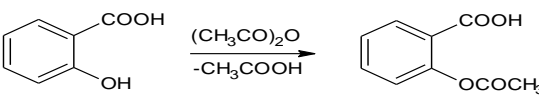
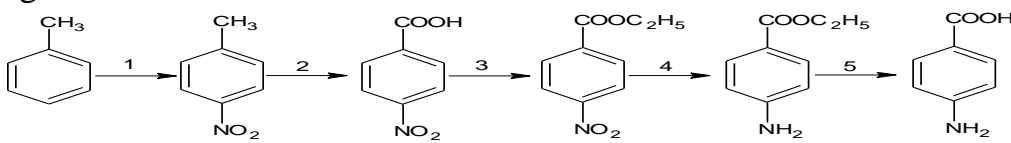
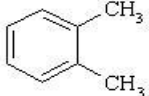
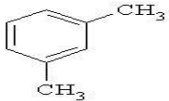
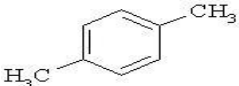


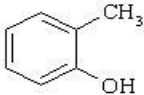
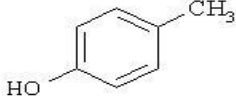
№	krok 2023
Topic	03 Subject Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	What compound has a primary aromatic amino group in its structure? What reaction can be used to confirm
Correct answer	C <sub>6</sub> H <sub>5</sub> — NH <sub>2</sub> (aniline). Reaction of diazotization and azo coupling
B	(CH <sub>3</sub> ) <sub>3</sub> N (trimethylamine). Reaction with HCl
C	(CH <sub>3</sub> ) <sub>2</sub> NH (dimethylamine). Reaction with HCl
D	(C <sub>6</sub> H <sub>5</sub> ) <sub>2</sub> NH(diphenylamine). Diazotization reaction
E	(CH <sub>3</sub> ) <sub>3</sub> C - NH <sub>2</sub> (tert-butylamine). Reaction of diazotization and azo coupling
№	krok 2023
Topic	04 Oxy compounds.
Task	<p>What drug is produced as a result of reaction between salicylic acid and acetic anhydride?</p> 
Correct answer	Aspirin
B	Phenyl salicylate
C	Sodium salicylate
D	Benzyl
E	Salicylamide salicylate
№	krok 2023
Topic	05 Heterocyclic compounds
Task	What two heterocyclic rings are present in the structure of vitamin B <sub>1</sub> (thiamine)
Correct answer	Pyrimidine and thiazole
B	Pyridazine and thiazole
C	Pyrimidine and thiophene
D	Pyridazine and thiophene

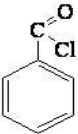
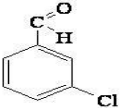
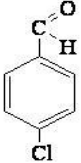
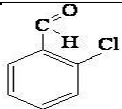
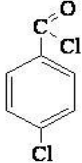
E	Pyrazine and thiophene
	krok 2023
Topic	03 Subject Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	What reagent is used to transform methylammonium chloride into methylamine?
Correct answer	NaOH
B	HCl
C	N <sub>2</sub>
D	Br <sub>2</sub>
E	O <sub>2</sub>
№	krok 2023
Topic	03 Subject Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	Which compound has the most markedly expressed basic properties?
Correct answer	CH <sub>3</sub> CH <sub>2</sub> NH <sub>2</sub>
B	CH ≡ CH
C	CH <sub>3</sub> CH <sub>2</sub> SH
D	CH <sub>3</sub> COOH
E	CH <sub>3</sub> CH <sub>2</sub> OH
№	krok 2023
Topic	04 Oxy compounds.
Task	At what stage does the esterification reaction occur in the scheme of transformations given below? 
Correct answer	3
B	4
C	5

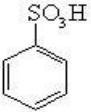
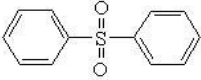
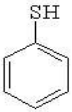
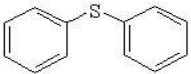
D	2
E	1
No	krok 2023
Topic	05 Heterocyclic compounds
Task	Isatin molecule contains a ketone group in its structure:What reagent can be used to prove it?
Correct answer	NH <sub>2</sub> OH
B	[Ag(NH <sub>3</sub> ) <sub>2</sub> ]OH
C	NaHCO <sub>3</sub>
D	NaOH
E	CH <sub>3</sub> C(O)Cl
No	krok 2023
Topic	04 Oxy compounds.
Task	What compound is a hydroxamic acid?
Correct answer	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{OH}$
B	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{CH}-\text{C} \\   \quad \diagdown \\ \text{NH}_2 \quad \text{OH} \end{array}$
C	$\text{R}-\text{CH}=\text{N}-\text{NH}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$

D	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$
E	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{NH}_2$
№	krok 2023
Topic	03 Subject Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	What reagent can be used to distinguish between ethanol ( $C_2H_5OH$ ) and glycerine ( $CH_2OH-CHOH-$
Correct answer	$\text{Cu}(\text{OH})_2$
B	$\text{FeCl}_3$
C	$\text{KMnO}_4$
D	$\text{Ag}_2\text{O}$
E	$\text{HBr}$
№	krok 2023
Topic	04 Oxy compounds.
Task	What product forms as a result of a reaction between aniline and benzaldehyde?
Correct answer	N-benzylideneaniline
B	N,N-dimethylaniline
C	Oxime
D	Cyanohydrin
E	Hemiacetal
№	krok 2023

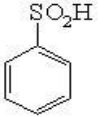
Topic	04 Oxy compounds.
Task	What product forms as a result of aldehydes and ketones reacting with primary amines?
Correct answer	Azomethine
B	Nitrile
C	Diazine
D	Thiol
E	Alcohol
№	krok 2017, 2016
Topic	Oxocompounds
Task	What compound produces phthalic acid during oxidation?
Correct answer	
B	
C	

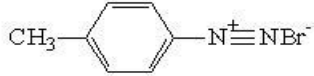
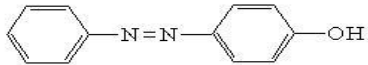


D	
E	
No	krok 2017, 2016
Topic	Oxocompounds
Task	To distinguish between phenol and salicylic acid the following reagent is used:
Correct answer	Sodium bicarbonate solution
B	Iron (III) chloride solution
C	Sodium hydroxide solution
D	Sodium chloride solution
E	Bromine solution
No	krok 2017
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the number of electrons that participate in creation of closed conjugated system within the pyrimidine molecule:
Correct answer	6
B	4
C	10
D	2
E	8
No	krok 2017


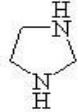

Topic	Halogen- and nitrogen-containing hydrocarbons.
Task	Hydroxy hydrocarbons      Reaction of benzaldehyde with chlorine produces:
Correct answer	
B	
C	
D	
E	
No	krok 2017
Topic	Oxocompounds
Task	Reaction of urea with nitrous acid produces the following:

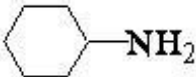
Correct answer	$CO_2 + N_2 + H_2O$
B	$CO_2 + NO_2 + H_2O$
C	$CO + NH_3 + CO_2$
D	$CO_2 + NO + NH_3$
E	$CO_2 + NH_3 + NO_2$
№	krok 2017, 2016
Topic	Halogen- and nitrogen-containing hydrocarbons.
Task	Hydroxy hydrocarbons Reaction of benzene sulfonation produces:
Correct answer	
B	
C	
D	

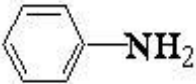
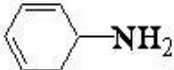
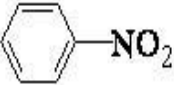
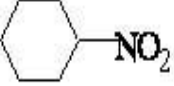


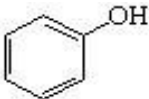
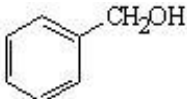
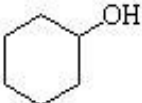
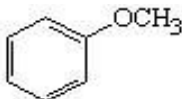
E	
№	krok 2017
Topic	Oxocompounds
Task	Choose the reaction of ester producti-on among those listed below:
Correct answer	$\text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \end{matrix} + \text{C}_2\text{H}_5\text{OH} \xrightleftharpoons{\text{H}^+} \text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OC}_2\text{H}_5 \end{matrix} + \text{H}_2\text{O}$
B	$2\text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \end{matrix} \xrightarrow{\text{P}_2\text{O}_5} (\text{CH}_3\text{CO})_2\text{O} + \text{H}_2\text{O}$
C	$\text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \end{matrix} + \text{NH}_3 \xrightarrow{t} \text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{NH}_2 \end{matrix} + \text{H}_2\text{O}$
D	$\text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \end{matrix} + \text{SOCl}_2 \longrightarrow \text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{Cl} \end{matrix} + \text{SO}_2 + \text{HCl}$
E	$\text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \end{matrix} + \text{Cl}_2 \xrightarrow{\text{PCl}_3} \text{CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \\   \\ \text{Cl} \end{matrix}$
№	krok 2017, 2016

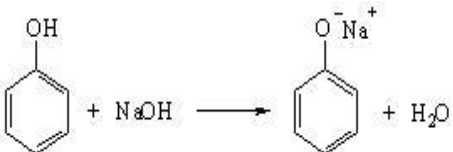
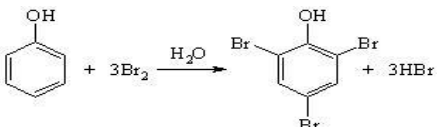
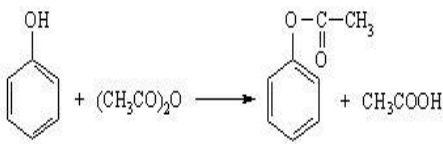
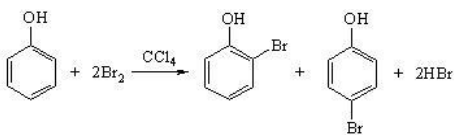
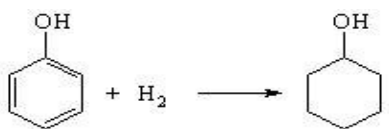
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Select the formula of diazonium salt:
Correct answer	
B	
C	$C_6H_5 - N = O$
D	$C_6H_5 - NH - C(O) - CH_3$
E	$(CH_3)_2N - N = O$
№	krok 2017, 2016
Topic	Heterocyclic compounds
Task	Select the compound with amphoteric properties (which reacts both with acids and bases and produces salts):
Correct answer	
B	

