

№	krok 2023
Topic	<b>Stability and coagulation of disperse systems</b>
Task	What is the name of the process when droplets in emulsions spontaneously merge together?
Correct answer	Coalescence
B	Flocculation
C	Flotation
D	Sedimentation
E	Coagulation
№	krok 2023
Topic	<b>Stability and coagulation of disperse systems</b>
Task	What is the name of the phenomenon when one drug enhances the effect of another?
Correct answer	Synergism
B	Withdrawal
C	Tachyphylaxis
D	Sensitization
E	Antagonism
№	krok 2023
Topic	<b>Stability and coagulation of disperse systems</b>
Task	Colloidal protection is used in the manufacturing of medicinal products. Name the colloidal preparation of silver protected by proteins.
Correct answer	Protargol
B	Collagen
C	Enzymtal
D	Festal
E	Argentum
№	krok 2023

Topic	<b>Chemical kinetics. Catalysis</b>
Task	How will the rate of the chemical reaction $2\text{NO}(\text{gas}) + \text{O}_2(\text{gas}) = 2\text{NO}_2(\text{gas})$ change if the pressure increases by three times?
Correct answer	The rate will increase by 27 times
B	The rate will decrease by three times
C	The rate will increase by three times
D	The rate will remain unchanged
E	The rate will decrease by 27 times
№	krok 2023
Topic	<b>Classification of disperse systems Methods of preparation and purification</b>
Task	Aerosols are one of the dosage forms. Name the phenomenon when aerosol particles move in the direction of decreasing temperature.
Correct answer	Thermophoresis
B	Photophoresis
C	Peptization
D	Sedimentation
E	Electrophoresis
№	krok 2023
Topic	<b>Solutions. Colligative properties</b>
Task	Extraction is often used in analysis of medicinal substances. In this method, the degree of extraction of the substance that is being determined depends on the following:
Correct answer	Distribution coefficient
B	Temperature
C	pH of the solution
D	The amount of the substance being extracted
E	The mass of the substance being extracted

№	krok 2023
Topic	<b>Solutions of high-molecular compounds</b>
Task	According to the Pharmacopoeia, molecular mass of a high-molecular substance must be determined using:
Correct answer	Viscometry
B	Cryometry
C	Nephelometry
D	Potentiometry
E	Osmometry
№	krok 2023
Topic	<b>Chemical kinetics. Catalysis</b>
Task	What is the mechanism of action of a catalyst in a chemical reaction?
Correct answer	Reduces activation energy
B	Changes the nature of the reagents
C	Does not change the activation energy
D	Changes the degree of dispersion
E	Increases activation energy
№	krok 2023
Topic	<b>Physic Chemistry of surface phenomena</b>
Task	What changes occur with physical adsorption of substances, when temperature increases?
Correct answer	Physical adsorption decreases
B	Physical adsorption increases in homogeneous systems
C	Physical adsorption decreases in heterogeneous systems
D	Physical adsorption transforms into chemisorption
E	Physical adsorption increases
№	krok 2023

Topic	<b>Physic Chemistry of surface phenomena</b>
Task	How does the value of the critical micelle concentration in homologous series change with an increase in the molecular mass of the surfactant?
Correct answer	Decreases
B	Reaches its maximum and then decreases
C	Sharply increases
D	Increases
E	Remains unchanged
№	krok 2023
Topic	<b>Chemical kinetics. Catalysis</b>
Task	What is the order of the kinetic equation that describes the process of coagulation according to the Smoluchowski theory of rapid coagulation?
Correct answer	Second order
B	Fractional order
C	Third order
D	First order
E	Zero order
№	krok 2023
Topic	<b>Solutions. Colligative properties</b>
Task	Calculation of the phase transformation temperature under varying pressure is of extreme practical importance to the modern pharmaceutical industry. This temperature can be calculated using the:
Correct answer	Clausius-Clapeyron equation
B	Konovalov rules
C	Trouton's rule
D	Gibbs phase rule
E	Mendeleev-Clapeyron equation

№	krok 2023
Topic	<b>Chemical kinetics. Catalysis</b>
Task	What will be the order of the reaction if one of the reagents participating in a bimolecular reaction was taken in a large excess?
Correct answer	Pseudomonomolecular order
B	The order can be determined based on the substance taken in excess
C	The order would be greater than the molecularity
D	Third order
E	The order would be the same as the molecularity
№	krok 2023
Topic	<b>Molecular-kinetic optical and electrical properties of disperse systems</b>
Task	Sedimentation is characteristic of the following type of systems:
Correct answer	Suspensions
B	Solutions of high-molecular compounds
C	Nonelectrolyte solutions
D	Foams
E	Electrolyte solutions
№	krok 2017
Topic	Thermodynamics
Task	Synthesis of a medicinal substance occurs in an isolated system. What is a direction criterion of spontaneous processes?
Correct answer	Entropy change
B	Gibbs energy
C	Helmholtz energy
D	Intrinsic energy
E	Enthalpy
№	krok 2017, 2016

Topic	Solutions. Colligative properties
Task	Dissociation degree in 0,01 M water solution is the same for all the strong electrolytes listed below. Name the substance with the highest boiling temperature of such solution:
Correct answer	$Al_2(SO_4)_3$
B	$KCl$
C	$Na_3PO_4$
D	$Cu(NO_3)_2$
E	$K_3PO_4$
№	krok 2017, 2016
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	Proteins are of great importance for vital functions. What value of pH results in zero electrophoretic mobility of gelatin (gelatin isoelectric point equals 4,7)?
Correct answer	4,7
B	7
C	14
D	5,5
E	9,4
№	krok 2017, 2016
Topic	Chemical kinetics. Catalysis
Task	Enzymes are widely used as drugs in pharmacy. What is the main difference that separates enzymes from non-biological catalysts?
Correct answer	High specificity and selectivity
B	High universality
C	Low universality
D	High dispersion

E	High homogeneity
№	krok 2017
Topic	Thermodynamics
Task	Under isobaric-isothermal conditions the possibility and direction of spontaneous processes can be predicted through change of:
Correct answer	Gibbs energy
B	Helmholtz energy
C	Enthalpy
D	Entropy
E	Intrinsic energy
№	krok 2017, 2016
Topic	Thermodynamics
Task	Number of freedom degrees at the point of intersection of liquidus with Y-axis on the fusibility chart of a two-component system would equal:
Correct answer	0
B	2
C	3
D	4
E	1
№	krok 2017
Topic	Physic Chemistry of surface phenomena
Task	Surface tension is an important characteristic of a liquid. What substance has maximal surface tension?
Correct answer	Water
B	Ethanol
C	Benzene
D	Acetone

E	Chloroform
№	krok 2017
Topic	Chemical kinetics. Catalysis
Task	Catalysts are widely used in production of drugs. How can reaction acceleration in the presence of a catalyst be explained?
Correct answer	Activation energy decreases
B	Total collision frequency increases
C	Activation energy increases
D	Collision frequency decreases
E	Molecule speed increases
№	krok 2017
Topic	Thermodynamics
Task	Formation enthalpy equals zero for the following substance:
Correct answer	$O_2$
B	$H_2O_2$
C	$H_2SO_4$
D	$CaCO_3$
E	$O_2$
№	krok 2017
Topic	Thermodynamics
Task	At the triple point of the water phase diagram:
Correct answer	$f=0$
B	$f=2$
C	$P=3; f=1$
D	$f=1$
E	$P=3; n=1$



№	krok 2017
Topic	Chemical kinetics. Catalysis
Task	Reaction rate constant of a hypothetical reaction is measured as $s^{-1}$ . What is the order of this reaction?
Correct answer	First-order
B	Zero-order
C	Second-order
D	Third-order
E	Fractional-order
№	krok 2017
Topic	Classification of disperse systems Methods of preparation and purification
Task	Among dosage forms there are numerous disperse systems. Specify the free disperse system:
Correct answer	Emulsion
B	Gel
C	Jelly
D	Diaphragm
E	Membrane
№	krok 2017
Topic	Physic Chemistry of surface phenomena
Task	Aqueous solution of the following substance will have the smallest surface tension, if all the listed solutions are taken in the same concentration:
Correct answer	Sodium stearate
B	Ethanol
C	Sodium chloride
D	Sodium hydroxide

E	Sucrose
№	krok 2017
Topic	Physic Chemistry of surface phenomena
Task	Wetting occurs when a drop of a liquid comes into contact with the surface of a solid substance. The degree of wetting is measured through:
Correct answer	Contact angle
B	Drop density
C	Surface tension
D	Drop size
E	Work of adhesion
№	krok 2017
Topic	Solutions. Colligative properties
Task	Isotonic glucose solution is widely used as a solvent or infuson medium for introduction of various drugs. What mass fraction is characteristic of this solution?
Correct answer	5%
B	10%
C	15%
D	20%
E	1%
№	krok 2017
Topic	Stability and coagulation of disperse systems
Task	Treatment of a number of pathologic changes in human body is based on the peptization process, particularly di-sintegration of thrombi within blood vessels. The most important condition for efficient peptization can be determi-ned as:
Correct answer	Timely introduction of anticoagulant
B	Introduction of excessive solvent
C	Ultrasound effect

D	Shaking
E	Heating
№	krok 2016, 2015, 2012
Topic	Thermodynamics
Task	Thermodynamic calculations allow us to determine the possibility and direction of spontaneous processes. In an isolated system the change of the following thermodynamic function is used for this purpose:
Correct answer	Entropy
B	Gibbs energy
C	Helmholtz energy
D	Internal energy
E	Enthalpy
№	krok 2016
Topic	Thermodynamics
Task	Reaction rate constant values allow to draw conclusions regarding processes of synthesis of various drugs. What factor affects reaction rate constant?
Correct answer	Temperature
B	Pressure
C	Volume
D	Concentration
E	Reaction time
№	krok 2016, 2015, 2012
Topic	Physic Chemistry of surface phenomena
Task	In terms of water-air interface the following substance is a surfactant:
Correct answer	Valeric acid
B	$HCl$
C	$NaOH$

