

RJEŠENJA:

1. 10 bodova

$$m = \rho \cdot V \quad 1 \text{ bod}$$

$$m_{vode} = 0,50 \text{ kg} \quad 1 \text{ bod}$$

$$m_{vode} = m_{11^\circ\text{C}} + m_{88^\circ\text{C}} \quad 2 \text{ boda}$$

$$m_{11^\circ\text{C}} \cdot c_{vode} \cdot (\tau - t_1) = m_{88^\circ\text{C}} \cdot c_{vode} \cdot (t_2 - \tau) \quad 2 \text{ boda}$$

$$m_{11^\circ\text{C}} = 0,41 \text{ kg} \quad 1 \text{ bod}$$

$$m_{89^\circ\text{C}} = 0,09 \text{ kg} \quad 1 \text{ bod}$$

$$V_{11^\circ\text{C}} = 0,41 \text{ L} \quad 1 \text{ bod}$$

$$V_{88^\circ\text{C}} = 0,09 \text{ L} \quad 1 \text{ bod}$$

2. 10 bodova

$$P = UI \quad 1 \text{ bod}$$

$$I_{\text{žaruljica}} = 0,02 \text{ A} \quad 1 \text{ bod}$$

$$I_{\text{ukupno}} = N \cdot I_{\text{žaruljica}} \quad 2 \text{ boda}$$

$$N = 48 \quad 1 \text{ bod}$$

$$R = \frac{U}{I} \quad 1 \text{ bod}$$

$$R = 150 \, \Omega \quad 1 \text{ bod}$$

$$\frac{R_s}{R_p} = \frac{NR}{\frac{R}{N}} \quad 2 \text{ boda}$$

Otpor serijskoga spoja je 2304 puta veći od otpora paralelnog spoja.

1 bod

3. 9 bodova

$$\eta = 0,72 \quad 1 \text{ bod}$$

$$E_K = \eta \cdot E_{gp} \quad 1 \text{ bod}$$

$$E_K = \eta mgh = 5,40 \text{ mJ} \quad 2 \text{ boda}$$

$$E_K = W_{tr} \quad 1 \text{ bod}$$

$$W_{tr} = \mu mg \cdot l \quad 2 \text{ boda}$$

$$\mu = \frac{E_K}{mgl} \quad 1 \text{ bod}$$

$$\mu = 0,49 \quad 1 \text{ bod}$$

4. 10 bodova

$$\Delta l_1 = l_1 - l_0 \quad 1 \text{ bod}$$

$$\Delta l_1 = 0,016 \text{ m} \quad 1 \text{ bod}$$

$$F_g = F_{el} \quad 1 \text{ bod}$$

$$m_1 \cdot g = k \cdot \Delta l_1 \quad 1 \text{ bod}$$

$$k = 31,250 \text{ N/m} \quad 1 \text{ bod}$$

$$\Delta l_2 = 0,020 \text{ m} \quad 1 \text{ bod}$$

$$M = \frac{k \cdot \Delta l_2}{g} = 0,0625 \text{ kg} \quad 2 \text{ boda}$$

$$M = m_1 + m_2 \quad 1 \text{ bod}$$

$$m_2 = 0,0125 \text{ kg} \quad 1 \text{ bod}$$

5. 11 bodova

$$V_{splav} = abc \quad 1 \text{ bod}$$

$$V_{splav} = 0,363 \text{ m}^3 \quad 1 \text{ bod}$$

$$m = \rho \cdot V \quad 1 \text{ bod}$$

$$m_{splav} = 272,25 \text{ kg} \quad 1 \text{ bod}$$

$$F_u = \rho g V \quad 1 \text{ bod}$$

$$F_u = 3738,90 \text{ N} \quad 1 \text{ bod}$$

$$F_g = F_{g,vrata} + F_{g,Katarina} + F'_{g,Leon} \quad 1 \text{ bod}$$

$$F_g = 3822,50 \text{ N} \quad 1 \text{ bod}$$

$$F_g > F_u \quad 2 \text{ boda}$$

$$\text{Leon se ne mo\text{z}e popeti na splav.} \quad 1 \text{ bod}$$