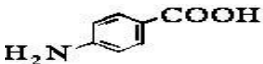
C	
D	
E	
№	krok 2017
Topic	Carbohydrates. Proteins. Lipids
Task	Tricarboxylic acid cycle is a general way of carbohydrates, amino acids, and fatty acids oxidation. Specify the acid with which acetyl-CoA reacts first in tri-carboxylic acid cycle:
Correct answer	Oxaloacetic
B	Citric
C	Isocitric
D	Fumaric
E	Malic
№	krok 2017, 2016
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Specify the substance that results from the following reaction: $\text{H OH, Hg}^{2+} \text{ CH} \equiv \text{CH} \rightarrow ?$
Correct answer	Ethanal
B	Acetic acid
C	Ethanol

D	Propanal
E	Propanone
№	krok 2017
Topic	Carbohydrates. Proteins. Lipids
Task	During photosynthesis within plant cell chloroplasts there is short-term retained starch being produced, which rapidly hydrolyzes into glucose. This starch is called:
Correct answer	Primary
B	Secondary
C	Transitory
D	Resistant
E	Reserve
№	krok 2017
Topic	Carbohydrates. Proteins. Lipids
Task	Specify the substance that can be determined by means of polarimetry:
Correct answer	Glucose
B	This method will suffice for any substance
C	Sulfuric acid
D	Sodium chloride
E	Benzene
№	krok 2017
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Specify the reaction product of complete aniline hydrogenation:
Correct answer	

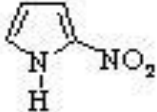
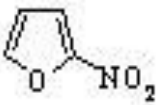
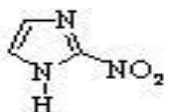
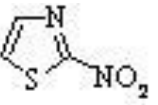
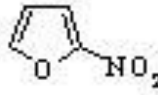
B	
C	
D	
E	
№	krok 2017
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Name the isomer of diethyl ether functional group: $\text{CH}_3 - \text{CH}_2 - \text{O} - \text{CH}_2 - \text{CH}_3$ :
Correct answer	Butanol
B	Dimethyl ether
C	Ethanol
D	Butanal
E	Ethyl acetate
№	krok 2017

Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	What substance can be identified with aqueous solution of $FeCl_3$
Correct answer	
B	
C	
D	
E	$\begin{array}{cc} CH_2 & - & CH_2 \\   & &   \\ OH & & OH \end{array}$
№	krok 2017, 2016
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	What reaction proves that phenol has acidic properties?

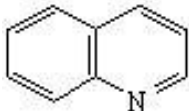
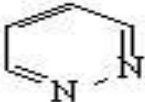
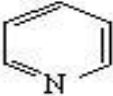
Correct answer	 $\text{C}_6\text{H}_5\text{OH} + \text{NaOH} \longrightarrow \text{C}_6\text{H}_5\text{O}^- \text{Na}^+ + \text{H}_2\text{O}$
B	 $\text{C}_6\text{H}_5\text{OH} + 3\text{Br}_2 \xrightarrow{\text{H}_2\text{O}} \text{C}_6\text{H}_2(\text{OH})(\text{Br})_3 + 3\text{HBr}$
C	 $\text{C}_6\text{H}_5\text{OH} + (\text{CH}_3\text{CO})_2\text{O} \longrightarrow \text{C}_6\text{H}_5\text{O}-\text{C}(=\text{O})-\text{CH}_3 + \text{CH}_3\text{COOH}$
D	 $\text{C}_6\text{H}_5\text{OH} + 2\text{Br}_2 \xrightarrow{\text{CCl}_4} \text{C}_6\text{H}_4(\text{OH})(\text{Br})_2 + 2\text{HBr}$
E	 $\text{C}_6\text{H}_5\text{OH} + \text{H}_2 \longrightarrow \text{C}_6\text{H}_{11}\text{OH}$
№	krok 2017
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Which of the listed compounds is an alpha-amino acid?

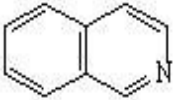
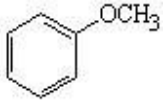
Correct answer	$\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{CH}-\text{COOH} \\   \\ \text{NH}_2 \end{array}$
B	$\begin{array}{c} \text{CH}_2-\text{CH}_2-\text{CH}_2-\text{COOH} \\   \\ \text{NH}_2 \end{array}$
C	
D	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{CH}_2-\text{COOH} \\   \\ \text{NH}_2 \end{array}$
E	$\begin{array}{c} \text{CH}_2-\text{CH}_2-\text{COOH} \\   \\ \text{NH}_2 \end{array}$
№	krok 2017
Topic	Hydrocarbons
Task	What organic compounds are produced in the result of intramolecular dehydration of monohydric alcohols?
Correct answer	Alkenes
B	Esters
C	Aldehydes
D	Alkanes



E	Arenes
№	krok 2017
Topic	Classification, nomenclature, isomerism of organic compounds
Task	What formula corresponds with alpha-nitropyrole?
Correct answer	
B	
C	
D	
E	
№	krok 2017

Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Specify the mechanism of the given reaction: $\text{H}^+$ , $t > 170^\circ\text{C}$ $\text{C}_2\text{H}_5\text{OH} \rightarrow \text{H}_2\text{C} = \text{CH}_2 + \text{H}_2\text{O}$
Correct answer	E (elimination)
B	$S_N$ (nucleophilic substitution)
C	$N$ (nucleophilic attachment)
D	$S_R$ (radical substitution)
E	$S$ (electrophilic substitution)
№	krok 2017
Topic	Classification, nomenclature, isomerism of organic compounds
Task	What type of bonds participates in creation of both linear and cyclic carboxylic acid associates in the form of dimers?
Correct answer	Hydrogen bonds
B	Ionic bonds
C	Polar covalent bonds
D	Nonpolar covalent bonds
E	Donor-acceptor bonds
№	krok 2017
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the functional group of isoniazide (an isonicotinic acid derivati-ve) molecule:
Correct answer	Hydrazide group
B	Amide group
C	Carboxyl group
D	Pyridine heterocyclic group
E	Ester group

№	krok 2017
Topic	Heterocyclic compounds
Task	What compound is synthesized by means of beta-picoline oxidation?
Correct answer	Nicotinic acid
B	Benzoic acid
C	Uric acid
D	Barbituric acid
E	Ascorbic acid
№	krok 2017
Topic	Heterocyclic compounds
Task	Specify quinoline among the compounds given below:
Correct answer	
B	
C	

D	
E	
№	krok 2017
Topic	Hydrocarbons
Task	Name the substance B in the following transformation: $\text{CH} \equiv \text{CH} \xrightarrow{\text{H OH, H g}^{2+}} \text{A} \rightarrow \text{B}$ [0]
Correct answer	Acetic acid
B	Ethanol
C	Propanal
D	Propanone
E	Ethanal
№	krok 2017
Topic	Oxocompounds
Task	What substance produces ketone, when oxidized with potassium permanganate?
Correct answer	$\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_3 \\   \\ \text{OH} \end{array}$

B	$CH_3 - CH - CH_2OH$
C	$CH_3 - CH_2OH$
D	$OHCH_2 - CH_2OH$
E	$  \begin{array}{c}  CH_3 \\    \\  CH_3 - C - CH_3 \\    \\  OH  \end{array}  $
№	krok 2017
Topic	Hydrocarbons
Task	Among the given substances choose the one that is used for oxidation of organic compounds:
Correct answer	$KMnO_4$
B	$CH_3 - CH_3$
C	$NaOH$
D	$HCl$
E	$NH_2 - NH_2$
№	krok 2017
Topic	Carbohydrates. Proteins. Lipids
Task	What reagent can simultaneously detect aldehyde group and glycol fragment in a glucose molecule?
Correct answer	$Cu(OH)_2$
B	$Br_2$
C	$AlCl_3$
D	$FeCl_3$
E	$KMnO_4$
№	krok 2016, 2015, 2012
Topic	Classification, nomenclature, isomerism of organic compounds

Task	Uric acid is a derivative of:
Correct answer	Purine
B	Indole
C	Pyrazine
D	Pyrazole
E	Pyridine
№	2016, 2015, 2012
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Which of these reactions can be used to identify the primary amino group?
Correct answer	$\text{H}_3\text{C}-\text{CH}_2-\text{NH}_2 \xrightarrow{\text{CHCl}_3, \text{KOH}}$ $\text{H}_3\text{C}-\text{CH}_2-\text{N}^+\equiv\text{C}^- + \text{KCl} + \text{H}_2\text{O}$
B	$\text{H}_3\text{C}-\text{CH}_2-\text{NH}_2 + \text{H}_3\text{C}-\text{I} \longrightarrow$ $\text{H}_3\text{C}-\text{CH}_2-\text{NH}-\text{CH}_3 + \text{HI}$
C	$\text{H}_3\text{C}-\text{CH}_2-\text{NH}_2 + (\text{CH}_3\text{CO})_2\text{O} \longrightarrow$ $\text{H}_3\text{C}-\text{CH}_2-\text{NH}-\text{C} \begin{array}{l} \text{O} \\ \parallel \\ \text{CH}_3 \end{array} + \text{CH}_3\text{COOH}$
D	$\text{H}_3\text{C}-\text{CH}_2-\text{NH}_2 + \text{HCl} \longrightarrow$ $\text{H}_3\text{C}-\text{CH}_2-\text{NH}_3^+ \text{Cl}^-$