D	Urea
E	-
№	krok 2016
Topic	Solutions. Colligative properties
Task	Aqueous solution of $CaCl_2$ with 10% mass concentration is used for intravenous injections. What is the maximum value of isotonic coefficient of $CaCl_2$ in an aqueous solution?
Correct answer	3
B	4
C	2
D	5
E	1
№	krok 2016, 2015
Topic	Chemical kinetics. Catalysis
Task	According to van't Hoff rule, when the temperature is raised by 10 degrees, the reaction rate increases by:
Correct answer	2-4 times
B	1,5 times
C	5 times
D	10 times
E	
№	krok 2016, 2015, 2013, 2010
Topic	Solutions of high-molecular compounds
Task	If the amount of a high-molecular substance added to the sol is very small, it can not increase but decrease its stability. This phenomenon is called:
Correct answer	Sensibilization

B	Solubilization
C	Mutual coagulation
D	Colloidal protection
E	Sol adaptation
№	krok 2016, 2015
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	Selective solvents are used in laboratories and factories to isolate and refine essential oils, alkaloids, antibiotics and other pharmaceutical substances. This process is called:
Correct answer	Extraction
B	Sedimentation
C	Coagulation
D	Flocculation
E	Flotation
№	krok 2016, 2013
Topic	Classification of disperse systems Methods of preparation and purification
Task	When preparing a solution, an analytical pharmacist converted a freshly formed precipitate into a sol by treating it with an electrolyte solution. What method of obtaining disperse systems was used by the pharmacist?
Correct answer	Peptization
B	Physical condensation
C	Chemical condensation
D	Solvent exchange
E	Condensation from steam
№	krok 2016, 2015, 2013
Topic	Molecular-kinetic optical and electrical properties of disperse systems

Task	Colloid silver preparations Protargolum and Collargolum are widely used in medical practice as bactericidal drugs. In addition to the active ingredients, these drugs contain protein compounds. What is the function of proteins in these preparations?
Correct answer	Prevention of colloidal solution coagulation
B	Prolongation of shelf-life
C	Reduction of side effects
D	Improvement of drug technology
E	Potentialiation of bactericidal action of silver
№	krok 2016
Topic	Classification of disperse systems Methods of preparation and purification
Task	Emulsions containing under 0,1% of dispersed phase (in volume) are classified as:
Correct answer	Diluted
B	Concentrated
C	High-concentration
D	Water-in-oil type
E	Oil-in-water type
№	krok 2016
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	Removal of low-molecular impurities from colloidal systems and high-molecular compound solutions by means of semipermeable membrane diffusion is called:
Correct answer	Dialysis
B	Electrodialysis
C	Ultrafiltration
D	Decantation
E	Compensatory dialysis
№	krok 2016
Topic	Classification of disperse systems Methods of preparation and purification

Task	Blood contains erythrocytes with sizes of $10^{-6}$ m degree as its consti-tuent parts. What type of disperse system is blood?
Correct answer	Microheterogeneous
B	Homogeneous
C	Coarse dispersion
D	Colloidal dispersion
E	Heterogeneous
№	krok 2016
Topic	Chemical kinetics. Catalysis
Task	Upon increase of pressure the system's chemical equilibrium will shift towards parent substances. Point out such a system:
Correct answer	$N_2O_4(gas) \leftrightarrow 2NO_2(gas)$
B	$C(solid) + O_2(gas) \leftrightarrow CO_2(gas)$
C	$4HCl(gas) + O_2 \leftrightarrow 2H_2O(gas) + 2Cl_2(gas)$
D	$N_2(gas) + 3H_2(gas) \leftrightarrow 2NH_3(gas)$
E	$CO_2(gas) + H_2(gas) \leftrightarrow CO(gas) + H_2O(gas)$
№	krok 2016
Topic	Physic Chemistry of surface phenomena
Task	What substance is not a surfactant at the water solution-air interface?
Correct answer	Sodium chloride
B	Acetic acid
C	Ethyl alcohol
D	Sodium stearate
E	Glucose
№	krok 2016
Topic	Classification of disperse systems Methods of preparation and purification

Task	A drop of oil-water emulsion had been applied to a plate covered with paraffin; no wetting was observed. Such phenomenon characterizes this emulsion as:
Correct answer	Direct
B	Concentrated
C	Diluted
D	Stable
E	Invert
№	krok 2016
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Osmotic pressure is an important characteristic of biological fluids. Semipermeable membranes are necessary for penetration of solvent molecules. What substance CANNOT be used as a semipermeable membrane?
Correct answer	Glass
B	Biological membrane
C	Collodion film
D	Parchment
E	Gelatine
№	krok 2016
Topic	Classification of disperse systems Methods of preparation and purification
Task	Barium carbonate sol has been obtained from the reaction of excessive amount of barium chloride solution with ammonium carbonate solution. The micelle aggregate of obtained sol consists of the following microcrystals:
Correct answer	$BaCO_3$
B	$NH_4Cl$
C	$(NH_4)_2CO_3$
D	$BaCl_2$



E	Mixture of $BaCO_3$ with $NH_4Cl$
№	krok 2015
Topic	Thermodynamics
Task	Organisms of plants and animals belong to biological systems that perform substance and energy exchange with their environment. These systems are:
Correct answer	Open, heterogeneous
B	Isolated, heterogeneous
C	Closed, homogeneous
D	Closed, heterogeneous
E	Open, homogeneous
№	krok 2015
Topic	Classification of disperse systems Methods of preparation and purification
Task	Choose the colloid surfactant among the substances listed below:
Correct answer	Potassium oleate
B	Iodine
C	Sodium chloride
D	Polyethylene
E	Gelatin
№	krok 2015
Topic	Electrochemistry
Task	Calomel electrode is listed in the State Pharmacopoeia of Ukraine as auxiliary electrode for pH measurement. What type of electrodes is it?
Correct answer	Second kind
B	First kind
C	Gas
D	Redox

E	Ion-selective
№	krok 2015
Topic	Stability and coagulation of disperse systems
Task	What ions have maximal coagulative effect, when added into positive sols?
Correct answer	$PO_4^{3-}$
B	$Al^{3+}; Fe^{3+}$
C	$K^+; Na^+$
D	$SO_4^{2-}$
E	$Cl^-$
№	krok 2015
Topic	Classification of disperse systems Methods of preparation and purification
Task	Emulsions containing less than 0,1% of dispersed phase (in volume) are classified as:
Correct answer	Diluted
B	Concentrated
C	High-concentration
D	Water-in-oil type
E	Oil-in-water type
№	krok 2015
Topic	Classification of disperse systems. Methods of preparation and purification
Task	The method consisting in removal of low-molecular impurities from colloidal systems and high-molecular compound solutions by semipermeable membrane diffusion is called:
Correct answer	Dialysis
B	Electrodialysis

C	Ultrafiltration
D	Decantation
E	Compensatory dialysis
№	krok 2015
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Micelle of a colloid surfactant will have the following structure in a certain solvent: polar groups are turned towards the solvent, while radicals are facing the micelle center. What solvent is it?
Correct answer	Water
B	Toluene
C	Benzene
D	Tetrachloromethane
E	Hydrogen sulfide
№	krok 2015
Topic	Stability and coagulation of disperse systems
Task	Preparations of colloid silver - Protargol (silver proteinate) and Collargol (colloid silver) - contain proteine compounds besides their active substance. What is the function of proteins in these preparations?
Correct answer	Protection of colloid solution against coagulation
B	Increased storage time
C	Decreased side effects
D	Improved preparation technology
E	Increased bactericidal action of silver
№	krok 2015
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Some drugs have the form of colloid solutions. What size of dispersed phase particles corresponds with colloidal di-spersion?

Correct answer	$10^{-7} - 10^{-9}$ m
B	$10^{-5} - 10^{-7}$ m
C	$10^{-10} - 10^{-11}$ m
D	$10^{-5} - 10^{-3}$ m
E	$>10^{-3}$ m
№	krok 2014
Topic	Thermodynamics
Task	Calculation of chemical reactions thermal effects at pharmaceutical production is based on the Hess law, stating that reaction thermal effect is determined by:
Correct answer	Initial and final state of system
B	Mechanism by which the chemical change occurs
C	Route by which the chemical change occurs
D	Number of intermediate stages
E	Process duration
№	krok 2014
Topic	Physic Chemistry of surface phenomena
Task	Choose the surfactant out of the substances listed below:
Correct answer	$C_2H_5OH$
B	$H_2O$
C	$NaCl$
D	$HNO_3$
E	$K_4Fe[(CN)_6]$
№	krok 2014
Topic	Chemical kinetics. Catalysis

Task	Research of reaction rate dependance from various factors allows to intensify technological processes. What factor HAS NO effect on reaction rate constant?
Correct answer	Reacting agents concentration
B	Temperature
C	Reagents nature
D	Solvent nature
E	Solid substance dispersion degree
№	krok 2014
Topic	Physic Chemistry of surface phenomena
Task	What substance is surface-inactive regarding water-air interface?
Correct answer	Saccharose
B	Acetic acid
C	Ethanol
D	Methylamine
E	Acetone
№	krok 2014
Topic	Electrochemistry
Task	Potentiometric method of $pH$ measuring is used during pharmaceuti-cal substances research. What electrode can be used as indicator (working electrode) in solution $pH$ measuring?
Correct answer	Glass
B	Standard hydrogen
C	Zinc
D	Calomel
E	Silver-chlorine
№	krok 2014
Topic	Physic Chemistry of surface phenomena

