

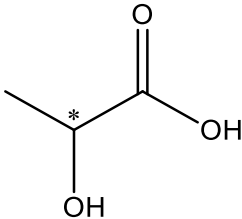
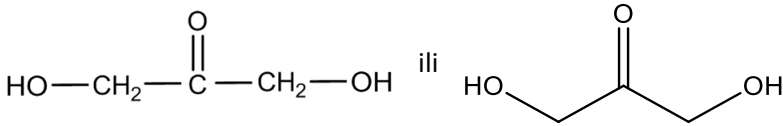
**RJEŠENJA ISPITA DRŽAVNE MATURE IZ KEMIJE U ŠKOLSKOJ GODINI  
2020./2021. (ljetni rok)**

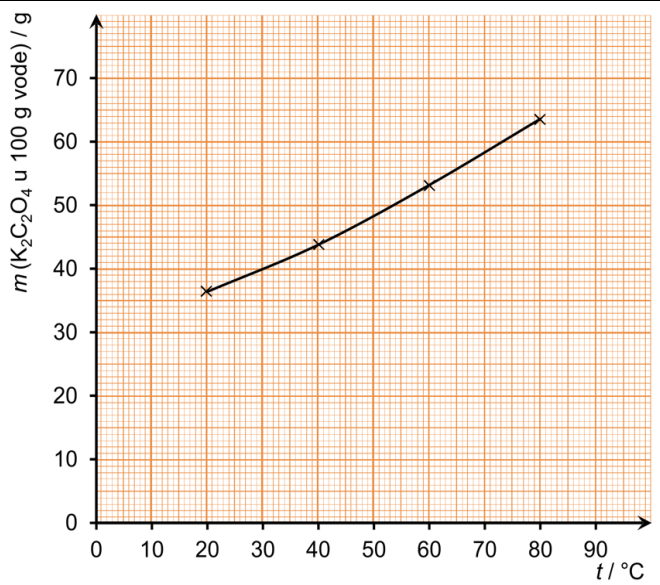
**DS046**

**ISPITNA KNJIŽICA 1**

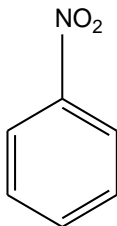
REDNI BROJ	TOČAN ODGOVOR
1.	D
2.	A
3.	B
4.	C
5.	B
6.	C
7.	B
8.	B
9.	D
10.	A
11.	B
12.	B
13.	A
14.	B
15.	D
16.	D
17.	C
18.	C
19.	A
20.	A
21.	A
22.	A
23.	B
24.	A
25.	A
26.	D
27.	A
28.	A
29.	A
30.	D
31.	A
32.	C
33.	D
34.	D
35.	C

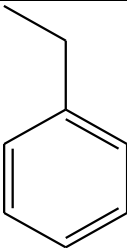
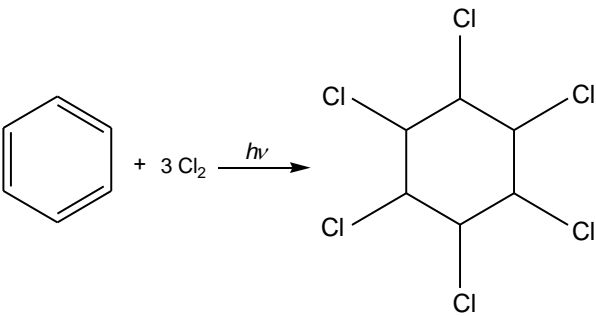
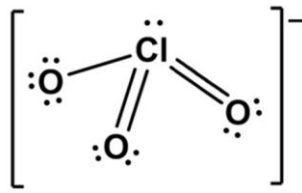
## ISPITNA KNJIŽICA 2