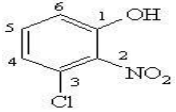
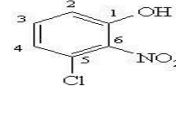
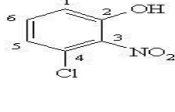
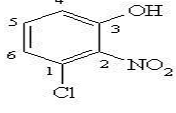
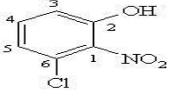
E	$\text{H}_3\text{C}-\text{CH}_2-\text{NH}_2 \xrightarrow{\text{O}_3}$ $\text{H}_3\text{C}-\text{CH}_2-\text{NO}_2$
№	krok 2016
Topic	Classification, nomenclature, isomerism of organic compounds
Task	According to IUPAC nomenclature the following is the name of nicotinic acid:
Correct answer	Pyridine-3-carboxylic acid
B	Pyridine-2-carboxylic acid
C	Pyridine-4-carboxylic acid
D	4-carboxypyridine
E	2-carboxypyridine
№	krok 2016, 2013
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Select a name that corresponds with the formula: $\text{CH}_3 - \text{C} \equiv \text{N}$ :
Correct answer	Acetic acid nitrile
B	Acetamide
C	Acetic anhydride
D	Acetoxime
E	Ethyl isocyanide
№	krok 2016
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Tryptophan amino acid is a derivative of:
Correct answer	Indole
B	Coumarin
C	Pyridine
D	Imidazole

E	Purine
№	krok 2016
Topic	Classification, nomenclature, isomerism of organic compounds
Task	How many asymmetric carbon atoms and stereoisomers are there in tartaric acid?
Correct answer	Two asymmetric atoms and three stereoisomers
B	One asymmetric atom and two stereoisomers
C	Two asymmetric atoms and four stereoisomers
D	No asymmetric atoms and no stereoisomers
E	Two asymmetric atoms and two stereoisomers
№	krok 2016
Topic	Hydrocarbons
Task	Introduction of an electron acceptor substitute into molecule is known to increase acid strength. What substance demonstrates the most explicit acidic properties?
Correct answer	Trichloroacetic acid
B	Dichloroacetic acid
C	Chloroacetic acid
D	Acetic acid
E	Propionic acid
№	krok 2016, 2015
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Aniline can be converted into the water-soluble salt, if processed with the solution of:
Correct answer	Hydrochloric acid
B	Sodium hydroxide
C	Sodium sulfate
D	Ethanol
E	Dimethylamine
№	krok 2016, 2015



Topic	Oxocompounds
Task	Specify the reagent necessary for the following transformation:
Correct answer	$NH_2NH_2$
B	$NH_2OH$
C	$CH_3NH_2$
D	$C_6H_5NHNH_2$
E	$NH_3$
№	krok 2016
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Select the formula of pentene-2 from the list:
Correct answer	$CH_3 - CH_2 - CH = CH - CH_3$
B	$CH_3 - CH_2 - CH_2 - CH_2 - CH_3$
C	$CH_3 - CH_2 - CH_2 - CH = CH_2$
D	$CH_3 - CH_2 - CH_2 - CH_3$
E	$CH_3 - CH = CH - CH_3$
№	krok 2016, 2015
Topic	Carbohydrates. Proteins. Lipids
Task	The end product of starch hydrolysis is:
Correct answer	D-glucose
B	D-fructose
C	Saccharose
D	Maltose
E	D-galactose
№	krok 2016
Topic	Hydrocarbons
Task	Determine the compounds of X and Y in the reaction:

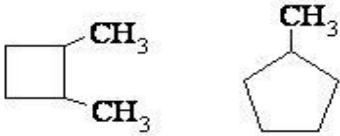
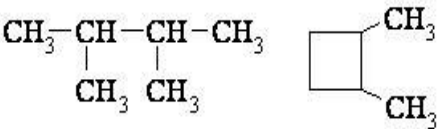
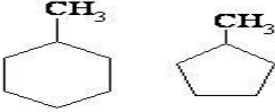
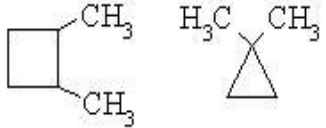

Correct answer	$\begin{array}{c} \text{CH}_2-\text{CH}_2 \\   \quad   \\ \text{Br} \quad \text{Br} \end{array} \text{ and } \text{CH}\equiv\text{CH}$
B	$\begin{array}{c} \text{CH}_2-\text{CH}_2 \\   \quad   \\ \text{Br} \quad \text{Br} \end{array} \text{ and } \begin{array}{c} \text{CH}_2-\text{CH}_2 \\   \quad   \\ \text{OH} \quad \text{OH} \end{array}$
C	$\text{CH}_3$ $\text{CHBr}_2$ and $\text{HC}\equiv\text{CH}$
D	$\begin{array}{c} \text{Br} \\   \\ \text{CH}_3-\text{CH} \\   \\ \text{Br} \end{array} \text{ and } \begin{array}{c} \text{CH}_2-\text{CH}_2 \\   \quad   \\ \text{OH} \quad \text{OH} \end{array}$
E	$\begin{array}{c} \text{Br} \\   \\ \text{CH}_3-\text{CH} \\   \\ \text{Br} \end{array} \text{ and } \begin{array}{c} \text{O} \\ // \\ \text{CH}_3-\text{C} \\   \\ \text{H} \end{array}$
№	krok 2016
Topic	Carbohydrates. Proteins. Lipids
Task	What reagent can help distinguish between starch and glucose?
Correct answer	$I_2$
B	$\text{Br}_2$
C	$\text{KMnO}_4$
D	$\text{K}_2\text{Cr}_2\text{O}_7$
E	$\text{FeCl}_3$
№	krok 2016
Topic	Classification, nomenclature, isomerism of organic compounds

Task	Select the formula, where carbon atoms numbering complies with IUPAC replacement nomenclature:
Correct answer	
B	
C	
D	
E	
№	krok 2016
Topic	Carbohydrates. Proteins. Lipids

Task	What reagent allows to simultaneously detect the presence of both aldehyde group and glycol fragment in glucose molecule?
Correct answer	$Cu(OH)_2$
B	$KMnO_4$
C	$Br_2$
D	$AlCl_3$
E	$FeCl_3$
№	krok 2016, 2015, 2013
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	What class of organic compounds is characterized by the presence of $C \equiv N$ group?
Correct answer	Nitriles
B	Amines
C	Nitro compounds
D	Alcohols
E	Aldehydes
№	krok 2016
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Barium carbonate sol has been obtained from the reaction of excess 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 $NH_4Cl$

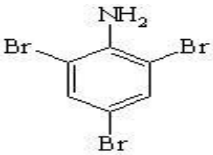
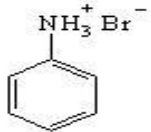
№	krok 2016
Topic	Heterocyclic compounds
Task	Isoniazidis an antituberculous drug derivative from:
Correct answer	Isonicotinic acid
B	Nicotinic acid
C	Picolinic acid
D	Pyrrole-2-carboxylic acid
E	N-aminobenzoic acid
№	krok 2016
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	What substance will react with propane under the given conditions?
Correct answer	$Br_2, hv, 20^\circ C$
B	$H_2SO_4$ concentrated
C	$HNO_3$ concentrated
D	$Cl_2, FeCl_3$
E	$CH_3COONO_2$
№	krok 2016, 2015
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the name of the carbohydrate given in the figure
Correct answer	5,6,6-trimethyl-1-hepten
B	2,2,3-trimethyl-6-hepten
C	5-tert-Butyl-1-hexene
D	2-tert-Butyl-5-hexene
E	2,2,3-trimethyl-6-hexene
№	krok 2015, 2013, 2012
Topic	Oxocompounds

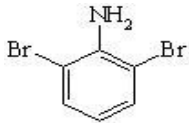
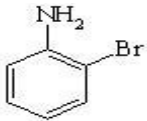
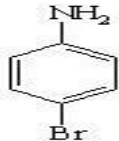
Task	Which of these formulas corresponds with acetoacetic acid?
Correct answer	$\begin{array}{c} \text{CH}_3-\text{C}-\text{CH}_2-\text{COOH} \\ \parallel \\ \text{O} \end{array}$
B	$\begin{array}{c} \text{CH}_3-\text{C}-\text{COOH} \\ \parallel \\ \text{O} \end{array}$
C	$\begin{array}{c} \text{H}-\text{C}-\text{COOH} \\ \parallel \\ \text{O} \end{array}$
D	$\begin{array}{c} \text{HOOC}-\text{C}-\text{CH}_2-\text{COOH} \\ \parallel \\ \text{O} \end{array}$
E	$\begin{array}{c} \text{CH}_3-\text{C}-\text{COOH} \\   \\ \text{OH} \end{array}$
№	krok 2015
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Select structural isomers among the given compound pairs:

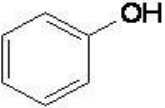
Correct answer	
B	
C	
D	
E	
№	krok 2015
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Optical activity of monosaccharides can be explained by their:

Correct answer	Asymmetric carbon atoms in a molecule
B	Asymmetric crystal
C	Complicated rotation around $\sigma$ -bond
D	Aldehyde or ketone group
E	Number of hydroxyl groups in a molecule
№	krok 2015
Topic	Carbohydrates. Proteins. Lipids
Task	Name the disaccharide with the following structure:
Correct answer	$\beta$ -lactose
B	$\alpha$ -lactose
C	$\beta$ -maltose
D	$\beta$ -cellobiose
E	Saccharose
№	krok 2015, 2014
Topic	Oxocompounds
Task	What product results from propionic aldehyde and $PCl_5$ interaction?
Correct answer	$\begin{array}{ccccccc} \text{H}_3\text{C} & - & \text{CH}_2 & - & \text{CH} & - & \text{Cl} \\ & & & &   & & \\ & & & & \text{Cl} & & \end{array}$
B	$\begin{array}{ccccc} \text{H}_3\text{C} & - & \text{CH} & - & \text{CH}_2 \\ & &   & &   \\ & & \text{Cl} & & \text{Cl} \end{array}$



C	$\begin{array}{c} \text{Cl} \\   \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \\   \\ \text{Cl} \end{array}$
D	$\begin{array}{c} \text{H}_2\text{C}-\text{CH}_2-\text{CH}_2 \\   \quad \quad   \\ \text{Cl} \quad \quad \text{Cl} \end{array}$
E	$\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{Cl}$
№	krok 2015
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Interaction of aniline with bromine water resulted in white precipitate. What substance was produced?
Correct answer	
B	