Task	Choose the colloid surfactant out of the substances listed below:
Correct answer	Potassium oleate
B	Iodine
C	Sodium chloride
D	Polyethylene
E	Gelatin
№	krok 2014
Topic	Solutions. Colligative properties
Task	Water solution of $CaCl_2$ with 10% mass concentration is used for intravenous injections. What is the maximum value of $CaCl_2$ isotonic coefficient in water solution?
Correct answer	3
B	4
C	2
D	5
E	1
№	krok 2014
Topic	hemical kinetics. Catalysis
Task	Pharmaceutical synthesis requires studying complex reaction kinetics. If the first stage product is the second stage initial substance, then such reati-on is called:
Correct answer	Consecutive
B	Inverse
C	Concerted
D	Second order
E	Parallel
№	krok 2014

Topic	Chemical kinetics. Catalysis
Task	What data is necessary to calculate activation energy of drug synthesis reaction?
Correct answer	Reaction rate constant for two temperatures
B	Thermal effect
C	Change of Gibbs energy of system
D	Internal energy of system
E	Reaction order
№	krok 2014
Topic	Electrochemistry
Task	In potentiometric titration the following indicator electrode is used for chloride and borate acids quantitative determination in their mixture:
Correct answer	Glass
B	Silver-chlorine
C	Silver
D	Platinum
E	Calomel
№	krok 2014
Topic	Solutions of high-molecular compounds
Task	In pharmaceutical production oxyethylated derivatives of fatty acid esters (FAEs) are used, which undergo colloid dissolution in sufficiently concentrated solutions. This process is called:
Correct answer	Solubilization
B	Sensitization
C	Synergism
D	Colloid protection
E	Syneresis
№	krok 2014

Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	The dispensing chemist has been studying properties of certain disperse system classes, namely, aerosols. What optical phenomenon is characteristic of this disperse system class?
Correct answer	Light scattering
B	Light absorption
C	Opalescence
D	Light reflection
E	Light refraction
№	krok 2014
Topic	Solutions. Colligative properties
Task	Selective solvents are used in laboratories and factories to isolate and refine essential oils, alkaloids, antibiotics and other pharmaceutical substances. This process is called:
Correct answer	Extraction
B	Sedimentation
C	Coagulation
D	Flocculation
E	Flotation
№	krok 2014
Topic	Physic Chemistry of surface phenomena
Task	When rare dosage forms are produced, colloid surfactants are added to increase certain components solubility. What physicochemical phenomenon is this process based on?
Correct answer	Solubilization
B	Coagulation
C	Extraction



D	Diffusion
E	Sedimentation
№	krok 2014
Topic	Stability and coagulation of disperse systems
Task	A pharmacist has been adding small portions of electrolyte to silver chloride sol, with resulting coagulation occurring under higher electrolyte concentration, if compared to single instance of adding electrolyte. This phenomenon is called:
Correct answer	Sol acclimatization
B	Antagonism
C	Synergism
D	Additivity
E	Desensitization
№	krok 2014
Topic	
Task	When determining drug expiration date, it is supposed that drug decomposition reaction is reaction of the following order:
Correct answer	First
B	Fractional
C	Third
D	Zero
E	-
№	krok 2013
Topic	
Task	Rates of chemical reactions of the same order are compared by:
Correct answer	Constant of chemical reaction rate
B	Chemical reaction rate
C	Endpoint of a reaction

D	Change in the reactants concentration
E	Change in the concentration of the reaction products
№	krok 2013
Topic	
Task	Solutions of some electrolytes are used as medications. What is the maximum value of the isotonic coefficient for $MgSO_4$ solution?
Correct answer	2
B	4
C	3
D	5
E	7
№	krok 2013, 2012
Topic	
Task	The rate of a chemical reaction DOES NOT DEPEND on the concentration of the reactants. Specify the order of such reaction:
Correct answer	Zeroth
B	First
C	Second
D	Third
E	Fraction
№	krok 2013
Topic	
Task	The most common technology in pharmaceutical production is maintaining constant temperature and pressure. What is this process called?
Correct answer	Isobaric-isothermal
B	Isochoric-isothermal

C	Isobaric
D	Isochoric
E	Isothermal
№	krok 2013
Topic	
Task	Some medications are colloidal solutions. What size of the colloidal particles is typical for the colloidal dispersion?
Correct answer	$10^{-7} - 10^{-9} \text{ M}$
B	$10^{-5} - 10^{-7} \text{ M}$
C	$10^{-10} - 10^{-11} \text{ M}$
D	$10^{-5} - 10^{-3} \text{ M}$
E	$> 10^{-3} \text{ M}$
№	krok 2013
Topic	
Task	Dosage forms produced as coarse di-spersion systems with the liquid dispersi-on medium and the solid phase are called:
Correct answer	Suspension
B	Emulsion
C	Aerosol
D	Powder
E	Foam
№	krok 2013
Topic	
Task	At pH value 5,0 and isoelectric point 4,0, the protein will migrate toward the following electrode during electrophoresis:
Correct answer	Anode

B	Cathode
C	Calomel
D	Silver chloride
E	Platinum
№	krok 2013
Topic	
Task	What data is required to measure the activation energy?
Correct answer	Constants of reaction rate at two temperatures
B	Thermal energy of the reaction
C	Energy change of the system
D	Internal energy of the system
E	Reaction order
№	krok 2013
Topic	
Task	Specify the order of the reaction, for which $K=1/t (1/c - 1/c_0)$ :
Correct answer	Second
B	Third
C	First
D	Zeroth
E	Fractional
№	krok 2013
Topic	
Task	The method of treating people with serious diseases and intoxications is based on the absorption of toxic substances from the blood. What is this method called?
Correct answer	Hemosorption
B	Electrophoresis
C	Hemadsorption

D	Dialysis
E	Ultrafiltration
№	krok 2013
Topic	
Task	The technology of drug production widely uses the phenomena of absorption and ion exchange. Which of the ions will be selectively adsorbed on the surface of a silver chloride crystal from an aqueous solution?
Correct answer	$Ag^+$
B	$Cu^{2+}$
C	$NO_3^-$
D	$H^+$
E	$OH^-$
№	krok 2013
Topic	
Task	Extraction is commonly used in pharmacy for separating mixtures, increasing the concentration of any solute and extracting lipophilic compounds from the herbal material. This process is based on:
Correct answer	Nernst distribution law
B	Konovalov's first law
C	Dalton's second law
D	Third law of thermodynamics
E	Hess's Law
№	krok 2013
Topic	

Task	The rate of extraction of a drug substance depends on the value of its di-tribution coefficient. If the distributed substance is characterized by different rates of dissociation or association in different phases, the distribution coefficient is calculated by:
Correct answer	Shilov-Lepin equation
B	Nernst distribution law
C	Gibbs' phase rule
D	The first Raoult's law
E	Van't Hoff rule
№	krok 2013
Topic	
Task	Surfactants are commonly used in pharmaceutical production. What kind of surfactant is potassium oleate?
Correct answer	Anionic
B	Cationic
C	Nonionic
D	Amphoteric
E	None of the above
№	krok 2013
Topic	
Task	As a result of an emergency situation (shipwreck) a man had to drink sea (salty) water. What form of water-salt imbalance may occur in this case?
Correct answer	Hyperosmolar hyperhydration
B	Hypoosmolar hyperhydration
C	Hypotonic hyperhydration
D	Isoosmolar hyperhydration
E	Isotonic hyperhydration

№	krok 2012
Topic	
Task	Estimation of temperature of phase transition at different pressures is of great practical importance for modern pharmaceutical industry and can be done by applying:
Correct answer	Clapeyron-Clausius equation
B	Trouton's rule
C	Gibbs' phase rule
D	Mendeleev-Clapeyron equation
E	Konovalov law
№	krok 2012
Topic	
Task	Rates of chemical reactions of the same order are compared by:
Correct answer	Constant of chemical reaction rate
B	Chemical reaction rate
C	Endpoint of a reaction
D	Change in the reactants concentration
E	Change in the concentration of the reaction products
№	krok 2012
Topic	
Task	Solutions of some electrolytes are used as medications. What is the maximum value of the isotonic coefficient for $MgSO_4$ solution?
Correct answer	2
B	4
C	3
D	5

E	7
№	krok 2012
Topic	
Task	The labels of some medications have an inscription: Shake before use! This warning is caused by:
Correct answer	Sedimentation
B	Coagulation
C	Solubility of disperse systems
D	Insolubility of disperse systems
E	None of the above
№	krok 2012
Topic	
Task	Van't Hoff's rule is used for determining the shelf life of drugs. The temperature coefficient of the rate of most chemical reactions lies within the following range:
Correct answer	02.KBi
B	02.Бep
C	01.Бep
D	03.KBi
E	01.Tpa
№	krok 2012
Topic	
Task	Choose a pair of electrodes for potentiometric <i>pH</i> measurement of a solution:
Correct answer	Glass and silver chloride
B	Calomel and silver chloride
C	Quinhydrone and antimonial
D	Mercury sulphate and silver chloride
E	Glass and antimonial



№	krok 2012
Topic	
Task	Drugs are commonly analyzed by means of potentiometric $pH$ measurement. Which of the electrodes can be used for measuring the solution $pH$ ?
Correct answer	Glass
B	Standard hydrogen
C	Zinc
D	Calomel
E	Chlorine-silver
№	krok 2012
Topic	
Task	Aqueous solution of $CaCl_2$ with mass concentration 10% is used for intravenous injections. What is the maximum value of isotonic coefficient of $CaCl_2$ in an aqueous solution?
Correct answer	3
B	4
C	2
D	5
E	1
№	krok 2012
Topic	
Task	Cryoscopic constants of water, benzene, chloroform, acetic acid and camphor equal to 1,86; 5,12; 4,9; 3,9; 40,0 respectively. Which of these solvents should be selected for the most accurate determination of the molar mass of a drug substance (nonelectrolyte) by the cryoscopic method?
Correct answer	Camphor

