

FIZIKA

KLJUČ ZA ODGOVORE

1. A.
2. D.
3. A.
4. B.
5. B.
6. A.
7. D.
8. B.
9. A.
10. B.
11. B.
12. C.

13. C.
14. B.
15. C.
16. D.
17. D.
18. A.
19. D.
20. D.
21. A.
22. B.
23. B.
24. A.

25. Odgovor: _____ 3500 J _____

Postupak:

$$mgh = E_k + \Delta E \quad 1 \text{ bod}$$

$$\Delta E = mgh - E_k = 10 \text{ kg} \cdot 10 \text{ m s}^{-2} \cdot 80 \text{ m} - 4500 \text{ J} = 3500 \text{ J} \quad 1 \text{ bod}$$

26. Odgovor: _____ 3,7 N _____

Postupak:

$$F_g = G \frac{mM}{R^2} \quad 1 \text{ bod}$$

$$F_g = 6,67 \cdot 10^{-11} \text{ N kg}^{-2} \text{ m}^2 \frac{1 \text{ kg} \cdot 6,5 \cdot 10^{23} \text{ kg}}{(3,4 \cdot 10^6 \text{ m})^2} = 3,7 \text{ N} \quad 1 \text{ bod}$$

27. Odgovor: _____ 10^{-2} m^3 (10 L) _____

Postupak:

$$W = p \cdot \Delta V \quad 1 \text{ bod}$$

$$\Delta V = W/p = 10^3 \text{ J} / 10^5 \text{ Pa} = 10^{-2} \text{ m}^3 \quad 1 \text{ bod}$$

28. Odgovor: _____ $Z = 400 \, \Omega$ _____

Postupak:

$$Z = R_L - R_C \quad 1 \text{ bod}$$

$$Z = 600 \, \Omega - 200 \, \Omega = 400 \, \Omega \quad 1 \text{ bod}$$

29. Odgovor: _____ $C = 3,5 \, \text{pF}$ _____

Postupak:

$$f = \frac{1}{2\pi\sqrt{LC}} \Rightarrow C = \frac{1}{4\pi^2 f^2 L} \quad 1 \text{ bod}$$

$$C = \frac{1}{4\pi^2 \cdot (95 \cdot 10^6 \, \text{Hz})^2 \cdot 0,8 \cdot 10^{-6} \, \text{H}} = 3,5 \cdot 10^{-12} \, \text{F} = 3,5 \, \text{pF} \quad 1 \text{ bod}$$

30. Odgovor: _____ $v = 0,87 \, c = 2,6 \cdot 10^8 \, \text{m/s}$ _____

Postupak:

$$T = \frac{T_0}{\sqrt{1 - \frac{v^2}{c^2}}} \quad 1 \text{ bod}$$

$$2 = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} \Rightarrow v = \frac{\sqrt{3}}{2} c = 2,7 \cdot 10^8 \frac{\text{m}}{\text{s}} \quad 1 \text{ bod}$$

31. Odgovor: _____ $m_1 = 1 \, \text{kg}$ _____

Postupak:

$$F = ma \quad 1 \text{ bod}$$

$$F = m_1 g - F_{\text{tr}} \quad 1 \text{ bod}$$

$$m_1 g - F_{\text{tr}} = (m_1 + m_2) a$$

1 bod

$$m_1 = 1 \text{ kg}$$

1 bod

32. Odgovor: _____ 900 J/kg K _____

Postupak:

$$Q = mc\Delta T$$

1 bod

$$\Delta T = 40 \text{ }^\circ\text{C} = 40 \text{ K}$$

1 bod

$$Q = m_v c_v \Delta T + m_{\text{Al}} c_{\text{Al}} \Delta T$$

1 bod

$$c_{\text{Al}} = \frac{Q - m_v c_v \Delta T}{m_{\text{Al}} \Delta T} = 900 \text{ J/kg K}$$

1 bod

33.

33.1. Odgovor: _____ $U_i = 0,08 \text{ V} = 80 \text{ mV}$ _____

Postupak:

$$U_i = B/v$$

1 bod

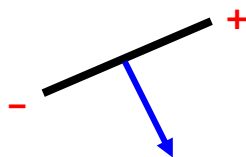
$$U_i = 5 \cdot 10^{-3} \text{ T} \cdot 0,8 \text{ m} \cdot 20 \text{ m/s}$$

1 bod

$$U_i = 0,08 \text{ V} = 80 \text{ mV}$$

1 bod

33.2.



1 bod

34. Odgovor: _____ $\lambda = (646 \pm 30) \text{ nm}$ _____

Postupak:

$$\bar{\lambda} = \frac{\lambda_1 + \lambda_2 + \lambda_3 + \lambda_4}{4}$$

1 bod

$$\bar{\lambda} = 646 \text{ nm}$$

1 bod

$$\Delta\lambda_{\max} = |\lambda_3 - \bar{\lambda}| = 30 \text{ nm}$$

1 bod

$$\lambda = \bar{\lambda} \pm \Delta\lambda_{\max} = (646 \pm 30) \text{ nm}$$

1 bod

35. Odgovor: _____ $P=350 \text{ W}$ _____

Postupak:

$$\lambda_{\max} \cdot T = C$$

1bod

$$T = 500 \text{ K}$$

1bod

$$P = \sigma T^4$$

1bod

$$P = 350 \text{ W}$$

1bod