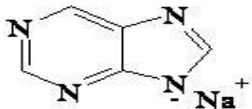
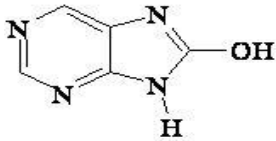
C	
D	
E	
No	krok 2015, 2011
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the name of the compound according to the IUPAC nomenclature:
Correct answer	2,3,5-Trimethyl heptadiene-3,4
B	3,5,6,6-Tetramethyl heptadiene-3,4
C	3,5,6,6-Trimethyl hepten-3
D	2-Ethyl-4,5-dimethyl hexadiene-2,3
E	2-Ethyl-4,5,5-trimethyl pentadiene-2,3
No	krok 2015
Topic	Hydrocarbons
Task	Choose the name that corresponds with the formula: $CH_3 - C \equiv N$ :
Correct answer	Acetic acid nitrile
B	Acetamide
C	Acetic anhydride

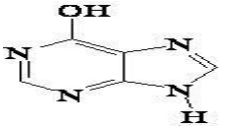
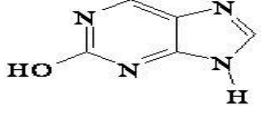
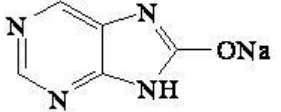
D	Acetoxime
E	Ethyl isocyanide
№	krok 2015
Topic	Hydrocarbons
Task	Which of the given compounds <b>WILL NOT</b> decolorize bromine water?
Correct answer	$CH_3 - CH_3$
B	$CH_2 = CH_2$
C	$CH \equiv CH$
D	$CH_3 - CH = CH_2$
E	
№	krok 2015
Topic	Classification, nomenclature, isomerism of organic compounds
Task	What is the mechanism of bromination of toluene methyl group?
Correct answer	$S_R$
B	$A_E$
C	$S_E$
D	$S_N$
E	$A_N$
№	krok 2015
Topic	Carbohydrates. Proteins. Lipids
Task	One of the cyclic glucose forms is as follows. Name this compound:
Correct answer	$\alpha$ -D-glucopyranose
B	$\beta$ -D-glucopyranose

C	$\alpha$ -L-glucopyranose
D	$\alpha$ -D-glucofuranose
E	$\beta$ -D-glucofuranose
№	krok 2015
Topic	Hydrocarbons
Task	Select the formula for pentene-2 from the list:
Correct answer	$CH_3 - CH_2 - CH = CH - CH_3$
B	$CH_3 - CH_2 - CH_2 - CH_2 - CH_3$
C	$CH_3 - CH_2 - CH_2 - CH = CH_2$
D	$CH_3 - CH_2 - CH_2 - CH_3$
E	$CH_3 - CH = CH - CH_3$
№	krok 2015
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the electronic effects of the carboxylic group (-COOH) in a benzoic acid molecule:
Correct answer	-I, -M
B	-I
C	+I, -M
D	+I
E	-I, +M
№	krok 2015
Topic	Oxocompounds
Task	Which of the alcohols given below produces acetone when oxidated?
Correct answer	$  \begin{array}{c}  CH_3 - CH - CH_3 \\    \\  OH  \end{array}  $


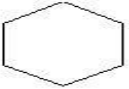
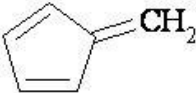
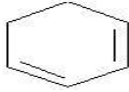
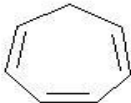
B	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{CH}_2-\text{CH}_3 \\   \\ \text{OH} \end{array}$
C	$\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{OH}$
D	$\text{C}_2\text{H}_5-\text{OH}$
E	$\text{CH}_3\text{OH}$
№	krok 2015
Topic	Carbohydrates. Proteins. Lipids
Task	What reagent allows to simultaneously detect both aldehyde group and glycol fragment presence in glucose molecule?
Correct answer	$\text{Cu}(\text{OH})_2$
B	$\text{Br}_2$
C	$\text{AlCl}_3$
D	$\text{FeCl}_3$
E	$\text{KMnO}_4$
№	krok 2015
Topic	Hydrocarbons

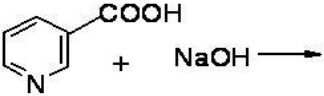
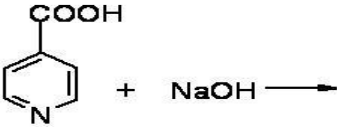
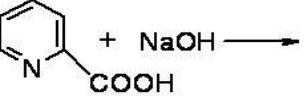
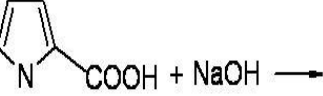
Task	Hydrogen atom attaches to the following carbon-1-pentene atom during electrophilic addition of hydrogen bromide:
Correct answer	$KH SO_4$
B	$CuOH$
C	$Cu(OH)_2$
D	$NaOH$
E	$NaCl$
№	krok 2014
Topic	Oxocompounds
Task	What reagent does p-aminobenzoic acid amino group react with?
Correct answer	$HCl$
B	$NH_4OH$
C	$NaOH$
D	$CH_3COONa$
E	$KCN$
№	krok 2014
Topic	Carbohydrates. Proteins. Lipids
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	Hydrocarbons
Task	Point out radical among active intermediate particles given below.

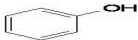
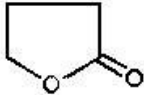
Correct answer	- $CH_3CH_2$
B	+ $CH_3 - CH_2$
C	- $CH_3 - CH_2$
D	- $OH$
E	- $COH$
№	krok 2014
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Point out number of $\pi$ -electrons in benzol molecule.
Correct answer	6
B	2
C	4
D	5
E	Benzol has no $\pi$ -electrons
№	krok 2014
Topic	Heterocyclic compounds
Task	Point out the product resulting from interaction of purine with sodi-um hydroxide:
Correct answer	
B	

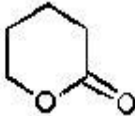
C	
D	
E	
№	krok 2014
Topic	Hydrocarbons
Task	What qualitative reaction proves linoleic acid nonsaturation? $\text{CH}_3(\text{CH}_2)_4\text{CH}=\text{CH}-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}(\text{CH}_2)_7\text{COH}$
Correct answer	Decoloration of bromine water ( $\text{Br}_2; \text{H}_2\text{O}$ )
B	Hydrohalogenation ( $\text{HCl}$ )
C	Reaction with $\text{FeCl}_3$
D	"Silver mirror" reaction with $[\text{Ag}(\text{NH}_3)_2]\text{OH}$
E	Decarboxylation
№	krok 2014
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Point out benzene structure:

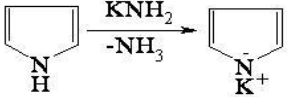
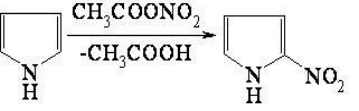
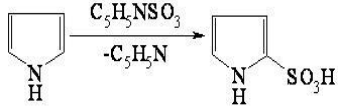
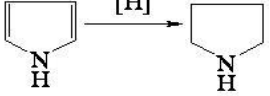
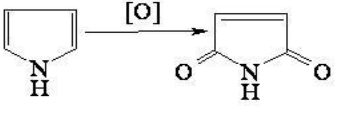


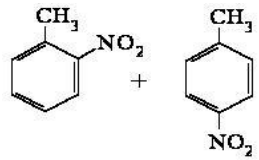
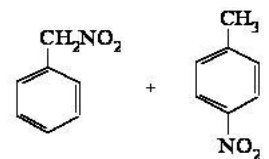
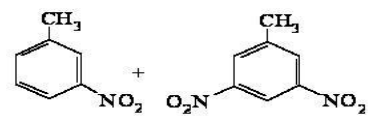
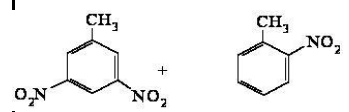
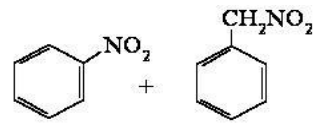
Correct answer	
B	
C	
D	
E	
№	krok 2014
Topic	Hydrocarbons
Task	What reagent action allows to distinguish ethanol from glycerine?
Correct answer	$Cu(OH)_2$
B	$HBr$

C	$FeCl_3$
D	$KMnO_4$
E	$Ag_2O$
№	krok 2014
Topic	Heterocyclic compounds
Task	What reaction will produce sodium nicotinate as a result?
Correct answer	
B	
C	
D	

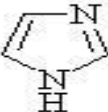
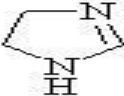
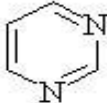
E	$\text{CH}_3 - \text{C} \begin{array}{l} \text{=O} \\ \text{Cl} \end{array} \xrightarrow{\text{NaOH (alcohol)}}$
No	krok 2014
Topic	Hydrocarbons
Task	What chemical compound <b>WILL NOT</b> decolorize bromine water?
Correct answer	$\text{CH}_3 - \text{CH}_3$
B	$\text{CH}_2 = \text{CH}_2$
C	$\text{CH} \equiv \text{CH}$
D	$\text{CH}_3 - \text{CH} = \text{CH}_2$
E	
No	krok 2014
Topic	Oxocompounds
Task	$\gamma$ -Butyrolactone is produced during $\gamma$ -hydroxybutyric acid heating. Point it out among the compounds given below:
Correct answer	
B	$\text{C}_2\text{H}_5 - \text{C} \begin{array}{l} \text{=O} \\ \text{O} \end{array} - \text{C}_2\text{H}_5$

C	
D	$\text{CH}_3-\text{C}(=\text{O})-\text{C}_2\text{H}_5$
E	$\text{CH}_3-\text{C}(=\text{O})-\text{OC}_2\text{H}_5$
№	krok 2014
Topic	Classification, nomenclature, isomerism of organic compounds
Task	What compound has no carboxyl group but nevertheless is called an acid?
Correct answer	Picric acid
B	Valeric acid
C	Tartaric acid
D	Lactic acid
E	Malic acid
№	krok 2014
Topic	Heterocyclic compounds
Task	What reaction proves acid propert-i-es of pyrrole?

