No.		Items		Sc	ore
1	1) To vola 2) To num 3) To whice 4) To	riplete the proposed statements using the expression equal to, less than, he chemical element with the electronic configuration compound with hydrogen has the oxidation the number of electrons in the electron shell of the of electrons in the electron shell of the molar mass of the higher oxide of a chemical contains 16 protons, the mass of methane with a volume of 2,24 l (Section 1).	higher than. guration $1s^22s^22p^63s^23p^63d^{10}4s^24p^5$ in the in degree $+1$. the calcium cation	L 0 1 2 3 4 5	L 0 1 2 3 4 5
	6,02	· 10 ²² water molecules.			
		he higher hydroxide of chemical element with			
		ater, forms a solution with pH			
2	in a of the Comin con agent in continuous	wity dispensers provide opportunities to marke self-serving format, significantly reducing pa the products is ensured by the addition of anti-cat aplete the proposed sentences: blumn I – with the symbols of the chemical entits; blumn II – with the characteristics of the substantents.	ackaging costs. The necessary flowability aking agents. lements, which are part of an anti-caking	L 0 1 2 3 4 5	L 0 1 2 3 4 5
		Ι	II	6	6
	1	The electronic shell of the atom of	Chemical formula of a compound with a polar covalent bond:	7 8	7 8
	2	The chemical element is the most active metal from the 4 th period	The type of chemical bond in the compound with bromine:		
	3	The chemical element contains 6 electrons in the 3d sublevel	Type of crystalline lattice in the simple substance:		
	4	The sum of the protons and neutrons contained in the nucleus of the most widespread isotope of element is equal to 12	Chemical formula of a compound used in the manufacture of glass:		
3	of v anal Esta redu	itionists warn that excessive consumption of cital vitamins in the body due to the synthetic yesis of this compound can be carried out according Na ₂ SO ₃ + KMnO ₄ + HCl → Na ₂ Soblish for this process: the degrees of oxidation the calculation and the reducing process ance method and balance the equation reaction.	ic food additive E-221. The quantitative ding to the following scheme: SO ₄ + MnCl ₂ + KCl + H ₂ O ion of all elements, the oxidant and the ses, determine coefficients by electronic	L 0 1 2 3 4 5 6 7	L 0 1 2 3 4 5 6 7

