



RJEŠENJA ISPITA DRŽAVNE MATURE IZ **KEMIJE**  
U ŠKOLSKOJ GODINI 2024./2025. (2. ROK)

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

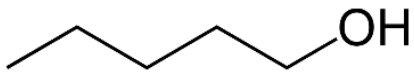
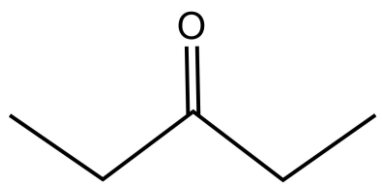


BROJ ZADATKA	TOČAN ODGOVOR	BOD
36.1.	1,2-dietilcikloheksan	1 BOD
36.2.	$\text{Fe}(\text{HSO}_3)_2$	1 BOD
37.1.	<p><b>pH = 10,6</b></p> <p><math>n(\text{Ba}(\text{OH})_2) : n(\text{OH}^-) = 1 : 2</math></p> <p><math>c(\text{Ba}(\text{OH})_2) : c(\text{OH}^-) = 1 : 2</math></p> <p><math>c(\text{OH}^-) = 2 \cdot c(\text{Ba}(\text{OH})_2) = 4,30 \times 10^{-4} \text{ mol dm}^{-3}</math></p> <p><math>\text{pOH} = -\frac{\log[\text{OH}^-]}{\text{mol dm}^{-3}} = 3,4</math></p> <p><math>\text{pH} = 14 - \text{pOH} = 10,6</math></p>	1 BOD
37.2.	<p><b><math>V_1 = 8,14 \text{ mL}</math></b></p> <p><math>n_1 = n_2</math></p> <p><math>c_1 \cdot V_1 = c_2 \cdot V_2</math></p> <p><math>V_1 = \frac{c_2 \cdot V_2}{c_1}</math></p> <p><math>V_1 = \frac{3,50 \times 10^{-6} \text{ mol dm}^{-3} \cdot 500 \text{ mL}}{2,15 \times 10^{-4} \text{ mol dm}^{-3}}</math></p> <p><math>V_1 = 8,14 \text{ mL}</math></p>	1 BOD
38.1.	<p><b><math>\alpha(\text{HCN}) = 8,0 \times 10^{-3} \%</math></b></p> <p><math>[\text{H}_3\text{O}^+] = 10^{-\text{pH}} = 10^{-6,15} = 7,08 \times 10^{-7} \text{ mol dm}^{-3}</math></p> <p><math>\alpha(\text{HCN}) = \frac{[\text{H}_3\text{O}^+]}{c_0(\text{HCN})}</math></p> <p><math>\alpha(\text{HCN}) = \frac{7,08 \times 10^{-7} \text{ mol dm}^{-3}}{8,85 \times 10^{-3} \text{ mol dm}^{-3}}</math></p> <p><math>\alpha(\text{HCN}) = 8,0 \times 10^{-5} \cdot 100\%</math></p> <p><math>\alpha(\text{HCN}) = 8,0 \times 10^{-3} \%</math></p>	1 BOD
38.2.	kovalentnom vezom	1 BOD

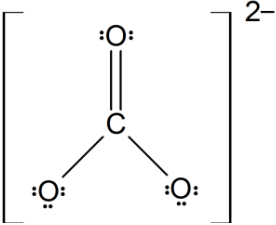


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39.1.	$^{131}_{54}\text{Xe}$	1 BOD
39.2.	$[\text{Kr}]5s^2 4d^{10} 5p^5$ ili $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^5$	1 BOD
40.1.	$w(\text{Mg}) = 0,150 = 15,0 \%$ $n(\text{BaSO}_4) = n(\text{MgSO}_4) = n(\text{Mg})$ $\frac{m(\text{BaSO}_4)}{M(\text{BaSO}_4)} = \frac{m(\text{Mg})}{M(\text{Mg})}$ $m(\text{Mg}) = M(\text{Mg}) \cdot \frac{m(\text{BaSO}_4)}{M(\text{BaSO}_4)}$ $w(\text{Mg}) = \frac{M(\text{Mg}) \cdot \frac{m(\text{BaSO}_4)}{M(\text{BaSO}_4)}}{m(\text{uzorka})} = \frac{M(\text{Mg}) \cdot m(\text{BaSO}_4)}{m(\text{uzorka}) \cdot M(\text{BaSO}_4)}$ $w(\text{Mg}) = \frac{24,3 \cdot 7,2 \text{ g}}{5,00 \text{ g} \cdot 233,1} = 0,150 = 15,0 \%$	1 BOD
40.2.	$K_s(\text{BaSO}_4) = [\text{Ba}^{2+}] \cdot [\text{SO}_4^{2-}]$	1 BOD
41.1.	$\bar{v} = - \frac{\Delta p(\text{H}_2)}{3 \cdot \Delta t}$	1 BOD
41.2.	Ravnoteža se pomiče prema produktima.	1 BOD
41.3.	$\text{NH}_3$ i $\text{OH}^-$	1 BOD
42.1.	30 g	1 BOD
42.2.	5 g	1 BOD
42.3.	neutralna; pH=7	1 BOD



