

FIZIKA – JESENSKI ROK – ključ za odgovore

Ispitna knjižica 1

- | | |
|--------|--------|
| 1. D. | 13. A. |
| 2. D. | 14. B. |
| 3. D. | 15. D. |
| 4. C. | 16. B. |
| 5. A. | 17. D. |
| 6. C. | 18. B. |
| 7. D. | 19. D. |
| 8. C. | 20. A. |
| 9. B. | 21. B. |
| 10. A. | 22. B. |
| 11. C. | 23. A. |
| 12. A. | 24. A. |

Ispitna knjižica 2

25. Odgovor: _____ 80 m _____

Postupak:

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

$$h = (E_k + \Delta E)/mg = (4500 \text{ J} + 3500 \text{ J})/(10 \text{ kg} \cdot 10 \text{ m s}^{-2}) = 80 \text{ m} \quad 1 \text{ bod}$$

26. Odgovor: _____ 3,7 m s⁻² _____

Postupak:

$$g = G \frac{M}{R^2} \quad 1 \text{ bod}$$

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

27. Odgovor: _____ $5 \cdot 10^{-3} \text{ m}^3$ (5 L) _____

Postupak:

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

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

28. Odgovor: _____ $Z = 500 \Omega$ _____

Postupak:

$$Z = \sqrt{R^2 + R_C^2} \quad 1 \text{ bod}$$

$$Z = \sqrt{(300 \Omega)^2 + (400 \Omega)^2} = 500 \Omega \quad 1 \text{ bod}$$

29. Odgovor: _____ $f = 110 \text{ MHz}$ _____

Postupak:

$$f = \frac{1}{2\pi\sqrt{LC}} \quad 1 \text{ bod}$$

$$f = \frac{1}{2\pi\sqrt{0,6 \cdot 10^{-6} \text{ H} \cdot 3,5 \cdot 10^{-12} \text{ F}}} = 110 \cdot 10^6 \text{ Hz} = 110 \text{ MHz} \quad 1 \text{ bod}$$

30. Odgovor: _____ $T = 2,5 \cdot 10^{-6} \text{ s} = 2,5 \mu\text{s}$ _____

Postupak:

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

$$T = \frac{2 \cdot 10^{-6} \text{ s}}{\sqrt{1 - (0,6)^2}} = 2,5 \cdot 10^{-6} \text{ s} = 2,5 \mu\text{s} \quad 1 \text{ bod}$$

31. Odgovor: _____ $a = 2 \text{ m s}^{-2}$ _____

Postupak:

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

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

$$m_1 g = (m_1 + m_2) a \quad 1 \text{ bod}$$

$$a = 2 \text{ m s}^{-2} \quad 1 \text{ bod}$$

32. Odgovor: _____ $0,5 \text{ kg}$ _____

Postupak:

$$Q = mc\Delta T \quad 1 \text{ bod}$$

$$\Delta T = 40 \text{ K} \quad 1 \text{ bod}$$

$$Q = m_v c_v \Delta T + m_{Al} c_{Al} \Delta T \quad 1 \text{ bod}$$

$$m_v = \frac{Q - m_{Al} c_{Al} \Delta T}{c_v \Delta T} = 0,5 \text{ kg} \quad 1 \text{ bod}$$

33.

33.1. Odgovor: _____ $l = 0,8 \text{ m} = 80 \text{ cm}$ _____

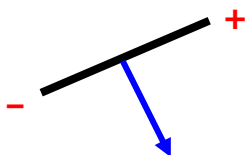
Postupak:

$$U_i = Blv \quad 1 \text{ bod}$$

$$l = U_i / Bv = 0,08 \text{ V} / (5 \cdot 10^{-3} \text{ T} \cdot 20 \text{ m/s}) \quad 1 \text{ bod}$$

$$l = 0,8 \text{ m} = 80 \text{ cm} \quad 1 \text{ bod}$$

33.2.



1 bod

34. Odgovor: $s = (2,3 \pm 0,2) \text{ mm}$

Postupak:

$$\bar{s} = \frac{s_1 + s_2 + s_3 + s_4}{4} \quad 1 \text{ bod}$$

$$\bar{s} = 2,3 \text{ mm} \quad 1 \text{ bod}$$

$$\Delta s_{\max} = |s_i - \bar{s}| = 0,2 \text{ mm} \quad 1 \text{ bod}$$

$$s = \bar{s} \pm \Delta s_{\max} = (2,3 \pm 0,2) \text{ mm} \quad 1 \text{ bod}$$

35. Odgovor: $S = 0,11 \text{ m}^2$

Postupak:

$$\lambda_{\text{maks}} \cdot T = C \quad 1 \text{ bod}$$

$$T = 500 \text{ K} \quad 1 \text{ bod}$$

$$P = \sigma S T^4 \quad 1 \text{ bod}$$

$$S = 0,11 \text{ m}^2 \quad 1 \text{ bod}$$