C2H4(g) + 6F2(g) = 2CF4(g) + 4HF(g) + Q Circle the letter T, if the statement is true and the letter F, if it is false. a) T F The reaction system is homogeneous. b) T F The yield of the direct reaction increases by decreasing the hydrogen fluoride concentration. c) T F Decreasing pressure shifts the chemical equilibrium to the final products. d) T F Increasing the temperature does not influence the chemical equilibrium. e) T F Removing the fluorine from the reaction medium, the chemical equilibrium shifts to the final products. Silver nitrate is a component of eyelash dyes that penetrates the structure of the hairs and pigments them deeply. According to clinical trials, in order to avoid possible dermatological reactions, preparations with a silver nitrate content of no more than 5% are recommended. Solve the problem. A sample of technical silver carbonate with a mass of 69 g, containing 20% impurities, was treated with 250 ml of nitric acid solution with a molar acid concentration of 2 mol/l. a) Calculate the weight of silver nitrate obtained. b) Give arguments by calculations, if the clinical guidelines would be met when using this amount of silver nitrate to produce a batch of paint with a mass of 1,7 kg. It is given: Solution: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	coording to the following chemical $\begin{bmatrix} L \\ 0 \end{bmatrix}$ $\begin{bmatrix} L \\ 1 \end{bmatrix}$
b) T F The yield of the direct reaction increases by decreasing the hydrogen fluoride concentration. c) T F Decreasing pressure shifts the chemical equilibrium to the final products. d) T F Increasing the temperature does not influence the chemical equilibrium. e) T F Removing the fluorine from the reaction medium, the chemical equilibrium shifts to the final products. Silver nitrate is a component of eyelash dyes that penetrates the structure of the hairs and pigments them deeply. According to clinical trials, in order to avoid possible dermatological reactions, preparations with a silver nitrate content of no more than 5% are recommended. Solve the problem. A sample of technical silver carbonate with a mass of 69 g, containing 20% impurities, was treated with 250 ml of nitric acid solution with a molar acid concentration of 2 mol/l. a) Calculate the weight of silver nitrate obtained. b) Give arguments by calculations, if the clinical guidelines would be met when using this amount of silver nitrate to produce a batch of paint with a mass of 1,7 kg. It is given: Solution: 5 5 6 7 8 9 10 11 12	$ \begin{array}{c c} -4HF_{(g)} + Q \\ -4F_{(g)} + Q \\ \hline 2 \\ \hline 2 \end{array} $
concentration. c) T F Decreasing pressure shifts the chemical equilibrium to the final products. d) T F Increasing the temperature does not influence the chemical equilibrium. e) T F Removing the fluorine from the reaction medium, the chemical equilibrium shifts to the final products. Silver nitrate is a component of eyelash dyes that penetrates the structure of the hairs and pigments them deeply. According to clinical trials, in order to avoid possible dermatological reactions, preparations with a silver nitrate content of no more than 5% are recommended. Solve the problem. A sample of technical silver carbonate with a mass of 69 g, containing 20% impurities, was treated with 250 ml of nitric acid solution with a molar acid concentration of 2 mol/l. a) Calculate the weight of silver nitrate obtained. b) Give arguments by calculations, if the clinical guidelines would be met when using this amount of silver nitrate to produce a batch of paint with a mass of 1,7 kg. It is given: Solution: 1 2 3 4 5 6 7 8 9 10 11 12	
d) T F Increasing the temperature does not influence the chemical equilibrium. e) T F Removing the fluorine from the reaction medium, the chemical equilibrium shifts to the final products. Silver nitrate is a component of eyelash dyes that penetrates the structure of the hairs and pigments them deeply. According to clinical trials, in order to avoid possible dermatological reactions, preparations with a silver nitrate content of no more than 5% are recommended. Solve the problem. A sample of technical silver carbonate with a mass of 69 g, containing 20% impurities, was treated with 250 ml of nitric acid solution with a molar acid concentration of 2 mol/l. a) Calculate the weight of silver nitrate obtained. b) Give arguments by calculations, if the clinical guidelines would be met when using this amount of silver nitrate to produce a batch of paint with a mass of 1,7 kg. It is given: Solution: Solution:	ecreasing the hydrogen fluoride 5 5
to the final products. Silver nitrate is a component of eyelash dyes that penetrates the structure of the hairs and pigments them deeply. According to clinical trials, in order to avoid possible dermatological reactions, preparations with a silver nitrate content of no more than 5% are recommended. Solve the problem. A sample of technical silver carbonate with a mass of 69 g, containing 20% impurities, was treated with 250 ml of nitric acid solution with a molar acid concentration of 2 mol/l. a) Calculate the weight of silver nitrate obtained. b) Give arguments by calculations, if the clinical guidelines would be met when using this amount of silver nitrate to produce a batch of paint with a mass of 1,7 kg. It is given: Solution: 1 2 3 6 7 8 9 10 11 11 12	-
pigments them deeply. According to clinical trials, in order to avoid possible dermatological reactions, preparations with a silver nitrate content of no more than 5% are recommended. Solve the problem. A sample of technical silver carbonate with a mass of 69 g, containing 20% impurities, was treated with 250 ml of nitric acid solution with a molar acid concentration of 2 mol/l. a) Calculate the weight of silver nitrate obtained. b) Give arguments by calculations, if the clinical guidelines would be met when using this amount of silver nitrate to produce a batch of paint with a mass of 1,7 kg. It is given: Solution: 9 10 11 12	um, the chemical equilibrium shifts
Answer: a) ; b)	rials, in order to avoid possible trate content of no more than 5% are onate with a mass of 69 g, containing c acid solution with a molar acid elines would be met when using this h a mass of 1,7 kg. Solution: Solution: 1 2 3 4 5 6 7 8 9 10 11 12 12