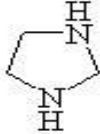
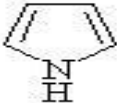
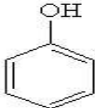
Correct answer	 $\text{Pyrrole} \xrightarrow[\text{-NH}_3]{\text{KNH}_2} \text{Potassium pyrrolide}$
B	 $\text{Pyrrole} \xrightarrow[\text{-CH}_3\text{COOH}]{\text{CH}_3\text{COONO}_2} \text{3-nitropyrrole}$
C	 $\text{Pyrrole} \xrightarrow[\text{-C}_2\text{H}_5\text{N}]{\text{C}_2\text{H}_5\text{NSO}_3} \text{3-sulfopyrrole}$
D	 $\text{Pyrrole} \xrightarrow{[\text{H}]} \text{Pyrrolidine}$
E	 $\text{Pyrrole} \xrightarrow{[\text{O}]} \text{Pyrrole-2,5-dione}$
№	krok 2014
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Products obtained from toluene nitration will mostly consist of:

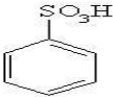
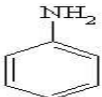

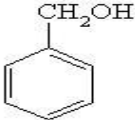
Correct answer	
B	
C	
D	
E	
No	krok 2014
Topic	Hydrocarbons
Task	Which of the reactions given below is called the Wurtz reaction?
Correct answer	$2C_2H_5Cl + 2Na \rightarrow CH_3CH_2-CH_2CH_3 + NaCl$
B	$H_2C = CH_2 + H_2O \rightarrow CH_3-CH_3$

C	$(H OH )$ $C_2H_5Cl + N aOH \rightarrow C_2H_5OH + N aCl$
D	$C_2H_6 + Cl_2 \rightarrow C_2H_2Cl + H Cl$
E	$C_2H_5OH + Cl \rightarrow CH_3CH_2Cl + H_2O$
№	krok 2014
Topic	Oxocompounds
Task	What products result from the process of heating oxalic acid ( $H OOC - COOH$ ) with concentrated sulfate acid ( $H_2SO_4$ )? (concentr.) $H_2SO_4$ , to $H OOC - COOH \rightarrow ?$
Correct answer	$CO_2 + CO + H_2O$
B	$2CO_2 + H_2$
C	$H_2O + CO_2$
D	$2CO + H_2 + O_2$
E	$C_2H_2 + 2O_2$
№	krok 2014
Topic	Hydrocarbons
Task	Point out the substance produced during the following reaction: $H OH, H g^{2+}$ $CH \equiv CH \rightarrow ?$
Correct answer	Ethanal
B	Ethanol
C	Propionaldehyde
D	Propanone
E	Acetate acid
№	krok 2014
Topic	Oxocompounds

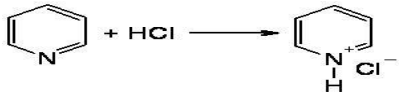
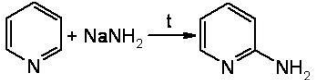
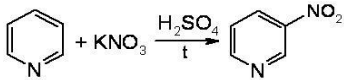
Task	When substances interact according to the scheme given in it results in the following:
Correct answer	Ethyl formate
B	Ethyl acetate
C	Methyl ethanoate
D	Methyl acetate
E	Methyl formate
№	krok 2014
Topic	Heterocyclic compounds
Task	Point out the compound that has amphoteric properties, that is, reacts both with acids and bases producing relevant salts.
Correct answer	
B	
C	

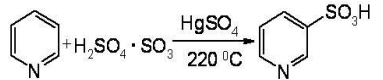
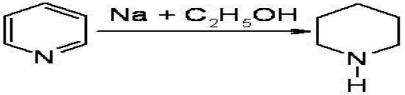
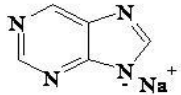


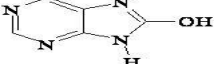
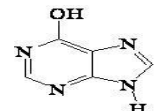
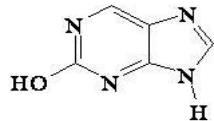
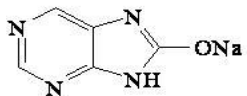
D	
E	
No	krok 2014
Topic	Oxocompounds
Task	Point out the correct name of product resulting from interaction of acetaldehyde with hydrazine:
Correct answer	Acetaldehyde hydrazone
B	Acetaldoxime
C	Acetaldimine
D	Acetaldehyde phenylhydrazine
E	Acetaldehyde semicarbazone
No	krok 2014
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Point out the product of the reaction given below:
Correct answer	

B	
C	
D	
E	
№	krok 2014
Topic	Hydrocarbons
Task	Point out the compound that allows to synthesize acetonitrile $CH_3 C \equiv N$ in one stage.
Correct answer	$CH_3 I$
B	$CH_4$
C	$CH_3 OH$
D	$C_2H_5 Cl$
E	$C_6H_5Cl$
№	krok 2014

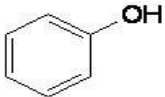
Topic	Oxocompounds
Task	What reagent is used to perform the following transformation:
Correct answer	$N a N O_2(H Cl)$
B	$K_2Cr_2O_7$
C	$N a N O_3(H_2SO_4)$
D	$KOH$
E	$Cu(OH)_2$
№	krok 2013, 2012
Topic	Hydrocarbons
Task	What reaction belongs to the class of hydrogenation of alkenes?
Correct answer	$H_2 + CH_2 = CH_2 \rightarrow$
B	$Al_4C_3 + H_2O \rightarrow$
C	$CO + 2H_2 \rightarrow$
D	$C_2H_5OH(k.H_2SO_4, to) \rightarrow$
E	$C_2H_6 + Cl_2 \rightarrow$
№	krok 2014
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	What reagent will allow for unsaturated organic compounds reduction under the conditions given below?
Correct answer	$H_2, Ni, t$
B	$HNO_3, p, t$
C	$NaOH, H_2O$
D	$K_2Cr_2O_7, H^+$
E	$H_2O, Hg^{2+}, H^+$
№	krok 2014

Topic	Carbohydrates. Proteins. Lipids
Task	What reagent allows to si-multaneously detect aldehyde group and glycol fragment presence in glucose molecule?
Correct answer	$Cu(OH)_2$
B	$Br_2$
C	$AlCl_3$
D	$FeCl_3$
E	$KMnO_4$
№	krok 2013
Topic	Heterocyclic compounds
Task	Which of the listed reactions demonstrates the basic properties of pyri-dine?
Correct answer	 <p>The reaction shows a pyridine ring reacting with HCl. An arrow points to the product, which is a pyridinium cation (a six-membered ring with a nitrogen atom bonded to a hydrogen atom and carrying a positive charge) and a chloride anion (Cl<sup>-</sup>).</p>
B	 <p>The reaction shows a pyridine ring reacting with NaNH<sub>2</sub>. An arrow with a 't' above it points to the product, which is 2-aminopyridine (a pyridine ring with an NH<sub>2</sub> group at the 2-position).</p>
C	 <p>The reaction shows a pyridine ring reacting with KNO<sub>3</sub>. An arrow with H<sub>2</sub>SO<sub>4</sub> above and 't' below it points to the product, which is 3-nitropyridine (a pyridine ring with an NO<sub>2</sub> group at the 3-position).</p>

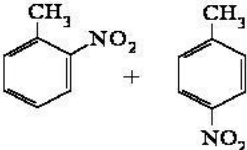
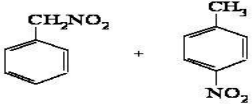
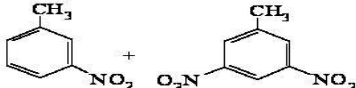
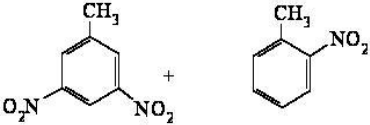
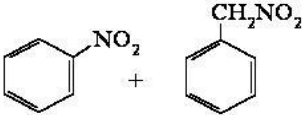
D	
E	
No	krok 2013, 2012
Topic	Oxocompounds
Task	Amino group of p-aminobenzoic acid is involved into reaction with the following reagent:
Correct answer	<i>HCl</i>
B	<i>NH<sub>4</sub>OH</i>
C	<i>NaOH</i>
D	<i>CH<sub>3</sub>COONa</i>
E	<i>KCN</i>
No	krok 2013
Topic	Heterocyclic compounds
Task	Specify the reaction product of purine reacting with sodium hydroxide:
Correct answer	

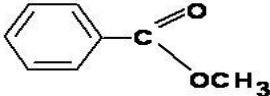
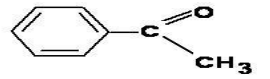
B	
C	
D	
E	
№	krok 2013
Topic	Hydrocarbons
Task	Ethane is the product of the following reaction:
Correct answer	Addition
B	Substitution
C	Reduction
D	Oxidation
E	Rearrangement
№	krok 2013, 2012

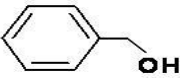
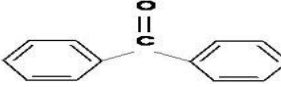
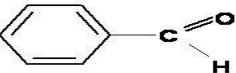
Topic	Hydrocarbons
Task	What class of reactions does this reaction relate to?
Correct answer	$H_2, \text{cat t, p}$ $CH_2 = CH_2 \text{ -----} \rightarrow$
B	$H_2O$ $AlCl_3 \text{ ---} \rightarrow$
C	$CO + 2H_2 \text{ ----} \rightarrow$
D	$k.H_2SO_4, to$ $C_2H_5OH \text{ -----} \rightarrow$
E	$CO_2 + 2H_2O \text{ ---} \rightarrow$
№	krok 2013, 2012
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the number of electrons involved into formation of the isolated conjugated system in the pyrimidine molecule:
Correct answer	6
B	4
C	10
D	2
E	8
№	krok 2013
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Ethanol can be distinguished from glycerol by the reaction with the following reagent:
Correct answer	$Cu(OH)_2$
B	$HBr$
C	$FeCl_3$
D	$KMnO_4$
E	$Ag_2O$
№	krok 2013
Topic	Hydrocarbons

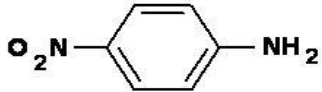
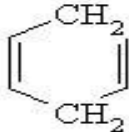
Task	Which of the given compounds <b>WILL NOT</b> decolorize the bromine water?
Correct answer	$CH_3 - CH_3$
B	$CH_2 = CH_2$
C	$CH \equiv CH$
D	$CH_3 - CH = CH_2$
E	
№	krok 2013
Topic	Carbohydrates. Proteins. Lipids
Task	Specify the number of existing stereoisomeric aldopentoses:
Correct answer	8
B	5
C	2
D	6
E	16
№	krok 2013, 2012
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	This scheme of nitroalkane synthesis is called the reaction of:
Correct answer	Konovalov
B	Zinin
C	Kucherov
D	Tishchenko
E	Chichibabin
№	krok 2013