REDNI BROJ	TOČAN ODGOVOR	Bod
1.1.	propen	1 BOD
1.2.	$\text{Na}_2\text{HPO}_4$	1 BOD
2.1.	<p><math>\text{Cu}_2\text{S}</math></p> $N(\text{Cu, spoj}) : N(\text{S, spoj}) = \frac{w(\text{Cu, spoj})}{A_r(\text{Cu})} : \frac{w(\text{S, spoj})}{A_r(\text{S})}$ $= \frac{0,8}{63,5} : \frac{0,2}{32,1}$ $= 2 : 1$	1 BOD
2.2.	<p><math>N(\text{Cu}) = 3,02 \times 10^{22}</math></p> $N(\text{Cu}) = \frac{m(\text{Cu})}{M(\text{Cu})} \cdot N_A$ $= \frac{3,18 \text{ g}}{63,5 \text{ g mol}^{-1}} \cdot 6,02 \times 10^{23} \text{ mol}^{-1}$ $= 3,02 \times 10^{22}$	1 BOD
3.1.		1 BOD
3.2.		1 BOD

4.1.		1 BOD
4.2.	<p>otopina je prezasićena</p> $w(\text{K}_2\text{C}_2\text{O}_4, \text{ u zasićenoj otopini pri } 20^\circ\text{C}) = \frac{36,4 \text{ g}}{136,4 \text{ g}}$ $= 0,267 \cdot 100 \%$ $= 26,7 \%$	1 BOD
5.1.	<p><math>\bar{v}(\text{B}) = 1,8 \times 10^{-4} \text{ mol dm}^{-3} \text{ min}^{-1}</math></p> $\bar{v}(\text{B}) = \frac{\Delta c(\text{B})}{\Delta t} = \frac{(0,0182 - 0,0164) \text{ mol dm}^{-3}}{(50 - 40) \text{ min}} = 1,8 \times 10^{-4} \text{ mol dm}^{-3} \text{ min}^{-1}$	1 BOD
5.2.	Brzina nastajanja produkta B s vremenom opada.	1 BOD
6.1.	<p>pOH = 11,3</p> $[\text{OH}^-] = \frac{K_w}{[\text{H}^+]} = \frac{10^{-14} \text{ mol}^2 \text{ dm}^{-6}}{1,9 \times 10^{-3} \text{ mol dm}^{-3}} = 5,3 \times 10^{-12} \text{ mol dm}^{-3}$ $\text{pOH} = -\log([\text{OH}^-] / \text{mol dm}^{-3}) = 11,3$	1 BOD
6.2.	acetatni ion ili etanoatni ion ili $\text{CH}_3\text{COO}^-$	1 BOD
6.3.	$\text{CH}_3\text{COO}^-(\text{aq}) + \text{H}_3\text{O}^+(\text{aq}) \rightleftharpoons \text{CH}_3\text{COOH}(\text{aq}) + \text{H}_2\text{O}(\ell)$ <p>ili <math>\text{CH}_3\text{COO}^-(\text{aq}) + \text{H}^+(\text{aq}) \rightleftharpoons \text{CH}_3\text{COOH}(\text{aq})</math></p> <p>ili <math>\text{CH}_3\text{COO}^-(\text{aq}) + \text{HA}(\text{aq}) \rightleftharpoons \text{CH}_3\text{COOH}(\text{aq}) + \text{A}^-(\text{aq})</math></p> <p>ili <math>\text{CH}_3\text{COONa}(\text{aq}) + \text{HA}(\text{aq}) \rightleftharpoons \text{CH}_3\text{COOH}(\text{aq}) + \text{NaA}(\text{aq})</math></p>	1 BOD