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43.1.	$\pi(C_6H_{12}O_6) = 689056,9 \text{ Pa}$ $\pi(C_6H_{12}O_6) = i \cdot c(C_6H_{12}O_6) \cdot R \cdot T$ $\pi(C_6H_{12}O_6) = 1 \cdot 283 \text{ mol m}^{-3} \cdot 8,31 \text{ J K}^{-1} \text{ mol}^{-1} \cdot 293 \text{ K}$ $\pi(C_6H_{12}O_6) = 689056,9 \text{ Pa}$	1 BOD
43.2.	Fehlingov reagens ili Trommerov reagens	1 BOD
43.3.	izotonične otopine	1 BOD
44.1.		1 BOD
44.2.		1 BOD
44.3.	karboksilna skupina	1 BOD
44.4.	$CH_3OH + \text{CH}_3(CH_2)_3COOH \xrightleftharpoons{H_3O^+} CH_3(CH_2)_3COOCH_3 + H_2O$	1 BOD
45.1.	kalcijev oksid ili živo vapno	1 BOD
45.2.	$CO_2(g) + Ca(OH)_2(aq) \rightarrow CaCO_3(s) + H_2O(l)$	1 BOD
45.3.	$Ca(HCO_3)_2$	1 BOD



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45.4.		1 BOD
46.1.	Fe (željezo) $E^\circ = E^\circ(\text{Sn}^{2+}   \text{Sn}) - E^\circ(\text{X}^{2+}   \text{X})$ $0,310\text{V} = -0,137\text{V} - E^\circ(\text{X}^{2+}   \text{X})$ $E^\circ(\text{X}^{2+}   \text{X}) = -0,447\text{V}$	1 BOD
46.2.	$\text{Fe}   \text{Fe}^{2+}    \text{Sn}^{2+}   \text{Sn}$ ili $\text{X}   \text{X}^{2+}    \text{Sn}^{2+}   \text{Sn}$	1 BOD
46.3.	$\text{Fe} + \text{Sn}^{2+} \rightarrow \text{Fe}^{2+} + \text{Sn}$ ili $\text{X} + \text{Sn}^{2+} \rightarrow \text{X}^{2+} + \text{Sn}$	1 BOD
46.4.	$\text{X}^{2+}$ ili $\text{Sn}^{2+}$	1 BOD
47.1.	$\text{P}_4\text{O}_{10}(\text{s}) + 6\text{H}_2\text{O}(\ell) \rightarrow 4\text{H}_3\text{PO}_4(\text{aq}); \Delta_r H^\circ = -3432,92\text{ kJ mol}^{-1}$	1 BOD
47.2.	$\Delta H = -172\text{ kJ}$ $\Delta H = \frac{n(\text{H}_3\text{PO}_4) \cdot \Delta_r H^\circ}{\nu(\text{H}_3\text{PO}_4)}$ $\Delta H = \frac{0,200\text{ mol} \cdot (-3432,92\text{ kJ mol}^{-1})}{4}$ $\Delta H = -172\text{ kJ}$	1 BOD
47.3.	egzotermna promjena	1 BOD
47.4.	$\text{HPO}_4^{2-}(\text{aq}) + \text{H}_3\text{O}^+(\text{aq}) \rightleftharpoons \text{H}_2\text{PO}_4^-(\text{aq}) + \text{H}_2\text{O}(\ell)$ ili $\text{HPO}_4^{2-}(\text{aq}) + \text{H}^+(\text{aq}) \rightleftharpoons \text{H}_2\text{PO}_4^-(\text{aq})$	1 BOD