There are given the	e substances: P, CH ₄ , Cu(NO ₃) ₂ , H ₂ , K ₂	O, H ₂ SO ₄ .		
		ow, write an equation of obtaining	1 1	1 L 0
1) a metal			3	3
2) an oxid acid .			5	5 6
3) a base			7 8	7 8
4) an acid				
bioactive substant extractants with se Write in the blank F , if it is false. 1) for <u>hexane</u> :	ces from medicinal plants under the lective action: hexane, benzene, ethyl espaces of the sentences the letter T , if belongs to the homologous series w () • is a component of natural gas ()	influence of microwaves, using thanoate. the statement is true and the letter	L 0 1 2 3 4 5 6	L 0 1 2 3 4 5 6
		ne ()		
black truffles. A. Write the struct	ural semi-developed formula:	the natural flavor of bananas and	L 0 1	L 0 1
2) of an isomer of nomenclature:	this compound and indicates its name a	ccording to the systematic	3 4 5	2 3 4 5
B . For two organ	nic compounds, complete the table i		7	7
Characteristic of compound	Structural semi-developed formula of compound	Name of compound according to systematic nomenclature		
It is a homologue of aminopropanoic acid				
Discolors bromine water				
	Using as reagents reaction of the sub 1) a metal 2) an oxid acid 3) a base 4) an acid Innovative technologicative substant extractants with sewrite in the blank F, if it is false. 1) for hexane: 2) for benzene: 3) for ethylethanoate: 4. Write the struct of compound It is a homologue of aminopropanoic acid Discolors	Using as reagents one of the substances in the proposed reaction of the substance indicated below. 1) a metal 2) an oxid acid 3) a base 4) an acid Innovative technologies in the field of phytopharmac bioactive substances from medicinal plants under the extractants with selective action: hexane, benzene, ethyle extractants and compound of natural gas () 1) for hexane: • belongs to the homologous series we () • is a component of natural gas () • is obtained by trimerization of acetyle ethanoate: • is an isomer of butanoic acid () • undergoes a hydrolysis reaction () • undergoes a hydrolysis reaction () 1 soamyl alcohol (2-methylbutan-1-ol) is a component of black truffles. A. Write the structural semi-developed formula: 1) of 2-methylbutan-1-ol: 2) of an isomer of this compound and indicates its name a nomenclature: B. For two organic compounds, complete the table is characteristic and contain the same number of carbon aterior of compound It is a homologue of aminopropanoic acid Discolors Structural semi-developed formula of compound	2) an oxid acid 3) a base 4) an acid Innovative technologies in the field of phytopharmaceuticals are aimed at extracting bioactive substances from medicinal plants under the influence of microwaves, using extractants with selective action: hexane, benzene, ethyl ethanoate. Write in the blank spaces of the sentences the letter T, if the statement is true and the letter F, if it is false. 1) for hexane: • belongs to the homologous series with the general formula CaH2a () • is a component of natural gas () 2) for benzene: • it is a cycloalkane () • is obtained by trimerization of acetylene () 3) for ethyl ethanoate: • is an isomer of butanoic acid () • undergoes a hydrolysis reaction () Isoamyl alcohol (2-methylbutan-I-ol) is a component of the natural flavor of bananas and black truffles. A. Write the structural semi-developed formula: 1) of 2-methylbutan-I-ol: 2) of an isomer of this compound and indicates its name according to the systematic nomenclature: B. For two organic compounds, complete the table in accordance with the indicated characteristics and contain the same number of carbon atoms as 2-methylbutan-I-ol. Characteristic of compound It is a homologue of aminopropanoic acid Discolors Structural semi-developed formula of aninopropanoic acid Discolors	Using as reagents one of the substances in the proposed row, write an equation of obtaining reaction of the substance indicated below. 1) a metal 2) an oxid acid 3) a base 4) an acid 1 Innovative technologies in the field of phytopharmaceuticals are aimed at extracting bioactive substances from medicinal plants under the influence of microwaves, using extractants with selective action: hexame, benzene, ethyl ethanoate. Write in the blank spaces of the sentences the letter T, if the statement is true and the letter F, if it is false. 1) for hexame: • belongs to the homologous series with the general formula C _n H _{2n} () • is a component of natural gas () 2) for benzene: • it is a cycloalkane () • is obtained by trimerization of acetylene () 3) for ethyl ethanoate: • is an isomer of butanoic acid () • undergoes a hydrolysis reaction () 1soamyl alcohol (2-methylbutan-1-ol) is a component of the natural flavor of bananas and black truffles. A. Write the structural semi-developed formula: 1) of 2-methylbutan-1-ol: 2) of an isomer of this compound and indicates its name according to the systematic nomenclature: 2) of an isomer of this compounds, complete the table in accordance with the indicated characteristics and contain the same number of carbon atoms as 2-methylbutan-1-ol. Characteristic of compound It is a homologue of aminopropanoic acid Discolors Name of compound according to systematic nomenclature