B	Chloroform
C	Acetic acid
D	Benzene
E	Water
№	krok 2012
Topic	
Task	In pharmaceutical technology an important part is played by pressure, temperature, concentration. The reaction yield can be increased by lowering the temperature of the following process:
Correct answer	Exothermic
B	Endothermic
C	Isochoric
D	Isobaric
E	Adiabatic
№	krok 2012
Topic	
Task	What data is required to determine the activation energy?
Correct answer	Constants of reaction rate at two temperatures
B	Thermal energy of the reaction
C	Energy change of the system
D	Internal energy of the system
E	Reaction order
№	krok 2012
Topic	
Task	Which of the following solutions with the same molar concentration has the maximum osmotic pressure?
Correct answer	Aluminum nitrate

B	Glucose
C	Sodium chloride
D	Magnesium sulfate
E	Potassium iodide
№	krok 2012
Topic	
Task	If the amount of high-molecular substance added to the sol is very small, it may not increase but decrease its stability. This phenomenon is called:
Correct answer	Sensibilization
B	Solubilization
C	Mutual coagulation
D	Colloidal protection
E	Sol habituation
№	krok 2012
Topic	
Task	Emulsions are classified according to the volume concentration of dispersed phase. An emulsion with the concentration at the rate of 0,1-74,0% vol. relates to the following group of emulsions:
Correct answer	Concentrated
B	Diluted
C	Highly concentrated
D	Direct
E	Reversible
№	krok 2012
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	According to the Rayleigh equation, the intensity of scattered light is inversely proportional to the wavelength of:

Correct answer	Incident light (fourth power)
B	Incident light (second power)
C	Incident light (fifth power)
D	Incident light (third power)
E	Incident light
№	krok 2012
Topic	Chemical kinetics. Catalysis
Task	Half-life (half-reaction) is inversely proportional to the initial concentration for the reactions of:
Correct answer	Second order
B	First order
C	Fraction order
D	Third order
E	Zeroth order
№	krok 2011, 2007
Topic	Solutions. Colligative properties
Task	Electrolyte solutions are medicinal preparations. What is the maximum value of isotonic coefficient for $MgSO_4$ solution?
Correct answer	2
B	4
C	3
D	5
E	7
№	krok 2011, 2010, 2009
Topic	Chemical kinetics. Catalysis

Task	Enzymes (biological catalysts) are used as pharmacologic preparations. What is the mechanism of enzyme action in the biochemical reactions?
Correct answer	They reduce the energy of reaction activation
B	They increase the energy of reaction activation
C	They inhibit the reaction process
D	They change the constant of the reaction rate
E	They change the reaction order
№	krok 2011, 2008
Topic	Thermodynamics
Task	Yield of medical products can be enhanced by proper choice of temperature conditions during their production. What equation determines dependence of equilibrium constant from the temperature under constant pressure?
Correct answer	Isobaric lines of chemical reaction
B	Isotherms of chemical reaction
C	Kirchhoff equation
D	Isochores of chemical reaction
E	Gibbs-Helmholtz equation
№	krok 2011
Topic	Physic Chemistry of surface phenomena
Task	With an attachment of $-CH_2$ group to a hydrocarbon radical the surface activity of surfactants increases (maximally) by:
Correct answer	3,5 times
B	2,5 times
C	1,5 times
D	4,5 times
E	5,5 times

№	krok 2011, 2010, 2009, 2008
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Micelle solutions of surfactants are applied in pharmaceutical production as stabilizers and solubilizers. What solution of colloidal surfactants will have the greatest value of critical concentration of micelle formation?
Correct answer	$C_9H_{19}SO_3Na$
B	$C_{14}H_{29}SO_3Na$
C	$C_{16}H_{33}SO_3Na$
D	$C_{12}H_{25}SO_3Na$
E	$C_{10}H_{21}SO_3Na$
№	krok 2011, 2009
Topic	Classification of disperse systems. Methods of preparation and purification
Task	In the pharmaceutical industry, the micelle-forming solutions of surface-active substances are used for production of water-soluble preparations out of water-insoluble substances, for example vitamins A and E. The critical concentration of micelle formation has the lowest value in the solutions of the following substances:
Correct answer	$C_{17}H_{35}COONa$
B	$C_{12}H_{25}COONa$
C	$C_{13}H_{27}COONa$
D	$C_{15}H_{31}COONa$
E	$C_{11}H_{23}COONa$
№	krok 2011, 2008
Topic	Stability and coagulation of disperse systems
Task	Pharmaceutic preparation collargol is a colloid silver solution containing a high-molecular compound. What is the function of this compound?
Correct answer	It enhances aggregative stability

B	It induces coagulation
C	It facilitates sedimentation
D	It reduces aggregative stability
E	It increases dispersion degree
№	krok 2011
Topic	Physic Chemistry of surface phenomena
Task	To quantify the adsorption at the solid-gas interface, the following equation can be used:
Correct answer	Freundlich
B	Gibbs
C	Shishkovski
D	Helmholtz-Smoluchowski
E	Rayleigh
№	krok 2011
Topic	Stability and coagulation of disperse systems
Task	In order to enhance the solubility of the individual components of a number of liquid drug formulations, the colloidal surface-active substances are added. What physico-chemical phenomenon underlies this process?
Correct answer	Solubilization
B	Coagulation
C	Extraction
D	Diffusion
E	Sedimentation
№	krok 2011, 2010
Topic	Chemical kinetics. Catalysis
Task	The method of "accelerated drug ageing" used for determination of drug shelf life is based upon:

Correct answer	Van't Hoff's rule
B	Fajans' rule
C	Planck's postulate
D	Ostwald law
E	Raoult law
№	krok 2011
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Sol $Al(OH)_3$ was produced as a result of treatment of freshly prepared $Al(OH)_3$ precipitate with a small amount of $HCl$ solution. What phenomenon underlies the sol production?
Correct answer	Chemical peptization
B	Chemical condensation
C	Washing with a solvent
D	Mechanical dispersion
E	Physical condensation
№	krok 2011
Topic	Thermodynamics
Task	Specify the number of degrees of freedom of the intersection of liquidus line with the ordinate axis of diagram of a two-component system state:
Correct answer	$C = 0$
B	$C = 2$
C	$C = 1$
D	$C = -1$
E	$C = 3$
№	krok 2011
Topic	Thermodynamics



Task	What thermodynamic potential is the criterion for the direction of a spontaneous process at constant volume and temperature?
Correct answer	Helmholtz energy
B	Entropy
C	Gibbs energy
D	Chemical potential
E	Enthalpy
№	krok 2011
Topic	Stability and coagulation of disperse systems
Task	A pharmacist studies the coagulation process. He adds the minimum concentration of the electrolyte to a sol. Coagulation takes place when this concentration is exceeded. The minimum concentration of the electrolyte is called:
Correct answer	Coagulation threshold
B	Sedimentation threshold
C	Sensitivity threshold
D	The threshold of the adsorption-solvation sensitivity
E	Coagulating power
№	krok 2011
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Colloidal dispersion systems include systems whose particle size is within the range:
Correct answer	$10^{-9} - 10^{-7}$ m
B	$10^{-7} - 10^{-4}$ m
C	$10^{-4}$ m
D	$< 10^{-9}$ m
E	$10^{-9} - 10^{-4}$ m
№	krok 2011

Topic	Thermodynamics
Task	How many stages has a system consisting of molten salts $NaCl$ and $CaCl_2$ , and being in balance with crystals of the respective salts?
Correct answer	3
B	4
C	1
D	2
E	The number of phases changes with time
№	krok 2010
Topic	Classification of disperse systems. Methods of preparation and purification
Task	The particles of dispersed phase of a ready drug emulsion are sized $10^{-6}$ m. The given drug form relates to the following type of disperse systems (according to the dispersion degree classification):
Correct answer	Microheterogeneous system
B	Heterogeneous system
C	Coarse-dispersion system
D	Colloidal disperse system
E	Ultramicroheterogeneous system
№	krok 2010
Topic	Solutions of high-molecular compounds
Task	Under certain conditions high-molecular substances make gellies that are widely used in drug production. What process takes place during jelly ageing?
Correct answer	Syneresis
B	Thixotropy
C	Swelling
D	Solvatation

E	Diffusion
№	krok 2010, 2008
Topic	Chemical kinetics. Catalysis
Task	In pharmaceutical synthesis both simple and complex reactions are applied. Specify the order of the simple reaction of type $2A + B = 3D$ :
Correct answer	3
B	2
C	1
D	0
E	0,5
№	krok 2010
Topic	Solutions. Colligative properties
Task	Pharmaceutical practice widely applies isotonic solution of sodium chloride. How much sodium chloride is to be taken in order to prepare 100 g of the isotonic solution?
Correct answer	0,85 g
B	8,5 g
C	4,5 g
D	0,45 g
E	5,0 g
№	krok 2010
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Some drugs are colloid solutions. Colloidal disperse systems are the systems whose particles are sized within the range of:
Correct answer	$10^{-9} - 10^{-7}$ m
B	$10^{-7} - 10^{-4}$ m

C	$10^{-4}$ m
D	$10^{-9}$ m
E	$10^{-9}$ - $10^{-4}$ m
№	krok 2010
Topic	Physic Chemistry of surface phenomena
Task	Drug production commonly involves the processes of adsorption and ion exchange. What ion is selectively adsorbed from the aqueous solution based on silver chloride crystal?
Correct answer	$Ag^{+}$
B	$H^{+}$
C	$NO^{3}$
D	$Cu^{2+}$
E	$OH$
№	krok 2010
Topic	Solutions. Colligative properties
Task	Osmotic pressure is an important characteristic of biologic fluids. Osmotic pressure varies with time in the following solution:
Correct answer	Silver chloride sol
B	Glucose
C	Calcium sulphate
D	Sodium chloride
E	Magnesium sulphate
№	krok 2010
Topic	Thermodynamics