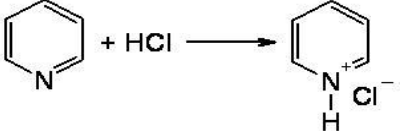
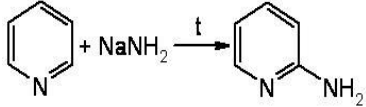
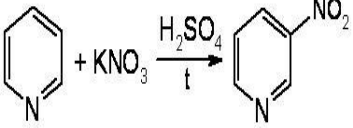
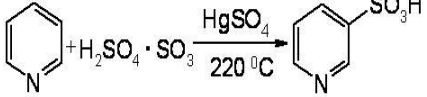
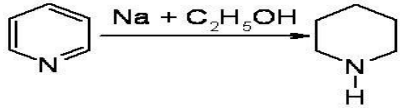
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	The products of the toluene nitration are mainly:
Correct answer	 <p>Chemical structures showing the products of toluene nitration: o-nitrotoluene (2-nitrotoluene) and p-nitrotoluene (4-nitrotoluene).</p>
B	 <p>Chemical structures showing the products of toluene nitration: nitrotoluene (1-nitrotoluene) and nitrobenzene.</p>
C	 <p>Chemical structures showing the products of toluene nitration: o-nitrotoluene (2-nitrotoluene) and 2,4-dinitrotoluene.</p>
D	 <p>Chemical structures showing the products of toluene nitration: 2,4-dinitrotoluene and o-nitrotoluene (2-nitrotoluene).</p>
E	 <p>Chemical structures showing the products of toluene nitration: nitrobenzene and nitrotoluene (1-nitrotoluene).</p>
No	krok 2013
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Halogen atoms in an organic compound can be detected by means of:

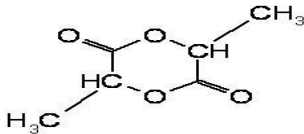
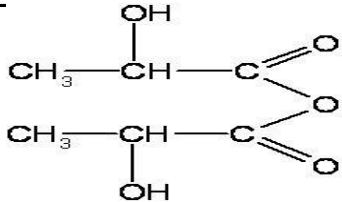
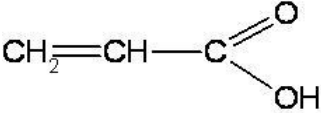
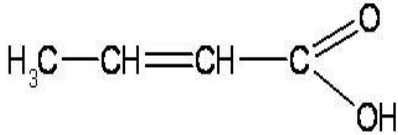
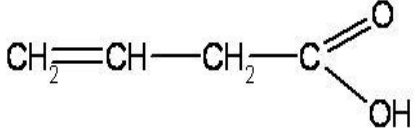
Correct answer	Beilstein test
B	Molisch's test
C	Bayer's test
D	Lucas' test
E	Iodoform test
№	krok 2013
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Aniline can be converted into the water-soluble salt through the treatment with a solution of:
Correct answer	Hydrochloric acid
B	Sodium hydroxide
C	Sodium sulfate
D	Ethanol
E	Dimethylamine
№	krok 2013
Topic	Oxocompounds
Task	Select the correct product of the reaction:
Correct answer	
B	

C	
D	
E	
№	krok 2013
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Specify a compound having the most pronounced basic properties in the gas phase:
Correct answer	$\begin{array}{c} \text{CH}_3 - \text{N} - \text{CH}_3 \\   \\ \text{CH}_3 \end{array}$
B	$\text{CH}_3 - \text{NH}_2$
C	$\text{CH}_3 - \text{NH} - \text{CH}_3$

D	$\text{CH}_3 - \text{NH} - \text{CH}_3$
E	
№	krok 2013
Topic	Oxocompounds
Task	Specify the correct name for the product of the acetaldehyde reacting with hydrazine:
Correct answer	Acetaldehyde hydrazone
B	Acetaldehyde oxime
C	Acetaldimine
D	Acetaldehyde phenylhydrazone
E	Acetaldehyde semicarbazone
№	krok 2013
Topic	Hydrocarbons
Task	Select a conjugated diene from the list of diene hydrocarbons:
Correct answer	$\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$
B	$\text{CH}_2 = \text{C} = \text{CH} - \text{CH}_3$
C	$\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{CH} = \text{CH}_2$
D	$\text{CH}_2 = \text{CHCH}_2\text{CH}_2\text{CH} = \text{CH}_2$
E	

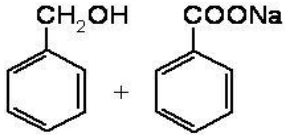
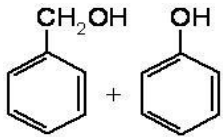
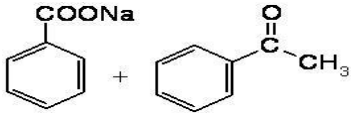
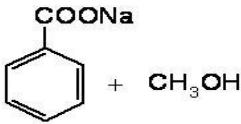
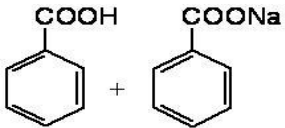
№	krok 2013
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	Under the given conditions, the unsaturated organic compounds are reduced with the following reagent:
Correct answer	$H_2, Ni, t$
B	$HNO_3, p, t$
C	$NaOH, H_2O$
D	$K_2Cr_2O_7, H^+$
E	$H_2O, Hg^{2+}, H^+$
№	krok 2013
Topic	Hydrocarbons
Task	Which of the following compounds relates to the conjugated dienes?
Correct answer	$CH_3CH_2CH=CHCH=CH_2$
B	$CH_2=C=CHCH_2CH_2CH_3$
C	$CH_2=CHCH_2CH_2CH=CH_2$
D	$CH_3CH=C=CHCH_2CH_3$
E	$  \begin{array}{c}  CH_3-C-CH_2-CH=CH_2 \\     \\  CH_2  \end{array}  $
№	krok 2012
Topic	Heterocyclic compounds
Task	Which of the listed reactions indicates the basic properties of pyridine?

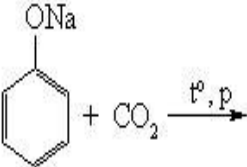
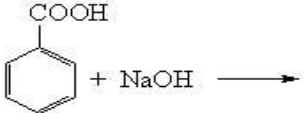
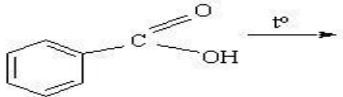
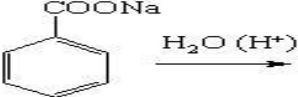
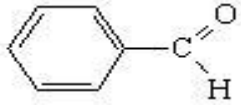
Correct answer	
B	
C	
D	
E	
№	krok 2012
Topic	Oxocompounds
Task	What compound is formed by heating $\alpha$ -hydroxypropionic acid?

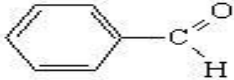
Correct answer	
B	
C	
D	
E	
№	krok 2012
Topic	Heterocyclic compounds
Task	Which of the following names corresponds with the formula:
Correct answer	Nicotinic acid amide
B	Isonicotinic acid amide

C	Picolinic acid amide
D	Salicylic acid amide
E	Anthranilic acid amide
№	krok 2012
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Select the correct name for the given compound:
Correct answer	1,5-Dinitronaphthalene
B	1,6-Dinitronaphthalene
C	4,8-Dinitronaphthalene
D	2,7-Dinitronaphthalene
E	4,9-Dinitronaphthalene
№	krok 2012
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Acylated amino group acts as a substituent of the following type:
Correct answer	Type I
B	Type II
C	Type I and II at the same time
D	Acetanilide does not take part in the $S_E$ reactions
E	Impossible to determine
№	krok 2012
Topic	Hydrocarbons
Task	What class of reactions does this reaction relate?
Correct answer	Addition
B	Substitution
C	Reduction
D	Oxidation



E	Rearrangement
№	krok 2012
Topic	Oxocompounds
Task	After the Cannizzaro reaction for benzaldehyde the following compound is obtained:
Correct answer	 <p>Chemical structures showing benzyl alcohol (a benzene ring with a <math>\text{CH}_2\text{OH}</math> group) and sodium benzoate (a benzene ring with a <math>\text{COONa}</math> group).</p>
B	 <p>Chemical structures showing benzyl alcohol (a benzene ring with a <math>\text{CH}_2\text{OH}</math> group) and phenol (a benzene ring with an <math>\text{OH}</math> group).</p>
C	 <p>Chemical structures showing sodium benzoate (a benzene ring with a <math>\text{COONa}</math> group) and acetophenone (a benzene ring with an <math>\text{C}(=\text{O})\text{CH}_3</math> group).</p>
D	 <p>Chemical structures showing sodium benzoate (a benzene ring with a <math>\text{COONa}</math> group) and methanol (<math>\text{CH}_3\text{OH}</math>).</p>
E	 <p>Chemical structures showing benzoic acid (a benzene ring with a <math>\text{COOH}</math> group) and sodium benzoate (a benzene ring with a <math>\text{COONa}</math> group).</p>
№	krok 2012

Topic	Oxocompounds
Task	Specify the reaction, through which salicylic acid can be synthesized:
Correct answer	
B	
C	
D	
E	
№	krok 2012
Topic	Classification, nomenclature, isomerism of organic compounds

Task	The cause of optical activity is the presence of the following organic compound in the molecular structure:
Correct answer	Asymmetric carbon atom
B	Double bond
C	Triple bond
D	Functional group
E	Plane of symmetry
№	krok 2012
Topic	Oxocompounds
Task	Which of the listed carbonyl compounds gives a positive iodoforme reaction?
Correct answer	$\begin{array}{c} \text{CH}_3-\text{C}-\text{CH}_3 \\    \\ \text{O} \end{array}$
B	$\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_2-\text{CH}_3 \\    \\ \text{O} \end{array}$
C	
D	$\begin{array}{c} \text{CH}_3\text{CH}_2-\text{C} \\    \\ \text{O} \\   \\ \text{H} \end{array}$