There are given the subtances:		
water, sodium, nitric acid, sodium hydroxide, hydrogen, silver oxide (sol. ammonia).	L	L
Fill in the blanks in the proposed reaction schemes using in each case as reagents an <u>organic</u>	0	0
<u>substance</u> and one of the substances in the proposed line.	1	1
For organic compounds use the structural semi-developed formula.	2	2
	3	3
OH 	4	4
	5	5
1) + + +	6	6
,	7	7
	8	8
2) + + Ag↓		
2) / / / /		
3) $CH_2 = CH - CH_2 - CH_3 + \longrightarrow$		
4) + NaCl + NaCl		
Food additive E-280 is a saturated monocarboxylic acid used as a preservative in bakery		
products. For ordinary bread, a content of this additive of 0,01 mol/kg is allowed, and for	L	L
bread with a long term of validity – 0,04 mol/kg.	0	0
Solve the problem. At the interaction of a saturated monocarboxylic acid sample (E-280)	1	1
with the mass of 29,6 g with excess of sodium carbonate solution, a gas with a volume of	2	2
4,48 <i>l</i> (STP) was eliminated.	3	
		3
a) Determine the molecular formula of this additive.	4	4
a) Determine the molecular formula of this additive.b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in		
a) Determine the molecular formula of this additive.b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription	4	4
a) Determine the molecular formula of this additive.b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity".	5	5
a) Determine the molecular formula of this additive.b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription	4 5 6	4 5 6
a) Determine the molecular formula of this additive.b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity".	4 5 6 7	4 5 6 7
a) Determine the molecular formula of this additive.b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity".	4 5 6 7 8 9	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10	4 5 6 7 8
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9
a) Determine the molecular formula of this additive. b) Give arguments by calculations, if the packaging of loaves with a total mass of 40 kg, in the production of which 29,6 g of this additive was used, should contain the inscription "with a long-term of validity". **It is given: Solution:**	4 5 6 7 8 9 10 11	4 5 6 7 8 9

infusion with collability and Solve the proble 200 l, 3,65 ml of of 1 g/ml were us a) Calculate the jb) Indicate which It is given:	d water and has a pH of 6 a d a more intense aroma, bein em. For the preparation of hydrochloric acid solution sed. pH in the prepared solution. h method should be recomm	s prepared. "Cold brew" coffee is obtained by and a rather bitter taste. "Espresso" coffee has a ng prepared using pressurized hot water vapor. a hydrochloric acid solution with a volume of with a mass fraction of 2% HCl and a density mended to prepare a coffee with the same pH. Solution:	L 0 1 2 3 4 5 6 7 8 9 10	L 0 1 2 3 4 5 6 7 8 9 10
The production of textiles, which can a. Complete the as a flame retardate. Formula for salt 1. (NH ₄) ₂ SO ₄ B. Write an equivalent reduced ionic, in	of modern protective equipment be obtained by treating far blank spaces in the table for ant, the second as a mordant Formula of the identification reagent a) for cation: b) for anion: a) for cation: KSCN b) for anion:	nent requires durable, lightweight and practical abrics with various chemical compounds. For two salts used in the textile industry: the first and color fixer. Analytic signal	L 0 1 2 3 4 5 6 7 8 9 10 11 12	L 0 1 2 3 4 5 6 7 8 9 10 11 12

SISTEMUL PERIODIC AL ELEMENTELOR CHIMICE

	I	П	ш	IV	v	VI	VII		VIII				
	1 Hidrogen							2 Heliu					
1	H 1,0079							He 4,0026					
2	3 Litiu	4 Beriliu	5 Bor	6 Carbon	7 Azot	8 Oxigen	9 Fluor	10 Neon					
2	Li 6,941	Be 9,01218	B 10,81	C 12,011	N 14,0067	O 15,9994	F 18,9984	Ne 20,179					
3	11 Sodiu	12 Magneziu	13 Aluminiu	14 Siliciu	15 Fosfor	16 Sulf	17 Clor	18 Argon					
3	Na 22,98977	Mg 24,305	Al 26,98154	Si 28,0855	P 30,97376	S 32,06	Cl 35,453	Ar 39,948					
	19 Potasiu	20 Calciu	21 Scandiu	22 Titan	23 Vanadiu	24 Crom	25 Mangan	26 Fier 2					
4	K 39,0983	Ca 40,08	44,9559 Sc	47,88 Ti	50,9415 V	51,996 Cr	54,938 Mn		8,9332 Co 58,69 Ni				
4	29 Cupru	30 Zinc	31 Galiu	32 Germaniu	33 Arsen	34 Seleniu	35 Brom	36 Kripton					
	63,546 Cu	65,38 Zn	Ga 69,72	Ge 72,59	As 74,9216	Se 78,96	Br 79,904	Kr 83,80					
	37 Rubidiu	38 Stronţiu	39 Ytriu	40 Zirconiu	41 Niobiu	42 Molibden	43 Tehneţiu	44 Ruteniu 45					
5	Rb 85,4678	Sr 87,62	88,9059 Y	91,22 Zr	92,9064 Nb	95,94 Mo	[98] Tc		2,9055 Rh 106,42 Pd				
)	47 Argint	48 Cadmiu	49 Indiu	50 Staniu	51 Stibiu	52 Telur	53 Iod	54 Xenon					
	107,868 Ag	112,41 Cd	In 114,82	Sn 118,69	Sb 121,75	Te 127,60	I 126,9045	Xe 131,29					
	55 Ceziu	56 Bariu	57* Lantan	72 Hafniu	73 Tantal	74 Volfram	75 Reniu	76 Osmiu 7					
6	Cs 132,9054	Ba 137,33	138,9055 La	178,49 Hf	180,948 Ta	183,85 W	186,207 Re		92,22 Ir 195,08 Pt				
0	79 Aur	80 Mercur	81 Taliu	82 Plumb	83 Bismut	84 Poloniu	85 Astatiniu	86 Radon					
	196,9665 Au	200,59 Hg	Tl 204,383	Pb 207,2	Bi 208,9804	Po [209]	At [210]	Rn [222]	•				
	87	88	89**	104	105	106	107		09 110 Meitnerium Darmstadtium				
7	Franciu	Radiu	Actiniu	Rutherfordium	Dubnium	Seaborgium	Bohrium		_				
	Fr [223]	Ra 226,0254	227,0278 Ac	[261] Rf	[262] Db	[263] Sg	[262] Bh	[267,13] Hs [2	268,14] Mt [281] Ds				
_					*Lantanide								
58 C			Pm 62 Sm			Г b 66 Dy		8 Er 69 Tı					
Ceriu 140,12		Neodim Prome 144,24 [145		1	loliniu Terbiu 57,25 158,925			Erbiu Tuliu 167,26 168,934	,				
1-10,12	110,2077	1,27 [170	.1 150,50		**Actinide	. 102,50	101,2301	107,20 100,754	175,01				
_					1 Ictimac								

