



RJEŠENJA ISPITA DRŽAVNE MATURE IZ **KEMIJE**
U ŠKOLSKOJ GODINI 2025./2026. (1. ROK)

BROJ ZADATKA	TOČAN ODGOVOR
1.	A
2.	D
3.	A
4.	D
5.	A
6.	D
7.	A
8.	B
9.	A
10.	C
11.	C
12.	B
13.	B
14.	C
15.	A
16.	B
17.	B
18.	A
19.	C
20.	A
21.	A
22.	B
23.	D
24.	C
25.	A
26.	B
27.	A
28.	D
29.	D
30.	B
31.	B
32.	D
33.	D
34.	C
35.	B

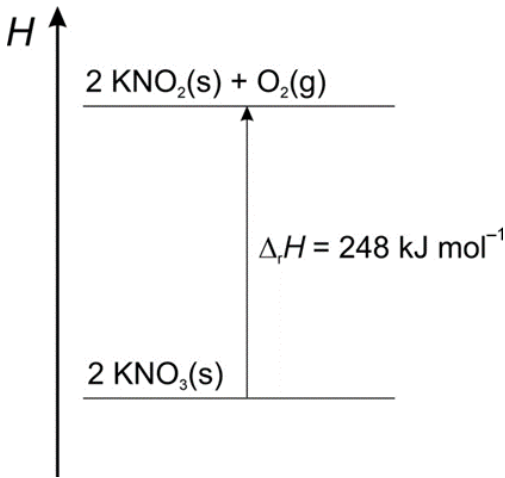


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36.1.	3-hidroksibutanska kiselina
36.2.	PbS
37.1.	$V(A) = 28,9 \text{ cm}^3$ $V(A) = \frac{m(A)}{\rho(A)} = \frac{30,0 \text{ g}}{1,04 \text{ g cm}^{-3}} = 28,9 \text{ cm}^3$
37.2.	$M_r(A) = 108$ $M_r(A) = \frac{m_r(A)}{u} = \frac{1,79 \times 10^{-22} \text{ g}}{1,66 \times 10^{-24} \text{ g}} = 108$
38.1.	$\lambda = 3,41 \times 10^{-12} \text{ m}$ $\lambda = \frac{h \cdot c}{E} = \frac{6,63 \times 10^{-34} \text{ J s} \cdot 3,00 \times 10^8 \text{ m s}^{-1}}{5,83 \times 10^{-14} \text{ J}} = 3,41 \times 10^{-12} \text{ m}$
38.2.	$^{131}_{54}\text{Xe}$
39.1.	$K_a = 1,25 \times 10^{-5} \text{ mol dm}^{-3}$ $K_a = \frac{[\text{CH}_3\text{CH}_2\text{COO}^-] \cdot [\text{H}_3\text{O}^+]}{[\text{CH}_3\text{CH}_2\text{COOH}]}$ $K_a = \frac{[\text{H}_3\text{O}^+]^2}{[\text{CH}_3\text{CH}_2\text{COOH}]}$ $K_a = [\text{H}_3\text{O}^+] \cdot \alpha$ $K_a = 1,14 \times 10^{-3} \text{ mol dm}^{-3} \cdot 0,011$ $K_a = 1,25 \times 10^{-5} \text{ mol dm}^{-3}$ $[\text{CH}_3\text{CH}_2\text{COO}^-] = [\text{H}_3\text{O}^+]$ $\alpha = \frac{[\text{H}_3\text{O}^+]}{[\text{CH}_3\text{CH}_2\text{COOH}]}$
39.2.	$\text{CH}_3\text{CH}_2\text{COOH}$, H_3O^+ ili H^+

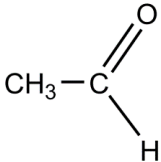


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40.1.	$m(\text{NH}_4\text{Cl}) = 26,8 \text{ g}$ $c(\text{NH}_4\text{Cl}) = \frac{n(\text{NH}_4\text{Cl})}{V(\text{otopina})}$ $c(\text{NH}_4\text{Cl}) = \frac{m(\text{NH}_4\text{Cl})}{M(\text{NH}_4\text{Cl}) \cdot V(\text{otopina})}$ $m(\text{NH}_4\text{Cl}) = c(\text{NH}_4\text{Cl}) \cdot M(\text{NH}_4\text{Cl}) \cdot V(\text{otopina})$ $m(\text{NH}_4\text{Cl}) = 0,50 \text{ mol dm}^{-3} \cdot 53,54 \text{ g mol}^{-1} \cdot 1,00 \text{ dm}^3$ $m(\text{NH}_4\text{Cl}) = 26,8 \text{ g}$
40.2.	$\text{NH}_4^+(\text{aq}) + \text{H}_2\text{O}(\ell) \rightleftharpoons \text{NH}_3(\text{aq}) + \text{H}_3\text{O}^+(\text{aq})$
41.1.	$c(\text{Ba}(\text{OH})_2) = 5,67 \times 10^{-2} \text{ mol dm}^{-3}$ $2 \cdot c(\text{Ba}(\text{OH})_2) \cdot V(\text{Ba}(\text{OH})_2) = c(\text{HCl}) \cdot V(\text{HCl})$ $c(\text{Ba}(\text{OH})_2) = \frac{c(\text{HCl}) \cdot V(\text{HCl})}{2 \cdot V(\text{Ba}(\text{OH})_2)}$ $c(\text{Ba}(\text{OH})_2) = 5,67 \times 10^{-2} \text{ mol dm}^{-3}$
41.2.	$\text{BaCl}_2(\text{aq}) + 2 \text{AgNO}_3(\text{aq}) \rightarrow 2 \text{AgCl}(\text{s}) + \text{Ba}(\text{NO}_3)_2(\text{aq})$ ili $\text{Cl}^-(\text{aq}) + \text{Ag}^+(\text{aq}) \rightarrow \text{AgCl}(\text{s})$
41.3.	Cl^- , kloridni ion
42.1.	$E^\circ = 2,004 \text{ V}$ $E^\circ = E^\circ(\text{Cu}^{2+} / \text{Cu}) - E^\circ(\text{Al}^{3+} / \text{Al})$ $E^\circ = 0,342 \text{ V} - (-1,662 \text{ V})$ $E^\circ = 2,004 \text{ V}$
42.2.	$\text{Cu}^{2+} + 2 \text{e}^- \rightarrow \text{Cu}$
42.3.	$\text{Cu}(\text{s}) \mid \text{Cu}^{2+}(\text{aq}) \parallel \text{Ag}^+(\text{aq}) \mid \text{Ag}(\text{s})$