E	$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-C}\begin{matrix} \text{=O} \\ \text{H} \end{matrix}$
№	krok 2012
Topic	Oxocompounds
Task	By heating $\beta$ -hydroxy acids the following substance is formed:
Correct answer	Unsaturated carboxylic acids
B	Lactones
C	Lactides
D	Dicarboxylic acid
E	Saturated monocarboxylic acids
№	krok 2012, 2011, 2009
Topic	Classification, nomenclature, isomerism of organic compounds
Task	What type of tautomerism is typical for the given compound?
Correct answer	Nitro-aci-nitro tautomerism
B	Carbonyl-enol tautomerism
C	Cyclo-oxo tautomerism
D	Amine-imine tautomerism
E	Keto-enol tautomerism
№	krok 2012
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Choose a name that corresponds to the formula: $\text{CH}_3\text{-C}\equiv\text{N}$ :
Correct answer	Acetic acid nitrile
B	Acetamide
C	Acetic anhydride
D	Acetoxime

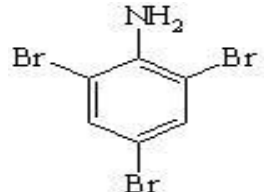
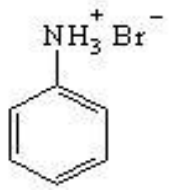
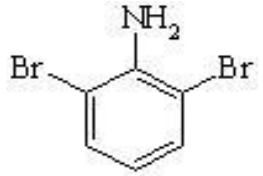
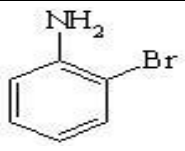
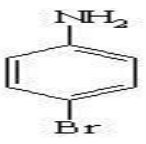
E	Ethyl isocyanide
№	krok 2012
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	Which of the following reactions is required in order to obtain an azo dye out of an aromatic amine?
Correct answer	Diazotization and azo compound
B	Reduction and diazotization
C	Diazotization and interaction with potassium cyanide
D	Salt formation and nitration
E	Alkylation and nitrosation
№	krok 2012, 2011
Topic	Hydrocarbons
Task	What is the mechanism of bromination of toluene aromatic nucleus?
Correct answer	$S_E$
B	$A_E$
C	$S_R$
D	$S_N$
E	$A_N$
№	krok 2011, 2008
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	Bromination proceeds with generation of tribromoderivative in presence of the following substituent X:
Correct answer	$X = OH$
B	$X = COOH$
C	$X = NO_2$
D	$X = CHO$

E	$X = SO_3H$
№	krok 2011, 2010
Topic	Hydrocarbons
Task	What is the final product of methane chlorination?
Correct answer	Tetrachloromethane
B	Chloroform
C	Chloroethanol
D	Ethane
E	Chloromethane
№	krok 2011, 2010
Topic	Oxocompounds
Task	Choose the reagent that can be used for acetone cyanohydrin production:
Correct answer	$H\text{CN}$
B	$H_2N - OH$
C	$H_2N - NH_2$
D	<b>D.</b> $H_2N - NH - C_6H_5$
E	<b>E.</b> $H_2N - CH_3$
№	krok 2011, 2010, 2009, 2008
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	For production of phenol ether it is necessary to cause reaction of sodium phenoxide with:
Correct answer	$CH_3Cl$
B	$CH_3OH$
C	$CH_4$
D	$CH_3NH_2$
E	$CH_3C \equiv N$
№	krok 2011, 2010

Topic	Carbohydrates. Proteins. Lipids
Task	Polysaccharide cellulose consists of the remains of the following monosaccharide:
Correct answer	$\beta$ -D-glucopyranose
B	$\alpha$ -D-glucopyranose
C	$\beta$ -D-fructopyranose
D	$\alpha$ -D-fructofuranose
E	$\beta$ -D-glucofuranose
№	krok 2011
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	What compound is formed as a result of the intermolecular dehydration of ethanol?
Correct answer	$C_2H_5 - O - C_2H_5$
B	$C_2H_5 - O - SO_3H$
C	$CH_2 = CH_2$
D	$\left[ \begin{array}{c} CH_3-CH_2-\overset{+}{O} \\   \\ H \end{array} \right] SO_4H$
E	$CH_3-CH_2-O-\overset{\overset{O}{\parallel}}{\underset{\underset{O}{\parallel}}{S}}-O-CH_2-CH_3$
№	krok 2011
Topic	Carbohydrates. Proteins. Lipids
Task	As a result of the reaction of cyclic forms of monosaccharides with alcohols in presence of an acid catalyst the following compounds are formed:
Correct answer	Glycosides
B	Esters

C	Osazones
D	Acids
E	Oxoacids
№	krok 2011, 2008
Topic	Oxocompounds
Task	What compound will be produced during reduction of methyl ethyl ketone?
Correct answer	<i>secondary</i> -butyl alcohol
B	Butanol-1
C	Isobutyl alcohol
D	<i>tertiary</i> -butyl alcohol
E	Propanol-2
№	krok 2011, 2007
Topic	Oxocompounds
Task	What medication is formed as a result of interaction of salicylic acid with acetic anhydride?
Correct answer	Aspirin
B	Salicyl amide
C	Phenyl salicylate
D	Benzyl salicylate
E	Sodium salicylate
№	krok 2011
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Interaction of aniline with of bromine water resulted of white precipitate. What substance was produced?



Correct answer	
B	
C	
D	
E	
No	krok 2011, 2010, 2009
Topic	Hydrocarbons
Task	Toluol is converted to the benzoic acid under the following conditions:
Correct answer	Oxidation with potassium permanganate
B	Heating with sulphuric acid

C	Hydrogen peroxide action at a room temperature
D	Sodium hydroxide action at a room temperature
E	Boiling in the open air
№	krok 2011, 2010, 2009
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Which of the following compounds forms a propionic aldehyde as a result of alkaline hydrolysis ( $H_2O$ and $OH^-$ )?
Correct answer	$\begin{array}{c} Cl \\   \\ CH_3-CH_2-CH \\   \\ Cl \end{array}$
B	$\begin{array}{c} CH_3-CH-CH_2 \\   \quad   \\ Cl \quad Cl \end{array}$
C	$\begin{array}{c} H_2C-CH_2-CH_2 \\   \quad   \\ Cl \quad Cl \end{array}$
D	$\begin{array}{c} Cl \\   \\ H_3C-C-CH_3 \\   \\ Cl \end{array}$
E	$\begin{array}{c} Cl \\   \\ CH_3-CH_2-CH_2-CH \\   \\ Cl \end{array}$
№	krok 2011

Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Chooses the reagent that can be used for acylation of amines:
Correct answer	$(CH_3CO)_2O$
B	$CH_3CHO$
C	$C_2H_5Cl$
D	$HNO_2$
E	$CHCl_3 + NaOH$
№	krok 2011
Topic	Hydrocarbons
Task	Specify the product that results from the interaction of 2 moles of $HCl$ with 1 mole of propyne:
Correct answer	$  \begin{array}{c}  CH_3-C-CH_3 \\    \quad   \\  Cl \quad Cl  \end{array}  $
B	$  \begin{array}{c}  CH_3-C=CH \\    \quad   \\  Cl \quad Cl  \end{array}  $
C	$  \begin{array}{c}  CH_3-CH_2-CH \\  \quad \quad \quad   \\  \quad \quad \quad Cl  \end{array}  $

D	$\begin{array}{c} \text{CH}_2-\text{C}\equiv\text{C} \\   \quad \quad   \\ \text{Cl} \quad \quad \text{Cl} \end{array}$
E	$\text{CH}_2=\text{CH}-\text{CH} \begin{array}{l} \text{Cl} \\ \text{Cl} \end{array}$
No	krok 2011
Topic	Oxocompounds
Task	The product of full acetylation of glycerol relates to the following class of organic compounds:
Correct answer	Ester
B	Ether
C	Ketone
D	Acetal
E	Phenol
No	krok 2011
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Specify the reaction which proves the acidic properties of phenol:
Correct answer	

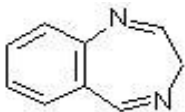
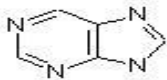
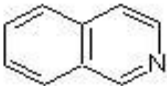
B	
C	
D	
E	
№	krok 2011
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Specify the electronic effects of the carboxyl group ( $-COOH$ ) in a molecule of benzoic acid:
Correct answer	$-I, -M$
B	$-I$
C	$+I, -M$
D	$+I$
E	$-I, +M$
№	krok 2011

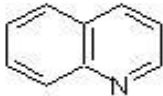
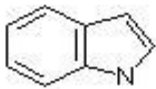
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Butanol-1 ( <i>n</i> -butyl alcohol) and 2-methyl-1-propanol (isobutyl alcohol) are the isomers:
Correct answer	Of carbon chain
B	Position isomers
C	Optical
D	Geometric
E	Of functional group
№	krok 2010
Topic	Hydrocarbons
Task	This substance can be produced from the calcium carbide. It discolours bromine water and makes metal derivatives. What compound is it?
Correct answer	Acetylene
B	Ethylene
C	Ethane
D	Orenol
E	Aniline
№	krok 2010
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	The compound $C_7H_8O$ relates to the derivatives of aromatic hydrocarbons, doesn't stain with $FeCl_3$ , the product of its oxidation is benzoic acid. What compound is it?
Correct answer	Benzyl alcohol
B	Methylphenyl alcohol
C	o-cresol
D	m-cresol
E	cresol
№	krok 2010

Topic	Hydrocarbons
Task	What product is obtained in Wagner reaction during oxidation of alkenes with potassium permanganate in the aqueous medium?
Correct answer	Glycol
B	Epoxide
C	Ketone
D	Carboxylic acid
E	Aldehyde
№	krok 2010
Topic	organic chemistry
Task	Oxocompounds
Correct answer	Choose the initial compound for one-stage synthesis of phthalic acid:
B	o-xylol
C	Salicylic acid
D	1,2-dichlorobenzene
E	2-chlorobenzoic acid
№	krok 2010, 2009, 2008
Topic	Oxocompounds
Task	Interaction of lactic acid with $SOCl_2$ excess will result in production of the following compound:
Correct answer	$  \begin{array}{c}  \text{O} \\  \parallel \\  \text{CH}_3\text{-CH}-\text{C} \\    \quad \backslash \\  \text{Cl} \quad \text{Cl}  \end{array}  $

