	Items	Score	Score
1	Circle the letter T , if the statement is true and the letter F , if it is false.		
	 T F The atoms of ²³Na and of ²⁴Mg contains in nucleus the same number of the neutrons. T F The atom of the chemical element situated in the periodic table in the 4th period, group 7, secondary subgroup, contains on the last energy level 7 electrons. T F The chemical element contains in nucleus 34 protons in the volatile 	L 0 1 2 3	L 0 1 2 3
	compound with hydrogen has the oxidation degree -2. 4) T F The chemical element with the electronic configuration $1s^22s^22p^63s^23p^64s^1$ has more pronounced metallic properties than the element with the relative atomic mass of 85.	5 6	5 6
	 5) T F The mass of nitrogen with a volume of 44,8 l (STP) is equal with the mass of 12,04 · 10²³ carbon (II) oxide molecules 6) T F The oxide of the element with atomic number 16 in interaction with water forms a solution in which phenolphthalein is colored in raspberry. 		
2	Zeolites are natural minerals considered true "molecular sieves" for capturing and removing toxins and heavy metals from air, water and the human body. The absorbent effect is determined by the specific composition and structure of a complex of substances formed by the atoms of the following chemical elements: **Ca, F, O, Al, Si, H, Fe.** Compose and write in the reserved space the chemical formula of an appropriate substance for each proposed characteristic, using only the elements from this row: **Characteristic of the substance** Chemical formula** 1 The molecules of the substance are formed by polar covalent bonds 2 A double bond is formed between the atoms of the substance 3 The substance contains particles with electronic configuration \$1s^22s^22p^6\$ 4 The chemical bond between the particles of the substance is realized by a common electron cloud 5 The substance is an oxide of "d" element 6 Hydrogen bonds are formed between the molecules of the substance 7 Compound substance that has amphoteric properties 8 The substance is used in glass manufacture	L 0 1 2 3 4 5 6 7 8	L 0 1 2 3 4 5 6 7 8
3	Powder metallurgy is a modern technology for producing auto parts by pressing metal powder. The addition of manganese (II) sulfide to the initial mixture increases the mechanical processing capacity of the obtained parts. In the laboratory this compound can be identified according to the following scheme: MnS + HNO ₃ → S + NO + Mn(NO ₃) ₂ + H ₂ O Establish for this process: the degrees of oxidation of all elements, the oxidant and the reductant, the oxidation and the reducing processes; determine coefficients by electronic balance method and balance the equation reaction.	L 0 1 2 3 4 5 6 7	L 0 1 2 3 4 5 6 7

	9 10 11	1
 used. Solve the problem. For the chemical analysis of a sample of metallic pigment with a mass of 54 g, consisting of aluminum and copper, 300 ml of sulfuric acid solution with a molar acid concentration of 0,5 mol/l were consumed. a) Calculate the mass fraction of copper in this metallic pigment. b) Give arguments by calculations, if the composition of this pigment meets the requirements technological production of golden sugar pearls. It is given: Solution: 	1 2 3 4 5 6 7 8	
3) variation does not influence the chemical equilibrium. Sugar pearls are culinary decorations that give cakes refined accents. According to the technological requirements, as a harmless food pigment, which ensures the golden color of the pearls, a fine mixture of aluminum and copper with an aluminum content of 4-6% can be		
concentration must be increased and to decrease concentration 2) When the temperature decreases, the chemical equilibrium will shift to		
1) In order to shift the chemical equilibrium to the final products, the		
Complete the blank spaces of the proposed sentences for this reagent system.	3 4	
cat. $2NH_{3(g)} + 3F_{2(g)} \rightleftarrows 2NF_{3(g)} + 3H_{2(g)} + Q$	1 2	
plasma etching of silicon wafers. Nitrogen trifluoride required for realizing this process can be obtained according to the chemical equation:	$\begin{array}{ c c } L \\ \hline 0 \end{array}$	

6	There are given the substances: H ₂ O, Al, ZnSO ₄ , Select from this row one common reagent for each reactions equations.		stances and write the	L 0	L 0
	I. Copper (II) oxide and chlorine			1 2	2
	a)			3 4 5	3 4 5
	b)			6	6
	II. Sodium hydroxide and calcium carbonate			7	7
	a)			8	8
	b)				
7	Complete the sentences by noting in the rese formula of an <i>organic substance</i> corresponding to			L	L
	1) Corresponds to the general formula C_nH_{2n-2}			0	0
	2) Corresponds to the molecular formula C ₄ H ₈ O ₂ and has acidic properties			2 3 4 5	3 4
	3) Contains carbon atoms only in the sp^3 hybridization state			3	5
	4) It is a component of disinfectant solutions				
	5) Can be identified with the copper (II) hydroxide				
8	I. Complete the blank spaces of the table:				
		f substance according ematic nomenclature	Name of the class of organic compounds	1 L 0 1	1 0
	1 CH ₃			3	3
	$\begin{array}{c c} \operatorname{CH_3-\dot{C}-C} = \operatorname{CH-CH_3} \\ & \downarrow \\ & \operatorname{CH_3CH_3} \end{array}$			4 5	4 5
	2			6	6
	3-	methylpentanal		8	8
	II. Circle the letter T , if the statement is true and	the letter F , if it is false	······································		
	a) T F Substance number (1) is a homologue of				
	b) T F Substance number (2) is an isomer of h	•			
	c) T F Substance number (1) is a position isor	ner of 2,4,4-trimethylpe	ent-2-ene.		
	d) T F Both substances (1) and (2) may be inv	olved in the hydrogena	tion reaction.		

