 \text{ V}$$

$$I_{BK} = 15 \text{ mA}$$

$$P_A = 15 \text{ W}$$

$$P_{BK} = U \cdot I_{BK} = 230 \cdot 15 \text{ mA} = 3.45 \text{ W}$$

$$t_{BK} = \frac{W}{P_{BK}} = \frac{1000}{3.45} = 289.86 \text{ h}$$

$$t_A = \frac{W}{P_A} = \frac{1000}{15} = 66.67 \text{ h}$$