

Thematic plan of lectures on Chemistry

for groups' cluster of № 1-46

of 1st course, 1st semester (educational years 2018-2019)

№	Dates	Themes of lectures	Time
1	01.10-06.10	The bases of chemical thermodynamics and bioenergetics.	2
2	08.10-13.10	Chemical kinetics. Kinetics of enzymatic reactions in living organism.	2
3	15.10-03.11	Solutions. The properties of solutions and the role of equilibrium in electrolytes solutions in biological processes. Colligative properties of weak and strong electrolytes solutions. Electrolytic homeostasis.	6
4	05.11-10.11	Buffer systems. Blood buffer systems. Acidosis. Alkalosis.	2
5	12.11-24.11	Red-ox reactions and their role in biotic processes. Electrode potentials and mechanism of their originating. Nernst equation for electrode potentials calculating. Red-ox systems.	4
6	26.11-08.01	Biogenic elements. Complex compounds. Concept of chelates.	4
7	10.12-22.12	Colloid state of the substance. Principles of classification, producing and purification of dispersed systems. Optical and molecular-kinetical properties of colloid systems.	4
8	24.12-05.01.	Microheterogeneous and coarse systems: producing and properties.	4
9	07.01-12.01	Theory of chemical structure of organic compounds. Classification of organic reactions.	2
10	14.01-26.01	α -amino acids as monomeric units of proteins. Biologically important chemical reactions. Peptides: structure and properties of peptide bond. Proteins. Biorole and functions of proteins.	4
11	28.01-02.02	Carbohydrates. The structure and stereoisomery. Mono-, di- and polysaccharides. Biorole and functions in living organism.	2
12	04.02-09.02	Nucleotides and nucleic acids.	2
13	11.02-16.02	Lipids and low molecular bioregulators. Soaponified and unsoaponified lipids. Biorole and functions in living organism.	2

Head of Department, Professor

Khudaibergenova B.M.

Thematic plan of practical classes on Chemistry

for groups' cluster of № 1-46

of 1st course, 1st semester (educational years 2018-2019)

№	Dates	Themes of practical lessons	Time
1	01.10-06.10	Thermodynamical equilibrium conditions. Thermochemical accounts. Calorimetric measures.	2
2	08.10-13.10	The rate of chemical reaction. Chemical equilibrium	2
3	15.10-20.10	The ways of expression of solution concentration. The determination of concentration of produced solutions.	2
4	22.10-27.10	Colligative properties of non-electrolytes solutions. The determination of solute molecular mass.	2
5	29.10-03.11	Electrolytic dissociation of water, acids, bases and salts. Salts hydrolysis. Buffer systems. pH calculation and measuring.	2
6	05.11-10.11	1st unit passing.	2
7	12.11-17.11	Red-ox reactions types. Influence of medium pH on red-ox reactions. Electrode potentials.	2
8	19.11-24.11	Biogenic chemical elements. Macro- and microelements in environment and human organism. Cations qualitative analysis.	2
9	26.11-01.12	Complex compounds. Biorole of complex compounds. Instability constant of complex ions. The determination of water hardness.	2
10	03.12-08.12	2nd unit passing.	2
11	10.12-15.12	Colloid state of substance. Principles of classification of disperse systems. The producing of disperse systems.	2
12	17.12-22.12	Stability and coagulation of colloid systems. Oncotic pressure. Sol coagulation by electrolytes.	2
13	24.12-29.12	Colloid systems purification. The obtaining of emulsions and determination of its type.	2
14	31.12-05.01	3rd unit passing.	2
15	07.01-12.01	Classification, nomenclature and isomery of organic compounds. Organic reactions types.	2
16	14.01-19.01	α -amino acids. Peptides and proteins. The determination of proteins, isoelectrical point.	2
17	21.01-26.01	Carbohydrates. Classification, biorole and functions in living organism.	2
18	28.01-02.02	Nucleotides and nucleic acids. Structure, biorole and functions in living organism.	2
19	04.02-09.02	Saponified and unsaponified lipids. Biorole and functions in living organism.	2
20	11.02-16.02	4th unit passing.	2

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