Task	For the technology of drug production the pressure, temperature and concentration are of great importance. What process is accelerated in case of temperature decrease?
Correct answer	Exothermic
B	Endothermic
C	Adiabatic
D	Isochoric
E	Isobaric
№	krok 2010
Topic	Solutions. Colligative properties
Task	What is the osmotic pressure of medicinal solutions used as blood isotonic?
Correct answer	740 - 780 kPa
B	420 - 448 kPa
C	900 - 960 kPa
D	600 - 670 kPa
E	690 - 720 kPa
№	krok 2010
Topic	Electrochemistry
Task	Glass electrode is commonly used for <i>pH</i> measurement in the biologic media, fluid drug forms etc. What type does the glass electrode relate to?
Correct answer	Ion selective electrode
B	I type electrode
C	Reduction-oxidation electrode
D	II type electrode
E	Gas electrode
№	krok 2009
Topic	Stability and coagulation of disperse systems

Task	Colloidal protection is used while manufacturing drug preparations. Name the preparation of colloidal silver protected by proteins:
Correct answer	Protargol
B	Festal
C	Enzymtal
D	Argentum
E	Collagen
№	krok 2009, 2008
Topic	Thermodynamics
Task	In the pharmaceutical production processes of drug synthesis take place under different conditions. Entropy stays unchanged in the following process:
Correct answer	Adiabatic
B	Isothermal
C	Isochoric
D	Isobaric
E	Polytropic
№	krok 2009
Topic	Solutions. Colligative properties
Task	When computing quantities of adjuvant substances required to make liquid drug forms isotonic, the values of isotonic quotients are used. What is the quotient for zinc sulphate if known that it dissociates completely in an aqueous solution?
Correct answer	2
B	0
C	1
D	3
E	4
№	krok 2009

Topic	Chemical kinetics. Catalysis
Task	Kinetic methods are used for determination of drug stability. What is the order of reaction if its rate constant equals to $c^{-1}$ ?
Correct answer	First
B	Zero
C	Fractional
D	Second
E	Third
№	krok 2009
Topic	Chemical kinetics. Catalysis
Task	When producing some liquid drug forms, it is necessary to take into account their osmotic pressure. The highest osmotic pressure is characteristic for the 0,1 M solution of the following substance:
Correct answer	$AlCl_3$
B	Glucose
C	Saccharose
D	$CaCl_2$
E	$KN O_3$
№	krok 2009, 2008
Topic	Thermodynamics
Task	Most technological processed in pharmaceutics run in heterogenous systems. How many phases has an eutectic composition under eutectic temperature of two-component system?
Correct answer	3
B	2
C	5

D	4
E	1
№	krok 2009
Topic	Stability and coagulation of disperse systems
Task	Thresholds of coagulation of a drug sol by electrolytes $MgSO_4$ , $NaCl$ , $Al(NO_3)_3$ are equal to 0,81; 51,0; 0,095 millimole/l correspondingly. Which electrolyte ion has the maximal coagulating effect?
Correct answer	$Al^{3+}$
B	$Mg^{2+}$
C	$Na^+$
D	$Cl^-$
E	$SO_4^{2-}$
№	krok 2009
Topic	Thermodynamics
Task	Iodoform when stored decomposes spontaneously into free iodine. Which thermochemical function is a criterion for this process direction when V and T are constant?
Correct answer	Helmholtz energy $F$
B	Entropy $S$
C	Enthalpy $H$
D	Gibbs energy $G$
E	Intrinsic energy $U$
№	krok 2009
Topic	Classification of disperse systems. Methods of preparation and purification



Task	Pharmaceutical practice involves use of microheterogeneous systems with liquid disperse medium and solid disperse phase. Such drug form is:
Correct answer	Suspension
B	Foam
C	Powder
D	Aerosol
E	Emulsion
№	krok 2009
Topic	Thermodynamics
Task	What is the number of degrees of freedom for the salol-camphor system, provided that both components crystallize from the melt simultaneously?
Correct answer	0
B	1
C	2
D	3
E	1
№	krok 2009
Topic	Chemical kinetics. Catalysis
Task	Temperature quotient of the reaction velocity is equal to 2. In how many times does the reaction velocity change, if the temperature changes by $40^{\circ}C$ ?
Correct answer	In 16 times
B	In 8 times
C	In 4 times
D	In 32 times
E	In 24 times
№	krok 2009

Topic	Classification of disperse systems. Methods of preparation and purification
Task	Sol $Al(OH)_3$ was derived by processing a freshly made $Al(OH)_3$ precipitate with a small amount of $HCl$ solution. Sol production bases upon the following phenomenon:
Correct answer	Chemical peptization
B	Chemical condensation
C	Rinsing with a solvent
D	Mechanic dispersing
E	Physical condensation
№	krok 2009
Topic	Physic Chemistry of surface phenomena
Task	The best swelling of gelatine will be observed in the following solvent:
Correct answer	Water
B	Benzol
C	Ethyl alcohol
D	Chloroform
E	Acetone
№	krok 2009
Topic	Thermodynamics
Task	Specify the number of degrees of freedom for intersection of the liquidus line with ordinate axis of the equilibrium diagram of a two-component system:
Correct answer	$C = 0$
B	$C = 2$
C	$C = 1$
D	$C = -1$
E	$C = 3$

№	krok 2008
Topic	Stability and coagulation of disperse systems
Task	According to Schultze-Hardy rule coagulating action of coagulant ion is affected by:
Correct answer	Ion charge
B	Ion size
C	Adsorbability
D	Hydratability
E	Polarizability
№	krok 2008
Topic	Physic Chemistry of surface phenomena
Task	Pharmacological effect of enterosgel (hydrogel of methylosilicic acid) is based upon the following phenomenon that is typical for disperse systems:
Correct answer	Adsorption
B	Adhesion
C	Cohesion
D	Moistening
E	Desorption
№	krok 2008
Topic	Solutions. Colligative properties
Task	Which of the following solutions of the same molality has the highest boiling temperature?
Correct answer	$Al_2(SO_4)_3$ solution
B	$K_3[Fe(CN)_6]$ solution
C	Saccharose solution
D	$CaCl_2$ solution
E	$NaCl$ solution

№	krok 2008
Topic	Electrochemistry
Task	An electrode composed by scheme $Au^{3+}   Au$ relates to the following type:
Correct answer	I type electrodes
B	II type electrodes
C	III type electrodes
D	Oxidation-reduction electrodes
E	Ion-selective electrodes
№	krok 2008
Topic	Solutions. Colligative properties
Task	Employees of a physicochemical laboratory prepared water solutions of urea, glucose, sodium sulfate, aluminium sulfate and sodium benzoate all of which had the same molar concentration. What solution has the highest osmotic pressure under $298^{\circ} K$ ?
Correct answer	Aluminium sulfate
B	Urea
C	Glucose
D	Sodium benzoate
E	Sodium sulfate
№	krok 2008
Topic	Electrochemistry
Task	During study of pharmaceutical substances $pH$ rate can be determined by method of potentiometry. What electrode can be used as an indicator during measuring of $pH$ solution?
Correct answer	Glass
B	Copper

C	Silverchloride
D	Calomel
E	Zinc
№	krok 2008
Topic	Solutions. Colligative properties
Task	All the undermentioned water solutions of pharmaceutical substances have molal concentration of 0,1 mole/kg. Which solution has the maximal boilingpoint elevation?
Correct answer	Sodium acetate
B	Glucose
C	Nicotinic acid
D	Ethanol
E	Ascorbic acid
№	krok 2008
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Systems relate to colloiddisperse ones if size of their particles is within the following range:
Correct answer	$10^{-9} - 10^{-7}$ m
B	$10^{-7} - 10^{-4}$ m
C	$10^{-4}$ m
D	$10^{-9}$ m
E	$10^{-9} - 10^{-4}$ m
№	krok 2008
Topic	Solutions of high-molecular compounds
Task	Isoelectric point of protein equals 8,3. Electrophoretic mobility of protein macromolecule will be equal zero if <i>pH</i> value is:
Correct answer	8,3

B	7
C	11,5
D	2,3
E	4,7
№	krok 2007
Topic	Stability and coagulation of disperse systems
Task	According to Hardy-Shultze law coagulating effect of coagulant ion is influenced by:
Correct answer	Ion charge
B	Ion size
C	Adsorbability
D	Hydratability
E	Polarizability
№	krok 2007
Topic	Thermodynamics
Task	In pharmaceutical production synthesis of preparations takes place under various conditions. In what process does the entropy stay unchanged?
Correct answer	Adiabatic
B	Isothermal
C	Isochoric
D	Isobaric
E	Polytropic
№	krok 2007
Topic	Thermodynamics
Task	What expression corresponds with the state of chemical equilibrium under constant pressure and temperature?
Correct answer	$\Delta G=0$
B	$\Delta F=0$

C	$\Delta H=0$
D	$\Delta U=0$
E	$\Delta S=0$
№	krok 2007
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	Labels of some drugs have the following inscription: "shake before use!". This warning is induced by:
Correct answer	Sedimentation
B	Coagulation
C	Solubility of disperse systems
D	Insolubility of disperse systems
E	-
№	krok 2007
Topic	Thermodynamics
Task	When manufacturing the medicinal preparations their yield can be raised by correct choice of temperature conditions. What equation determines dependence of equilibrium constant upon temperature under constant pressure?
Correct answer	Isobars of chemical reaction
B	isotherms of chemical reaction
C	Kirchhoff equation
D	Isochors of chemical reaction
E	Gibbs-Helmholtz equation
№	krok 2007
Topic	Solutions. Colligative properties

