MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Pirogov Russion National Research Medical University

Medical Faculty

Depatment of chemistry

Discipline *Chemistry*

For 1st year students of the dental and international faculties studying in the specialty 31.05.03 "Dentistry"

"CHEMISTRY" curriculum for 1st year students of dental and international faculties in the first semester 2022-2023 academic year

# week	Type of the lesson	Topic	Plan			Points
			In-class exercises	Lab work	Assessment	
1	ПЗ	Quantitative description for the content of a solute in a solution. Colligative properties of solutions. Osmosis			Activity	10
2	ЛПЗ	Fundamentals of chemical thermodynamics		Standard enthalpy of neutralization	Activity Online test «Solutions and osmosis»	10 10 10
3	ПЗ	Chemical equilibrium			Activity Online test «Chemical thermodynamics»	10 10
4	ПЗ	Chemical kinetics			Activity Online test «Chemical kinetics». «Chemical equilibrium»	10 10 10
5	ПЗ	Strong and weak electrolytes. Protolytic equilibria. pH of solution of strong and weak acids and bases			Activity	10
6.	ЛПЗ	Hydrolysis of salts. pH of solution of salts		Identification of solutions of electrolytes	Activity Online test «Strong and weak electrolytes»	10 10 10
7.	ПЗ	Buffer systems			Activity Online test «Buffer systems»	10 10
8.	ПЗ	Electrode, redox and membrane potentials. The direction of a redox process			Activity Online test «Redox processes»	10 10
9.	ПЗ	Heterogeneous equilibria precipitate-solution and gas-solution. Equilibria in solutions of complex compounds			Activity Online test «Ksp and complex compounds»	10 10

10.	К	**Unit 1«General chemistry» (30 — online test, 20 – written control)**				50
11.	ПЗ	Classification and nomenclature of organic compounds	In-class exercises		Activity Online test «Classification and nomenclature of organic compounds»	10 10
12.	ПЗ	Electron structure of organic compounds			Activity Online test «Electron structure of organic compounds. Acidity and basicity of organic compounds»	10 10
13.	ПЗ	Free-radical and electrophilic reactions			Activity Online test «Free-radical and electrophilic reactions» Paper test «Free-radical and electrophilic reactions»	10 10 10
14.	ПЗ	Reactivity of organic compounds with σ-bond carbon–heteroatom			Activity Online test «Reactivity of organic compounds with σ-bond carbon–heteroatom»	10 10
15.	ПЗ	Reactivity of organic compounds with carbonyl group. Aldehydes and ketones			Activity Paper test «Reactivity of organic compounds with σ-bond carbon–heteroatom»	10 10
16.	ПЗ	Carboxylic acids and their derivates			Activity Online test «Reactivity of organic compounds with carbonyl group » Paper test «Reactivity of organic compounds with carbonyl group »	10 10 10
17.	ЛПЗ	Qualitative tests for organic compounds		Reactivity of organic compounds	Activity	10 10
18	К	**Unit 2«Organic chemistry» (30 — online test, 20 – paper test)**				50

Video lectures

1. Fundamentals of chemical thermodynamics. Colligative properties of solutions. Osmosis.
2. Chemical equilibrium. Chemical kinetics
3. Strong and weak electrolytes. Protoltic equilibria. Calculation of pH for electrolytes solutions. Buffer systems
4. Redox and membrane potentials. The direction of a redox process. Heterogeneous equilibria precipitate-solution. Equilibria in solutions of complex compounds.
5. Electron structure of organic compounds. Acidity and basicity of organic compounds
6. Reactivity of organic compounds. Radical reactions. Electrophilic reactions
7. Reactivity of organic compounds with σ-bond carbon–heteroatom.
8. Reactivity of organic compounds with carbonyl group

The structure of mastering the discipline "Chemistry"
for 1st year students of dental and international faculties studying in the specialty 31.05.03 Dentistry

						1 semester	
№	**Forms of ongoing academic monitoring and intermediate certification of students (ФТКУ)**	**Technical and abbreviated name**		**Types of work of students (ВРО)**	**Control types**	**Plan %**	**Coefficient for 1 point**
1	Monitoring for the presence (КП)	Presence	КП	Presence	Presence	**5**	0,19
2	Account of activity (А)	Activity	А	In-class exercises	Participation	**5**	0,03
3	Paper test (ОП)	Paper test **current**	ОП	Completing a task in writing	Implementation is mandatory	**12**	0,4
4	Online test (ТЭ)	Online test **current**	ТЭ	Completing a test task in electronic form	Implementation is mandatory	**20**	0,17
5	Checking the lab (ЛР)	Lab	ЛР	Performance of lab	Implementation is mandatory	**8**	0,27
6	Paper test (ОК)	Paper test **unit**	ОК	Completing a task in writing	Implementation is mandatory	**25**	0,42
7	Online test (ТЭ)	Online test **unit**	ТЭ	Completing a test task in electronic form	Implementation is mandatory	**25**	0,63