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43.1.	$2 \text{ N}_2\text{O}_5(\text{g}) \rightarrow 4 \text{ NO}_2(\text{g}) + \text{O}_2(\text{g})$
43.2.	$\bar{v}(\text{N}_2\text{O}_5) = 0,6 \text{ mol dm}^{-3} \text{ min}^{-1}$ $\bar{v}(\text{N}_2\text{O}_5) = -\frac{\Delta c(\text{N}_2\text{O}_5)}{\Delta t}$ $\bar{v}(\text{N}_2\text{O}_5) = -\frac{(3 \text{ mol dm}^{-3} - 12 \text{ mol dm}^{-3})}{15 \text{ min}}$ $\bar{v}(\text{N}_2\text{O}_5) = \frac{9 \text{ mol dm}^{-3}}{15 \text{ min}}$ $\bar{v}(\text{N}_2\text{O}_5) = 0,6 \text{ mol dm}^{-3} \text{ min}^{-1}$
43.3.	Brzina kemijske reakcije će se smanjiti.
44.1.	endotermna promjena
44.2.	$\Delta H = 62 \text{ kJ}$ $\xi(\text{KNO}_3) = \frac{\Delta n(\text{KNO}_3)}{v(\text{KNO}_3)} = \frac{0 - 0,5 \text{ mol}}{-2} = 0,25 \text{ mol}$ $\Delta H = \xi(\text{KNO}_3) \cdot \Delta_r H = 0,25 \text{ mol} \cdot 248 \text{ kJ mol}^{-1} = 62 \text{ kJ}$
44.3.	



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44.4.	$\Delta_f H(\text{KNO}_3) = -494 \text{ kJ mol}^{-1}$ $\Delta_r H = H_p - H_R$ $\Delta_r H = 2 \cdot \Delta_f H(\text{KNO}_2) - 2 \cdot \Delta_f H(\text{KNO}_3)$ $\Delta_f H(\text{KNO}_3) = \frac{2 \cdot \Delta_f H(\text{KNO}_2) - \Delta_r H}{2}$ $\Delta_f H(\text{KNO}_3) = \frac{2 \cdot (-370 \text{ kJ mol}^{-1}) - 248 \text{ kJ mol}^{-1}}{2}$ $\Delta_f H(\text{KNO}_3) = -494 \text{ kJ mol}^{-1}$
45.1.	$2 \text{ SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2 \text{ SO}_3(\text{g})$
45.2.	$p(\text{SO}_2) = 0,097 \text{ bar}$ $K_p = \frac{p^2(\text{SO}_3)}{p^2(\text{SO}_2) \cdot p(\text{O}_2)}$ $p(\text{SO}_2) = \sqrt{\frac{p^2(\text{SO}_3)}{p(\text{O}_2) \cdot K_p}}$ $p(\text{SO}_2) = 0,097 \text{ bar}$
45.3.	Povećat će se množinska koncentracija produkta.
45.4.	inducirani dipol – inducirani dipol / Londonove sile
46.1.	$\text{CH}_3 - \text{CH} = \text{CH}_2$
46.2.	
46.3.	$\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH} + \text{HBr} \longrightarrow \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{Br} + \text{H}_2\text{O}$



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46.4.	$\begin{array}{c} \text{CH}_3\text{CHCH}_3 \\ \\ \text{OH} \end{array}$
47.1.	lijevak za dokapavanje / lijevak za ekstrakciju / lijevak za odjeljivanje
47.2.	$\text{CH}_3\text{COOH}(\text{aq}) + \text{NaHCO}_3(\text{s}) \rightarrow \text{CH}_3\text{COONa}(\text{aq}) + \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\ell)$
47.3.	kalcijev karbonat, CaCO_3
47.4.	$\eta = 90,8 \%$ $\eta = \frac{V(\text{CO}_2)_{\text{eksperimentalni}}}{V(\text{CO}_2)_{\text{teoretski}}}$ $\eta = \frac{5,50 \text{ L}}{6,06 \text{ L}} = 0,9076 \cdot 100 \% = 90,8 \%$