Task	Intravenous injections are performed with water solution $CaCl_2$ with mass concentration 10%. What is the maximum value of isotonic coefficient $CaCl_2$ in a water solution?
Correct answer	3
B	4
C	2
D	5
E	1
№	krok 2007
Topic	Solutions. Colligative properties
Task	Laboratorians from a physicochemi-cal laboratory prepared water solutions of urea, glucose, sodium sulfate, aluminium sulfate and sodium benzoate with the same molar concentration. Which of the given solutions has the highest osmotic pressure under $298^0K$ ?
Correct answer	Aluminium sulfate
B	Urea
C	Glucose
D	Sodium benzoate
E	Sodium sulfate
№	krok 2007
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Some medicinal preparations are colloid solutions. Particle size of colloid disperse systems is in the range:
Correct answer	$10^{-9} - 10^{-7}$ m
B	$10^{-7} - 10^{-4}$ m
C	$10^{-4}$ m



D	$10^{-9}$ m
E	$10^{-9}$ - $10^{-4}$ m
№	krok 2007
Topic	Solutions. Colligative properties
Task	Osmotic pressure is an important characteristic of biological liquids. Name a solution in which the osmotic pressure has nonconstant value:
Correct answer	Sol of silver chloride
B	Glucose
C	Calcium sulfate
D	Sodium chloride
E	Magnesium sulfate
№	krok 2007
Topic	Chemical kinetics. Catalysis
Task	Temperature coefficient of reaction rate equals 2. By how many times will the reaction rate change if the temperature is increased by $40^{\circ}\text{C}$ ?
Correct answer	By 16 times
B	By 8 times
C	By 4 times
D	By 32 times
E	By 24 times
№	krok 2007
Topic	Physical Chemistry of surface phenomena
Task	What equation can be applied for calculation of surface tension of propionic acid water solution?
Correct answer	Shishkovsky's
B	Freundlich's equation

C	Gibbs' equation
D	Helmholtz-Smoluchowski
E	Rayleigh equation
№	krok 2007
Topic	Thermodynamics
Task	The second Konovalov's law is applied to azeotropic solutions that have extreme points on phase diagrams and are called:
Correct answer	Azeotropic mixtures
B	Ideal solutions
C	Miscible in all proportions liquids
D	Partially miscible liquids
E	Mutually insoluble liquids
№	krok 2007
Topic	Classification of disperse systems. Methods of preparation and purification
Task	Skin diseases can be treated with pastes. What class of disperse systems can the pastes be related to?
Correct answer	Suspensions
B	Emulsions
C	Powders
D	Foams
E	Aerosols
№	krok 2007
Topic	Thermodynamics
Task	What thermodynamic value is a criterion of direction of spontaneous processes under conditions of constant volume and temperature?
Correct answer	Helmholtz energy
B	Entropy

C	Gibbs energy
D	Chemical potential
E	Enthalpy
№	krok 2007
Topic	Physic Chemistry of surface phenomena
Task	A process that is characterized by chemical interaction between adsorbate and adsorbent is called:
Correct answer	Chemical adsorption
B	Solvation
C	Absorption
D	Desorption
E	Sedimentation
№	krok 2007
Topic	Stability and coagulation of disperse systems
Task	Stability of concentrated emulsions can be increased by adding surface-action substances and high-molecular compounds that are:
Correct answer	Emulsifiers
B	Activators
C	Catalysts
D	Solvents
E	Absorbents
№	krok 2018
Topic	Thermodynamics
Task	Calculation of the temperatures of phase transitions at different pressures is of great practical importance for modern pharmaceutical production and is carried out according to:
Correct answer	Clapeyron-Clausius Equation

B	Gibbs Phase Rule
C	Konovalov's laws
D	Truton's Rule
E	Mendeleev-Clapeyron equation
№	krok 2018
Topic	Stability and coagulation of disperse systems
Task	A patient with acute myocardial infarction underwent anticoagulation therapy. Select a compound with anticoagulant action:
Correct answer	Heparin
B	Keratan sulfate
C	Hyaluroanic acid
D	Chondroitin sulfate
E	Dermatan sulfate
№	krok 2018
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	To determine the radius of the particles of the dispersed phase, the method of ultramicroscopy is used. To carry out calculations in this method, measure:
Correct answer	Number of particles in a certain volume
B	Intensity of transmitted light
C	The path length of the marked particles
D	Scattered light intensity
E	Travel time of marked particles of a certain distance
№	krok 2018
Topic	Physic Chemistry of surface phenomena
Task	How will the physical adsorption of substances change with increasing temperature?
Correct answer	Decreases
B	Goes into chemisorption

C	Decreases in heterogeneous systems
D	Increases
E	Increases in homogeneous systems
№	krok 2018
Topic	Physic Chemistry of surface phenomena
Task	High therapeutic properties of activated carbon are due to its large specific surface area. What is the name of the phenomenon of absorption of gases only by the surface of a solid?
Correct answer	Adsorption
B	Adhesion
C	Cohesion
D	Desorption
E	Recovery
№	krok 2018
Topic	Chemical kinetics. Catalysis
Task	The kinetics of thermal decomposition is investigated in a bomb calorimeter. What type is this process?
Correct answer	Isochoric
B	Isobaric
C	SIsothermic
D	Equilibrium
E	Cyclic
№	krok 2018
Topic	Thermodynamics
Task	Water at the triple point is a system:
Correct answer	Invariant
B	Four- variant

C	Monovariant
D	Three- variant
E	Bivariant
№	krok 2018
Topic	Solutions of high-molecular compounds
Task	In which of the following solvents will gelatin swell best?
Correct answer	Water
B	Benzen
C	Diethyl ether
D	Acetic acid solution
E	Ethyl alcohol
№	krok 2018
Topic	Stability and coagulation of disperse systems
Task	The phenomena of sedimentation of dispersed cell structures lead to disorders of the body's functions. Indicate a value that is a measure of the kinetic stability of sols:
Correct answer	A. Sedimentation constant
B	B. The reciprocal of the coagulation constant
C	C. Association Constant
D	D. Dissociation constant
E	E. Coagulation constant
№	krok 2018
Topic	Classification of disperse systems Methods of preparation and purification
Task	In medicine, pastes are used to treat skin diseases. What class of dispersed systems do pastes belong to?
Correct answer	Suspensions
B	Aerosols
C	Emulsions

D	Foam
E	Powders
№	krok 2018
Topic	Solutions of high-molecular compounds
Task	The pharmacopoeial method for determining molecular weight is:
Correct answer	Viscometry
B	Potentiometry
C	Osmometry
D	Nephelometry
E	Cryometry
№	krok 2018
Topic	Classification of disperse systems Methods of preparation and purification
Task	Which of the substances, when dissolved in water, forms a colloidal solution?
Correct answer	Collargol
B	Sucrose
C	Argentum nitrate
D	Potassium gluconate
E	Sodium sulfate
№	krok 2018
Topic	Stability and coagulation of disperse systems
Task	To increase the stability in concentrated emulsions add surfactant and HMC, which are :
Correct answer	Emulsifiers
B	Absorber
C	Solvents
D	Catalysts
E	Activators

№	krok 2018
Topic	Thermodynamics
Task	With a spontaneous approach of an isolated system to a state of equilibrium, the value of its entropy:
Correct answer	Reaches a minimum
B	Tends to zero
C	Strives for infinity
D	Increases linearly
E	Peaks
№	krok 2018
Topic	Chemical kinetics. Catalysis
Task	What reflects such a pharmacokinetic parameter of drugs as the half-life ( $T_{1/2}$ )?
Correct answer	The time interval during which the concentration of the drug in the blood plasma decreases by 50%
B	The rate of excretion of the drug through the kidneys
C	The relationship between the rate of elimination of the drug and its concentration in blood plasma
D	The volume of blood plasma that is released from the drug per unit of time
E	Time of complete elimination of the drug from the body
№	krok 2018
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	The photoelectric colorimetric method allows you to determine the concentration:
Correct answer	Painted solution
B	Turbid solution
C	Optically active substance
D	Colorless substance



E	Any solution
№	krok 2018
Topic	Classification of disperse systems Methods of preparation and purification
Task	The bioavailability of a powder is influenced by the degree of fineness of the substance, the measure of which is:
Correct answer	Dispersion of the system
B	Particle mass
C	Particle volume
D	Density of the solution
E	Substance concentration
№	krok 2018
Topic	Stability and coagulation of disperse systems
Task	When coagulating with mixtures of electrolytes, it is observed that they seem to oppose each other. What is the name of this effect?
Correct answer	Antagonism
B	Sedimentation
C	Synergism
D	Additivity
E	Mutual coagulation
№	krok 2018
Topic	Classification of disperse systems Methods of preparation and purification
Task	Name the structural unit of a colloidal solution of a medicinal substance:
Correct answer	Micelle
B	Molecule
C	Ion
D	Atom
E	Zwitterion

№	krok 2018
Topic	Electrochemistry
Task	How according to the Pharmacopoeia is pH determined?
Correct answer	Potentiometry
B	Indicator
C	Conductometry
D	Spectrophotometry
E	Polarography
№	krok 2018
Topic	Stability and coagulation of disperse systems
Task	Name the process of spontaneous adhesion of drops in an emulsion to each other:
Correct answer	Coalescence
B	Coagulation
C	Flocculation
D	Sedimentation
E	Flotation
№	krok 2019
Topic	Solutions. Colligative properties
Task	In laboratory and factory practice, essential oils, alkaloids, antibiotics and other medicinal substances are isolated and purified using selective solvents. This process is called:
Correct answer	Extraction
B	Flotation
C	Coagulation
D	Flocculation
E	Sedimentation
№	krok 2019

