Fizika na državnoj maturi 2013./2014. - jesenski rok
Ključ za odgovore

Ispitna knjižica 1

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

Ispitna knjižica 2

25. 2 boda

$a = (F_1 - F_2)/m$ **1 bod**

$a = 0{,}5$ m/s^2 **1 bod**

26. 2 boda

$F\Delta t = m\Delta v$ **1 bod**

$F\Delta t = 24$ Ns   **1 bod**

27. 2 boda

$\Delta l = l_0 \beta \Delta t$ **1 bod**
$\Delta t = \Delta l / l_0 \beta$
$\Delta t = 4 \cdot 10^{-2}$ m/(22,5 m $\cdot$ 1,2$\cdot 10^{-5}$ K^{-1}) = 148 K

$t = 148$ °C   **1 bod**

28. **2 boda**

$B = \mu_0 \mu_r NI/l$ **1 bod**
$B = \mu_r B_0$
$B = 120 \cdot 2$ mT

$B = 240$ mT   **1 bod**

29. 2 boda

$n = \sin\alpha/\sin\beta$ **1 bod**

$n = 1{,}53$ **1 bod**

30. 2 boda

$L = L_0\sqrt{1 - \dfrac{v^2}{c^2}}$ **1 bod**

$L = 30$ m **1 bod**

31. 4 boda

$W_{tr} = E_{k0} - E_{gp}$ **1 bod**

$W_{tr} = E_{gp} - E_{k1}$ **1 bod**
$E_{k0} - E_{gp} = E_{gp} - E_{k1}$
$E_{k1} = 2E_{gp} - E_{k0}$
$mv_1^2/2 = 2mgh - mv_0^2/2$ **1 bod**
$v_1^2 = 4gh - v_0^2$

$v_1 = 1{,}73$ m/s **1 bod**

32. 4 boda

$m = n{\cdot}M$ **1 bod**

$pV = nRT$ **1 bod**
$n = pV/RT$

$n = 10^5$ Pa $\cdot 2$ m^3/(8,314 J K^{-1} mol$^{-1}\cdot$298 K)
$n = 80{,}7$ mol **1 bod**

$m = 2583$ g **1 bod**

33. 4 boda

$R_C = R_L$ **1 bod**

$1/(C\omega) = L\omega,$ $\quad C = 1/(L\omega^2)$

$\omega = 2\pi/T$ **1 bod**

$T = 10$ ms $= 0{,}01$ s **1 bod**

$C = 5{,}1\cdot10^{-6} = 5{,}1$ µF **1 bod**

34. 4 boda

$x = A\sin(2\pi t/T + \varphi_0)$

$A = 5$ cm   **1 bod**

$T = 2$ s   **1 bod**

$\varphi_0 = \pi$ **1 bod**

$x = 5$ cm$\cdot\sin(2\pi t/2$ s $+ \pi)$

$x = 5$ cm$\cdot\sin(\pi t/\text{s} + \pi)$ **1 bod**
ili $x = -5$ cm$\cdot\sin(\pi t/\text{s})$, odnosno matematički ekvivalentni izrazi poput
$x = 5$ cm$\cdot\cos(\pi t/\text{s} + \pi/2)$.

35. 4 boda

$\lambda = h/mv$ **1 bod**

$E_k = mv^2/2$ **1 bod**

$$\lambda = \frac{h}{\sqrt{2mE_k}}$$ **1 bod**

$\lambda = 4{,}9\cdot10^{-10}$ m   **1 bod**