Cm

Curiu

[247]

Am 96

Americiu

[243]

97 **Bk**

Berkeliu

[247]

Cf

californiu

[251]

99

Es

Einsteiniu

[252]

98

100 **Fm**

Fermiu

[257]

101

[258]

102

Nobeliu

[255]

Md

Mendeleviu

103 Lr

Lawrenciu

[260]

 \mathbf{U}

93

Np

Neptuniu 237,0482 **Pu** 95

Plutoniu

[244]

92

Uraniu

238,0389

Th

Protactiniu

231,0359

Toriu

232,0381

	SOLUBILITATEA ACIZILOR, BAZELOR, SĂRURILOR ÎN APĂ																
	H ⁺	NH_4^+	Li ⁺	Na ⁺	K ⁺	Ba ²⁺	Ca ²⁺	Mg^{2+}	Al ³⁺	Cr ³⁺	Zn^{2+}	Mn ²⁺	Fe ²⁺	Fe ³⁺	Pb ²⁺	Cu ²⁺	Ag ⁺
OH -		S↑	S	S	S	S	P	I	I	I	I	I	I	I	I	I	-
F -	S	S	P	S	S	P	I	I	P	I	S	S	I	I	I	S	S
Cl -	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	S	I
Br -	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	S	I
Ι-	S	S	S	S	S	S	S	S	S	S	S	S	S	-	I	-	I
S ²⁻	S↑	S	S	S	S	S	S	S	ı	-	I	I	I	-	I	I	I
SO ₃ ²⁻	S↑	S	S	S	S	I	I	I	-	-	I	-	I	-	I	I	I
SO ₄ ²⁻	S	S	S	S	S	I	P	S	S	S	S	S	S	S	I	S	P
CO ₃ ² -	S↑	S	S	S	S	I	I	I	-	-	I	I	I	-	I	-	I
SiO ₃ ² -	I	-	S	S	S	I	I	I	-	-	I	I	I	-	I	-	-
NO ₃ -	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PO ₄ ³⁻	S	S	I	S	S	I	I	I	I	I	I	I	I	I	I	I	I
CH ₃ COO-	S	S	S	S	S	S	S	S	S	-	S	S	S	-	S	S	S

Notă: S – substanță solubilă, I – insolubilă, P – puțin solubilă; «-» substanța nu există sau se descompune în apă; ↑ - substanța se degajă sub formă de gaz sau se descompune cu degajare de gaz

SERIA ELECTRONEGATIVITĂŢII

													-						
F	0	N	Cl	Br	I	S	C	Se	P	H	As	В	Si	Al	Mg	Ca	Li	Na	K
4,0	3,5	3,07	3,0	2,8	2,5	2,5	2,5	2,4	2,1	2,1	2,0	2,0	1,8	1,5	1,2	1,04	1,0	0,9	0,8

SERIA TENSIUNII METALELOR

Li K Ba Ca Na Mg Al Mn Zn Cr Fe Ni Sn Pb (H) Cu Hg Ag Pt Au