Topic	Physic Chemistry of surface phenomena
Task	Indicate which of the following substances belongs to the colloidal surfactants?
Correct answer	Potassium oleate
B	Iodine
C	Sodium chloride
D	Polyethylene
E	Gelatin
№	krok 2019
Topic	Electrochemistry
Task	Calomel electrode introduced into the SF of Ukraine as an auxiliary electrode for pH measurement. What type of electrodes does the calomel electrode belong to?
Correct answer	The second kind
B	Gas
C	The first kind
D	Ion-selective
E	Redox
№	krok 2019
Topic	Chemical kinetics. Catalysis
Task	In the method of chromatography separation of substances is based on:
Correct answer	On the ability to be distributed between the moving and stationary phases
B	On the ability to be distributed between two moving phases
C	On the ability to be distributed between two stationary phases
D	On the ability to dissolve
E	On the ability to settle
№	krok 2019
Topic	Solutions of high-molecular compounds

Task	To which electrode will the protein particle move during electrophoresis, if its isoelectric point is 4.0, the pH is 5.0?
Correct answer	To the anode
B	To silver chloride
C	To platinum
D	To the cathode
E	To calomel
№	krok 2019
Topic	Solutions. Colligative properties
Task	The apparent degrees of dissociation of the following electrolytes in 0.01 M aqueous solution are the same. Specify the substance whose solution has the highest boiling point:
Correct answer	$Al_2(SO_4)_3$
B	KCl
C	$Cu(NO_3)_2$
D	$K_3PO_4$
E	$Na_3PO_4$
№	krok 2019
Topic	Thermodynamics
Task	For which substance is the enthalpy of formation equal to zero?
Correct answer	$O_2$
B	$H_2SO_4$
C	$CaCO_3$
D	$H_2O_2$
E	$CO_2$
№	krok 2020
Topic	Stability and coagulation of disperse systems

Task	Preparations of colloid silver are protargol and collargol, except an operating substance contain connections of albuminous nature. What is the function of proteins in these preparations?
Correct answer	Protecting of colloid solution from coagulation
B	Strengthening of bactericidal action of silver
C	Increase of shelf life
D	The improvement of technology of preparation
E	Weakening of side effect
№	krok 2020
Topic	Physic Chemistry of surface phenomena
Task	Indicate which of the listed substances are colloidal surfactants(SAS)
Correct answer	Oleate of potassium
B	Gelatin
C	Sodium chloride
D	Polyethylene
E	Iodine
№	krok 2020
Topic	Thermodynamics
Task	Plant and animal organisms refer to such biological systems that exchange matter and energy with the environment. What are these systems called?
Correct answer	Open, heterogeneous
B	Isolated, homogeneous
C	Closed, homogeneous
D	Isolated, homogeneous
E	Closed, heterogeneous
№	krok 2020
Topic	Solutions. Colligative properties

Task	The imaginary degrees of dissociation of the electrolytes given below in 0,01M solution are the same. Indicate the substance whose solution has the highest boiling point:
Correct answer	$\text{Al}_2(\text{SO}_4)_3$
B	KCl
C	$\text{Na}_3\text{PO}_4$
D	$\text{Cu}(\text{NO}_3)_2$
E	$\text{K}_3\text{PO}_4$
№	krok 2020
Topic	Chemical kinetics. Catalysis
Task	In the method of determination the shelf life of medicinal product, it is assumed, that a reaction of disintegration of medicinal substance is the reaction of such order
Correct answer	First
B	Fractional
C	–
D	Zero
E	Third
№	krok 2020
Topic	Classification of disperse systems Methods of preparation and purification
Task	Blood contains erythrocytes, the size of which has an order of $10^{-6}\text{m}$ . What type of the dispersible systems should blood be attributed to?
Correct answer	Colloid dispersed
B	Coarse-particle
C	Heterogeneous
D	Microheterogeneous
E	Homogeneous

№	krok 2020
Topic	Thermodynamics
Task	In isobar-isothermal terms for prognostication of possibility and direction of spontaneous processes use a change of
Correct answer	Gibbs Energy
B	Internal energy
C	Entropy
D	Enthalpy
E	Helmholtz Energy
№	krok 2020
Topic	Solutions. Colligative properties
Task	In a chemical, pharmaceutical and perfumery, cosmetic production use essential oils. To isolate them from plant materials use:
Correct answer	Distillation with aquatic steam
B	Calorimetry
C	Conductometry
D	Colorimetry
E	Helipot
№	krok 2020
Topic	Stability and coagulation of disperse systems
Task	For the increase of stability, surfactants and HMC are added to concentrated emulsions ,which are:
Correct answer	Emulsifiers
B	Absorbers
C	Solvents
D	activators
E	Catalysts

№	krok 2020
Topic	Physic Chemistry of surface phenomena
Task	High therapeutic properties of active carbon are conditioned by its large specific surface area. What is the name of the phenomenon of gas absorption only by the surface of a solid?
Correct answer	Adsorption
B	Recovery
C	Adhesion
D	Cohesion
E	Desorption
№	krok 2020
Topic	Stability and coagulation of disperse systems
Task	Sol of iron (III) hydroxide is charged positively. Indicate an ion that has the lowest threshold of coagulation in relation to it:
Correct answer	$\text{SO}_4^{2-}$
B	$\text{Cu}^{2+}$
C	$\text{Na}^+$
D	$\text{I}^-$
E	$\text{Cl}^-$
№	krok 2020
Topic	Classification of disperse systems Methods of preparation and purification
Task	Emulsions containing less, than 0,1% (by volume) of dispersed phase refer to:
Correct answer	Dilute
B	Type water-oil of
C	Type oil-water



D	Concentrated
E	Highly concentrated
№	krok 2020
Topic	Thermodynamics
Task	Energy of Helmholtz is a criterion of direction of spontaneous process at constancy:
Correct answer	Temperature and volume
B	Entropy and pressure
C	Temperature and pressure
D	Entropy and volume
E	Internal energy and volume
№	krok 2020
Topic	Classification of disperse systems Methods of preparation and purification
Task	Among medicinal forms there are many dispersible systems. Indicate the free dispersed system.
Correct answer	Emulsion
B	jelly
C	Diaphragm
D	membrane
E	Gel
№	krok 2020
Topic	Chemical kinetics. Catalysis
Task	By rule of Van't Hoff at the increase of temperature on 10 degrees speed of reaction increases in :
Correct answer	2-4 times
B	1,5 time of
C	Temperature does not influence on speed of reaction
D	5 times

E	10 times
№	krok 2020
Topic	Stability and coagulation of disperse systems
Task	Ability of HMC to prevent the precipitation of lyophobic sols and the deposition of cholesterol plaques on the walls of blood vessels is called:
Correct answer	Colloidal protection
B	Sedimentation
C	Coagulation
D	thixotropy
E	Coacervation
№	krok 2020
Topic	Solutions. Colligative properties
Task	Pharmacopoeial ebullioscopic method of quantitative determination of alcohol in water-methanol composition is based on experimental determination of:
Correct answer	Temperatures boiling
B	Resistance
C	osmolality
D	Temperatures of crystallization
E	Temperatures of dissolution
№	krok 2020
Topic	Electrochemistry
Task	A glass electrode is often applied in a pharmaceutical analysis. What type of electrodes it belong to?
Correct answer	Ion-selective
B	Redox inert
C	the First kind
D	the Second kind

E	Redox pH dependent
№	krok 2020
Topic	Physic Chemistry of surface phenomena
Task	Powders that contain belladonna exteact and activated carbon have a reduced therapeutic activity. What superficial phenomenon does influence on the decrease of their activity?
Correct answer	Adsorption
B	Spreading
C	Adhesion
D	A desorption
E	Cohesion
№	krok 2020
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	Sedimentation is:
Correct answer	Process of precipitation of particles of dispersible phase in the liquid or gaseous state under the influebce of gravity
B	Arbitrary process of breaking up of particles of dispersed phase in the liquid or gaseous state under the action of electric current
C	Process of clinging of particles of dispersible phase in a liquid environment with formation of aggregates
D	Process of clinging of particles of dispersible phase under the action of solutions of electrolytes
E	Enlargement of particles in a liquid environment
№	krok 2020
Topic	Solutions of high-molecular compounds
Task	A collogen, gelatin, keratin, miosin, is protein that form due to peptid bonds, and are prolate filaments. Such protein are named:

Correct answer	Fibrillar
B	Globular
C	Structured
D	–
E	Chain
№	krok 2020
Topic	Stability and coagulation of disperse systems
Task	Colloid solution of medicinal substance is got in a laboratory. For what purpose a high molecular compound is added to it?
Correct answer	For the increase of its firmness
B	For coalescence of colloid solution
C	For lowering of its firmness
D	For coagulation of colloid solution
E	For the sedimentation of colloid solution
№	krok 2020
Topic	Classification of disperse systems Methods of preparation and purification
Task	Which two methods of obtaining dispersed systems relate to physical condensation?
Correct answer	Condensation from steam and replacement of solvent of
B	Chemical condensation and peptization
C	ultrafiltration and peptization
D	Dispersion and peptization
E	ultrafiltration and condensation from steam
№	krok 2020
Topic	Molecular-kinetic optical and electrical properties of disperse systems

Task	At passing of the directed beam of light through solution of sol of $\text{MnO}_2$ there is the phenomenon:
Correct answer	Light scattering
B	the Optimal anisotropy
C	Refraction of light
D	Reflection of light
E	Light interference
№	krok 2020
Topic	Chemical kinetics. Catalysis
Task	For the exact calculation of the reaction rate constant from the activation energy the steric factor is used, which takes into account :
Correct answer	the Mutual orientation of molecules that react.
B	Structure of molecules of substances, that co-operate
C	Chemical properties of connections that react
D	Concentration of substances that react
E	Temperature of reactionary mixture
№	krok 2020
Topic	Solutions. Colligative properties
Task	What should be saturated vapor pressure of a liquid during boiling?
Correct answer	Equal atmospheric
B	Equal to pressure at 273K
C	Maximal
D	Minimum
E	Equal to pressure of the saturated steam at a room temperature
№	krok 2020
Topic	Molecular-kinetic optical and electrical properties of disperse systems