Using as reagents only the substances in the proposed row, write an equation of obtaining reaction for each compound indicated below. For the organic compounds use the semi-developed structure formulas. 1) an alkane: 2) an arene: 3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: Solution:			
reaction for each compound indicated below. For the organic compounds use the semi-developed structure formulas. 1) an alkane: 2) an arene: 3) an alcohol: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 2 3 4 5 6 7 8 9 10 11		L	L
For the organic compounds use the semi-developed structure formulas. 1) an alkane: 2) an arene: 3) an alcohol: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 2 3 4 5 6 7 8 9 10 11	Using as reagents <i>only</i> the substances in the proposed row, write an equation of <u>obtaining</u>	0	0
1) an alkane: 2) an arene: 3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: Solution: 1 2 3 4 5 6 7 8 9 10 11	<u>reaction</u> for each compound indicated below.	1	1
1) an alkane: 2) an arene: 3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 l (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 2 3 4 5 6 7 8 9 10 11 11	For the organic compounds use the semi-developed structure formulas.	2	2
1) an alkane: 2) an arene: 3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 4 5 6 7 8 9 10 11		3	3
2) an arene: 3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: Solution:	1) an alkane:	l	4
2) an arene: 3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: Solution:			5
3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 7 8 9 10 11			6
3) an alcohol: 4) an ester: Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 8 9 10 11	2) an arene:	l ——	7
Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: Solution: 1 5 6 7 8 9 10 11			
Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 l (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 2 3 4 5 6 7 8 9 10 11	3) an alcohol:	8	8
Acetic acid (E-260) is used in the food industry as a preservative for vegetables, sauces and ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: Solution: 1 2 3 4 5 6 7 8 9 10 11	5) an aconor.		
ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 l (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 C 9 1 1 1 1 1 1 1 1 1 1 1 1	4) an ester:		
ketchups. The content of acetic acid in classic mayonnaise varies between 0,5 and 0,8%, and in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 l (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 C 9 1 1 1 1 1 1 1 1 1 1 1 1	A cetic acid (F-260) is used in the food industry as a preservative for vegetables, sauces and		
in the dietary - it should not exceed 0,3%. Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 8 9 10 11 11		T	L
Solve the problem. The ethanal, obtained by hydrating acetylene with a volume of 11,2 1 (STP), was treated with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 1 2 3 4 5 6 7 8 9 10 11			
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with excess ammonia solution of silver oxide. a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 3 4 5 6 7 8 9 10 11			1
a) Calculate the mass of acetic acid that can be obtained from these reactions. b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 8 9 10 11		l ———	2
b) Give arguments by calculations, if mayonnaise with a mass of 15 kg prepared from this amount of acid can be considered a dietary product. It is given: Solution: 9 10 11		3	3
amount of acid can be considered a dietary product. It is given: Solution: 8 9 10 11	, , , , , , , , , , , , , , , , , , ,	4	4
It is given: Solution: 8 9 10 11		5	5
$\begin{array}{c c} \hline 8 \\ \hline 9 \\ \hline 10 \\ \hline 11 \\ \hline \end{array}$	7 1	6	6
$\begin{array}{c c} \hline 9 \\ \hline 10 \\ \hline 11 \\ \hline \end{array}$	It is given: Solution:	7	7
$\begin{array}{c c} \hline 9 \\ \hline 10 \\ \hline 11 \\ \hline \end{array}$		8	8
$\begin{array}{c c} \hline 10 \\ \hline 11 \\ \hline \end{array}$			9
			10
			1
		l ———	
		12	12

must be equal acidity of the property of the p	to 3. The pH is adjust ouree or citric acid to blem. on of nitric acid with a mass fraction, an acid e pH value in the pre- ents, what additive sh	ted using the addition increase it. I volume of 10 ml, a s d solution with a volupared solution.	stency, the pH of the fruit puree of sodium citrate to reduce the solution density of 1,4 g/ml and time of 14 l was prepared.	L 0 1 2 3 4 5	1 2 3 4 5
fruit puree v It is gi			Solution:	6 7 8 9 10	6 7 8 9 10
Solutions to the <i>ammo</i> I. Compose a	e following substance onium nitrate, sodium	es are proposed for an carbonate, barium che results of the qual	nalysis: hloride, iron (III) sulphate. litative analysis of <u>all</u> the proposed	1	1 0
The analyzed ion	Formula of the analyzed substance	Formula of the identification reagent	Analytic signal	3 4 5	3 4 5
1) cation	Fe ₂ (SO ₄) ₃		Elimination of a pungent odorous gas	6 7 8 9	6 7 8 9
2) anion		HCl	Obtaining the white precipitate, soluble in NH4OH	10 11 12 13	10 1 12 13
	=		ular form (ME), completed ionic ta from the table above. (ME)		

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 Icumac					

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

			S	OLU	BIL	ITAT	EA A	CIZII	OR,	BAZI	ELOR	, SĂR	URIL	OR Î	N AP	Ă	
	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