7.1.	$2 A \rightleftharpoons B + 3 C$	1 BOD
7.2.	ravnoteža se pomiče prema produktima (u desno), povećanje koncentracije produkata	1 BOD
7.3.	$K_c = 0,16 \text{ mol}^2 \text{ dm}^{-6}$  $K_c = \frac{[B] \cdot [C]^3}{[A]^2} = \frac{0,21 \text{ mol dm}^{-3} \cdot (0,63 \text{ mol dm}^{-3})^3}{(0,58 \text{ mol dm}^{-3})^2}$ $K_c = 0,16 \text{ mol}^2 \text{ dm}^{-6}$	1 BOD
8.1.	<p>Mjerodavni reaktant je kisik.</p> <p><math>n(\text{FeS})_{\text{suvišak}} = 2 \text{ mol}</math></p> <p><math>\frac{n(\text{FeS})}{2} = 5 \text{ mol}</math></p> <p><math>\frac{n(\text{O}_2)}{3} = 4 \text{ mol} \Rightarrow</math> mjerodavni reaktant</p> <p><math>\frac{n(\text{FeS})}{n(\text{O}_2)} = \frac{2}{3}</math></p> <p><math>n(\text{FeS})_{\text{teorijski}} = \frac{2}{3} \cdot n(\text{O}_2) = \frac{2}{3} \cdot 12 \text{ mol} = 8 \text{ mol}</math></p> <p>reaktant u suvišku je FeS</p> <p><math>n(\text{FeS})_{\text{suvišak}} = n(\text{FeS}) - n(\text{FeS})_{\text{teorijski}} = 10 \text{ mol} - 8 \text{ mol} = 2 \text{ mol}</math></p>	<p>1 BOD</p> <p>1 BOD</p>
8.2.	<p><math>\eta = 92,3 \%</math></p> <p><math>n(\text{FeS}) : n(\text{FeO}) = 2 : 2</math></p> <p><math>n(\text{FeS}) = n(\text{FeO})</math></p> <p><math>n(\text{FeO})_{\text{teorijski}} = 2,6 \text{ mol}</math></p> <p><math>\eta = \frac{n(\text{FeO})_{\text{dobiveno}}}{n(\text{FeO})_{\text{teorijski}}} = \frac{2,4 \text{ mol}}{2,6 \text{ mol}} = 0,923 = 92,3 \%</math></p>	1 BOD
9.1.	$\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag}$	1 BOD

9.2.	kisela, pH-vrijednost je manja od 7	1 BOD
9.3.	$n(\text{Cl}_2) = 0,118 \text{ mol}$ $V(\text{Cl}_2) = 2,64 \text{ dm}^3$ $\frac{n(\text{Cl}_2)}{n(\text{Ag})} = \frac{1}{2}$ $n(\text{Cl}_2) = \frac{1}{2} \cdot n(\text{Ag})$ $n(\text{Cl}_2) = \frac{1}{2} \cdot \frac{m(\text{Ag})}{M(\text{Ag})} = \frac{25,5 \text{ g}}{2 \cdot 108 \text{ g mol}^{-1}} = 0,118 \text{ mol}$ $V(\text{Cl}_2) = n(\text{Cl}_2) \cdot V_m$ $V(\text{Cl}_2) = 0,118 \text{ mol} \cdot 22,4 \text{ dm}^3 \text{ mol}^{-1}$ $V(\text{Cl}_2) = 2,64 \text{ dm}^3$	1 BOD  1 BOD
10.1.	NaCl	1 BOD
10.2.	koroziiju, oksidaciju	1 BOD
10.3.	$b = 0,39 \text{ mol kg}^{-1}$ $\Delta T = 2,2 \text{ K}$ $b = \frac{n(\text{MgCl}_2)}{m(\text{H}_2\text{O})} = \frac{m(\text{MgCl}_2)}{M(\text{MgCl}_2) \cdot m(\text{H}_2\text{O})} = \frac{3,7 \text{ g}}{95,3 \text{ g mol}^{-1} \cdot 0,1 \text{ kg}} = 0,39 \text{ mol kg}^{-1}$ $\Delta T = i \cdot K_f \cdot b = 3 \cdot 1,86 \text{ K kg mol}^{-1} \cdot 0,39 \text{ mol kg}^{-1}$ $\Delta T = 2,2 \text{ K}$	1 BOD  1 BOD
11.1.		1 BOD

11.2.		1 BOD
11.3.	supstitucija, elektrofilna aromatska supstitucija	1 BOD
11.4.		1 BOD
12.1.	1. epruveta 2. menzura 3. čaša	1 BOD
12.2.	$2 \text{KClO}_3 \rightarrow 2 \text{KCl} + 3 \text{O}_2$	1 BOD
12.3.		1 BOD
12.4.	sumporov(IV) oksid, $\text{SO}_2$	1 BOD