Task	The analysis photoelectric colorimetric method allows to determine the concentration
Correct answer	Painted solution
B	Optically active substance
C	Any solution
D	Colourless solution
E	Turbid solution
№	krok 2020
Topic	Thermodynamics
Task	Line on the state diagram above which the solid phase cannot exist is called:
Correct answer	Solidus
B	Median
C	Konoda
D	An eutecticum
E	Liquidus
№	krok 2020
Topic	Thermodynamics
Task	The calculation of temperature of phase transformations at different pressures has an important practical value for a modern pharmaceutical production and comes true accordingly:
Correct answer	to Equation of Clapeyron-Clausius
B	to Rule of Truton
C	to Laws of Konovalov
D	To equation of Mendeleev-Clapeyron
E	to Rule of phases of Gibbs
№	krok 2020
Topic	Stability and coagulation of disperse systems

Task	High molecular compounds (HMC) are added to colloidal silver preparations (Protargolum, collargol) to increase the stability of sol. Ability of HMC to protect sol from coagulation determine:
Correct answer	by the Protective number
B	in Size electrodynamic potential
C	by Threshold of coagulation
D	By electrophoretic mobility
E	in Size electrokinetic potential
№	krok 2020
Topic	Solutions. Colligative properties
Task	What is the name of the process of extracting one or more substances from complex systems by a selective solvent?
Correct answer	Extraction
B	Evaporation
C	Condensation
D	Dispergating
E	Crystallization
№	krok 2020
Topic	Solutions of high-molecular compounds
Task	To determine the viscosity of sputum that contains HMC, it is enough to measure the relative viscosity of the liquid, which is characterized :
Correct answer	by Attitude of absolute viscosity toward viscosity of solvent
B	by Attitude of absolute viscosity of solution toward the mass concentration of solution
C	by Difference of viscosity of solution and solvent
D	The limiting value of the reduced viscosity the solution at a concentration that tends to zero.

E	by Attitude of relative viscosity of solution toward the mass fraction of solvent
№	krok 2020
Topic	Physic Chemistry of surface phenomena
Task	Adsorption of electrolytes is carried out according to the Paneth-Faience rule according to which crystals are completed :
Correct answer	Only by those ions or atoms, that is included in their composition or isomorphic to them
B	by Any ions from solution
C	Only by those ions that is not included in their composition
D	Only by the anions
E	Only by cations
№	krok 2021
Topic	Physic Chemistry of surface phenomena
Task	What substances given below are not surfactans?
Correct answer	Inorganic acids, bases, and their salts
B	Alcohols and soaps
C	Aldehydes and alcohols
D	Amines and sulfonic acids
E	Carboxylic acids and soaps
№	krok 2021
Topic	Physic Chemistry of surface phenomena
Task	On the surface of a crystalline substance predominantly those ions are adsorbed that compose the crystalline lattice or are isomorphous to its ions, forming in process a hard-to-dissolve compound with crystalline ions. Name the author (authors) of this rule:
Correct answer	Paneth, Fajans
B	Rehbinder



C	Duclos, Traube
D	Schultze, Hardy
E	Van`t Hoff
№	krok 2021
Topic	Classification of disperse systems Methods of preparation and purification
Task	To improve the effect of a bioactive substance on a lesion focus, the emulsion dosage form is used. Emulsions can be prepared by comminution of liquid substances in a liquid medium. What is the name of this process?
Correct answer	Dispersion
B	Condensation
C	Sedimentation
D	Peptization
E	Coagulation
№	krok 2021
Topic	Thermodynamics
Task	A system is in state of isobaric-isothermal equilibrium. What function must be used to describe the process in this case?
Correct answer	Gibbs energy
B	Entropy
C	Internal energy
D	Enthalpy
E	Helmholtz energy
№	krok 2021
Topic	Classification of disperse systems Methods of preparation and purification
Task	Foams belong to the following type of disperse systems:
Correct answer	Bound dispersed systems
B	Hydrosols

C	Ion-molecular systems
D	Colloidal dispersion systems
E	Fibrillary systems
№	krok 2021
Topic	Physic Chemistry of surface phenomena
Task	Surfactants are the compounds that lower the surface tension (or interfacial tension) between two liquids, between gas and liquids, or between liquid and a solid. Which of the following substances exhibits the properties of a surfactant at the air-water interface?
Correct answer	Valeric acid
B	Urea
C	HCl
D	NaOH
E	–
№	krok 2021
Topic	Thermodynamics
Task	Entropy, as one of the main thermodynamics functions, is a measure of:
Correct answer	Energy that can't be used to perform work
B	Total energy of a system
C	Dissipated energy
D	Enthalpy
E	Internal energy
№	krok 2021
Topic	Classification of disperse systems Methods of preparation and purification
Task	Hydrosols of sulfur, cholesterol, and rosin are obtained by adding alcohol solutions of these substances to water. This sols are obtained using the following method:
Correct answer	Solvent replacement

B	Hydrolysis reaction
C	Double-replacement reaction
D	Oxidation reaction
E	Condensation from vapor
№	krok 2021
Topic	Classification of disperse systems Methods of preparation and purification
Task	Based on their structure, disperse system can be divided into:
Correct answer	Coarse dispersed and microheterogeneous
B	Free dispersed and bound dispersed
C	Lyophilic and lyophobic
D	Hydrosols and organosol
E	Hydrosols and aerosols
№	krok 2021
Topic	Stability and coagulation of disperse systems
Task	A certain natural heteropolysaccharide anticoagulant is widely used in pharmaceutical practice. Name this anticoagulant:
Correct answer	Heparin
B	Keratan sulfate
C	Dermatan sulfate
D	Chondroitin sulfate
E	Hyaluronic acid
№	krok 2021
Topic	Stability and coagulation of disperse systems
Task	Emulsion are thermodynamically unstable. In them, the droplets of dispersed phase merge together spontaneously, causing the emulsion to stratify. Name this phenomenon:
Correct answer	Coalescence

B	Deformation
C	Solubilization
D	Wetting
E	Contraction
№	krok 2021
Topic	Solutions. Colligative properties
Task	The pharmacopoeial ebullioscopic method for quantitative determination of alcohol in an aqueous-alcoholic mixture is based on experimental determination of:
Correct answer	Boiling temperatures
B	Resistance
C	Solvus temperatures
D	Crystallization temperatures
E	Osmotic pressure
№	krok 2021
Topic	Physic Chemistry of surface phenomena
Task	A process, during which a chemical interaction occurs between the adsorbate molecules and the active centers of an adsorbent, is called:
Correct answer	Adsorbtion
B	Sublimation
C	Desorption
D	Solvation
E	Chemosorption
№	krok 2021
Topic	Molecular-kinetic optical and electrical properties of disperse systems
Task	Sedimentation is characteristic of the following systems:
Correct answer	Suspensions
B	Foams

C	Nonelectrolyte solutions
D	Electrolyte solutions
E	Solutions of high-molecular compounds
№	krok 2021
Topic	Thermodynamics
Task	The Helmholtz energy is a direction criterion of a spontaneous process at a constant:
Correct answer	Temperature and volume
B	Entropy and volume
C	Entropy and pressure
D	Temperature and pressure
E	Internal energy
№	krok 2021
Topic	Physic Chemistry of surface phenomena
Task	What is subject to solubilization in a concentrated aqueous soap solution (sodium stearate)?
Correct answer	Neutral fat
B	Glucose
C	Calcium chloride
D	Ethanol
E	Water
№	krok 2022
Topic	<b>Thermodynamics</b>
Task	The system is in isobaric-isothermal equilibrium. Which function should be chosen to describe the process?
Correct answer	Gibbs energy
B	Enthalpy
C	Internal energy

D	Helmholtz energy
E	Entropy
No	krok 2022
Topic	<b>Solutions. Colligative properties</b>
Task	Physiological solution of 0.9% NaCl in relation to blood serum is available:
Correct answer	Isotonic
B	Colloidal
C	Hypertensive
D	Hypotonic
E	-
No	krok 2022
Topic	<b>Physic Chemistry of surface phenomena</b>
Task	Which of the following liquids has the highest surface tension?
Correct answer	A *Water.
B	B. Acetone
C	C. Ethanol
D	D. Chloroform
E	E. Benzene
No	krok 2022
Topic	<b>Classification of disperse systems Methods of preparation and purification</b>
Task	What is the structural unit of a colloidal solution of a medicinal substance?
Correct answer	Micelle.
B	Molecule
C	Atom
D	Zwitter ion
E	Ion
No	krok 2022

Topic	<b>Classification of disperse systems Methods of preparation and purification</b>
Task	To improve the effect of a biologically active substance on the lesion, emulsions are used as dosage forms that can be made by grinding liquid substances in a liquid medium. What is this process called?
Correct answer	Dispersion
B	Peptidation
C	Coagulation
D	Condensation
E	Sedimentation
No	krok 2022
Topic	<b>Classification of disperse systems Methods of preparation and purification</b>
Task	Highly concentrated suspensions include:
Correct answer	Pastes
B	Foams
C	Ointments
D	Creams
E	E. Powders
No	krok 2022
Topic	<b>Molecular-kinetic optical and electrical properties of disperse systems</b>
Task	Which of the following systems is characterized by sedimentation?
Correct answer	Suspensions
B	electrolyte solution
C	solution of non-electrolytes
D	BMC solution
E	Foam
No	krok 2022
Topic	<b>Stability and coagulation of disperse systems</b>

Task	What is the role of surfactants and surfactants added to concentrated emulsions to increase their stability?
Correct answer	Emulsifiers
B	Activators
C	Catalysts
D	Solvents
E	Absorbers