B	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{C} \\   \quad \quad // \\ \text{Cl} \quad \quad \text{O} \\ \quad \quad \quad \backslash \\ \quad \quad \quad \text{OH} \end{array}$
C	$\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{C} \\ \quad \quad \quad // \\ \quad \quad \quad \text{O} \\ \quad \quad \quad \backslash \\ \quad \quad \quad \text{Cl} \end{array}$
D	$\begin{array}{c} \text{CH}_2-\text{CH}_2-\text{C} \\   \quad \quad \quad // \\ \text{Cl} \quad \quad \quad \text{O} \\ \quad \quad \quad \quad \backslash \\ \quad \quad \quad \quad \text{OH} \end{array}$
E	$\begin{array}{c} \text{CH}_2-\text{CH}_2-\text{C} \\   \quad \quad \quad // \\ \text{OH} \quad \quad \quad \text{O} \\ \quad \quad \quad \quad \backslash \\ \quad \quad \quad \quad \text{Cl} \end{array}$
№	krok 2010
Topic	Oxocompounds
Task	3-aminopropane acid is included in pantothenic acid which is a component of coenzyme A. What reaction takes place in course of heating of this acid?
Correct answer	Elimination (detachment)
B	Substitution
C	Addition
D	Rearrangement
E	Reduction

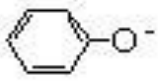


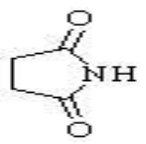
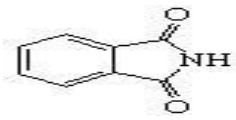
№	krok 2010
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Before nitration of aniline it is usually acidified in order to protect amino groups from oxidation. Which of the following reagents is used for this purpose?
Correct answer	$(CH_3CO)_2O$
B	$CH_3CHO$
C	$C_2H_5Cl$
D	$HNO_2$
E	$CHCl_3 + NaOH$
№	krok 2010
Topic	Heterocyclic compounds
Task	Choose benzo-1,4-diazepine from the given heterocyclic compounds:
Correct answer	
B	
C	

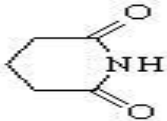

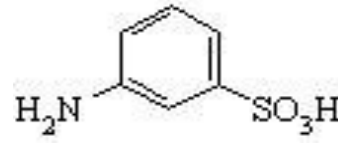
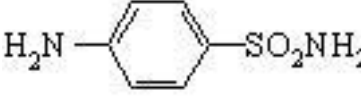
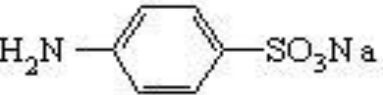
D	
E	
No	krok 2010
Topic	Hydrocarbons
Task	Which atoms of carbon in the given compound
Correct answer	1 and 2
B	1 and 3
C	2 and 3
D	3 and 4
E	5 and 6
No	krok 2010
Topic	Hydrocarbons
Task	As a result of sulfonation of naphthalene with concentrated sulfuric acid at a temperature over $160^{\circ}C$ the following substance is produced:
Correct answer	2-naphthalensulfonic acid
B	1-naphthalensulfonic acid
C	3-naphthalensulfonic acid
D	4-naphthalensulfonic acid
E	5-naphthalensulfonic acid
No	krok 2010

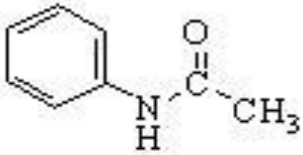
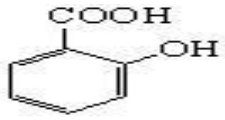
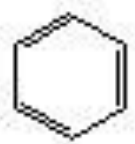
Topic	Classification, nomenclature, isomerism of organic compounds
Task	What kind of isomerism is typical for the oleic acid?
Correct answer	Cis-trans-stereoisomerism
B	Optic
C	Keto-enol tautomerism
D	Enantiomerism
E	Lactim-lactam tautomerism
№	krok 2010, 2009
Topic	Hydrocarbons
Task	Tritane relates to:
Correct answer	Multinuclear arenes with isolated benzene cycles
B	Multinuclear arenes with condensed benzene cycles
C	Mononuclear arenes
D	Alkanes
E	Alkenes
№	krok 2009
Topic	Oxocompounds
Task	Choose a reagent for synthesis of acetic acid hydrazide from ethyl acetate:
Correct answer	$H_2N - NH_2$
B	$NH_3$
C	$H_2N - CH_3$
D	$C_6H_5NH_2$
E	$C_6H_5NHNH_2$
№	krok 2009
Topic	Oxocompounds
Task	What is the product of ethyl alcohol-acetic aldehyde reaction?

Correct answer	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{OC}_2\text{H}_5 \\   \\ \text{OH} \end{array}$
B	$\begin{array}{c} \text{O} \\ // \\ \text{CH}_3-\text{C} \\ \backslash \\ \text{OC}_2\text{H}_5 \end{array}$
C	$\begin{array}{c} \text{CH}_3-\text{C}-\text{C}_2\text{H}_5 \\    \\ \text{O} \end{array}$
D	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{C}_2\text{H}_5 \\   \\ \text{OH} \end{array}$
E	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{C}_2\text{H}_5 \\   \\ \text{O}-\text{OH} \end{array}$
No	krok 2009
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Choose the carbocation among the given intermediate reactive particles:

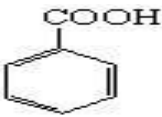
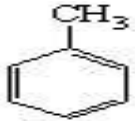
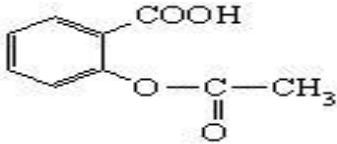
Correct answer	$\text{H}_3\text{C}-\overset{+}{\text{C}}\text{H}_2$
B	$\text{H}_3\text{C}-\overset{\cdot}{\text{C}}\text{H}_2$
C	
D	$:\text{NH}_3$
E	$\text{CH}_2=\text{CH}-\overset{-}{\text{C}}\text{H}_2$
№	krok 2009, 2008
Topic	Oxocompounds
Task	Choose a reagent that can be used for production of <i>propanol</i> – 2 out of acetone:
Correct answer	$\text{H}_2$ ( <i>Ni</i> )
B	$\text{CH}_3\text{OH}$

C	$CH_3I$
D	$H\ CN$
E	$H\ COH$
№	krok 2009
Topic	Carbohydrates. Proteins. Lipids
Task	Galactose belongs to the aldehyde alcohols and similarly to aldehydes interacts with hydrocyanic acid ( $H\ CN$ ) according to the following mechanism:
Correct answer	$A_N$
B	$S_N\ 1$
C	$S_N\ 2$
D	$A_E$
E	$S_R$
№	krok 2009
Topic	Oxocompounds
Task	Identify the succinimide (succinic acid imide) among the given compounds:
Correct answer	
B	
C	$H_2N\ OC - CH_2 - CH_2 - CONH_2$
D	$H_2N\ OC - CH_2 - CH_2 - CH_2 - CONH_2$

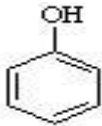
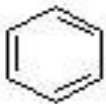
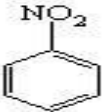
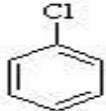
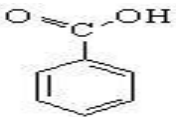
E	
№	krok 2009
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	By heating aniline with concentrated sulphuric acid the following compound can be obtained:
Correct answer	
B	
C	
D	

E	
№	krok 2009
Topic	Carbohydrates. Proteins. Lipids
Task	Glycosidic (hemiacetal) hydroxyl in a molecule of $\alpha$ -D-glucose pyranose is bonded to the following carbon atom:
Correct answer	C <sub>1</sub>
B	C <sub>2</sub>
C	C <sub>3</sub>
D	C <sub>4</sub>
E	C <sub>6</sub>
№	krok 2009
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Dark-violet colour appears, $FeCl_3$ solution is added when to the following substance:
Correct answer	
B	

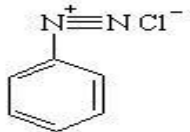
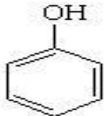
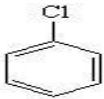


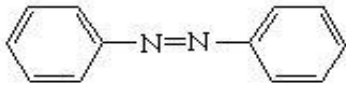
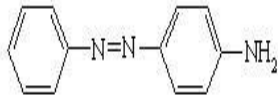
C	
D	
E	
№	krok 2009
Topic	Hydrocarbons
Task	General formula of alkynes is $C_n H_{2n-2}$ . Isomeric alkynes fall into the following compound class:
Correct answer	Alkadienes
B	Alkenes
C	Cycloalkanes
D	Mononuclear arenes
E	Multinuclear arenes
№	krok 2009
Topic	Oxocompounds
Task	Reaction of pyruvic acid in which the ketone functional group takes place proceeds with the following reagent
Correct answer	$H CN$

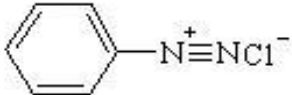
B	$NaOH$
C	$SOCl_2$
D	$FeCl_3$
E	$CH_3OH (H^+)$
№	krok 2009
Topic	Heterocyclic compounds
Task	Which of the following compounds has acidophobic properties?
Correct answer	Pyrrole
B	Pyrazole
C	Pyridine
D	Pyrimidine
E	Imidazole
№	krok 2009
Topic	Heterocyclic compounds
Task	What reagent can demonstrate presence of an aldehyde group in a furfural molecule?
Correct answer	$[Ag(NH_3)_2]OH$
B	$(CH_3CO)_2O$
C	$NaNO_2$
D	$NH_3$
E	$NaOH$
№	krok 2009
Topic	Oxocompounds
Task	What is the mechanism of addition reaction of ethanol to acetaldehyde?
Correct answer	$A_N$ nucleophylic addition
B	$A_E$ electrophylic addition
C	$S_E$ electrophylic addition

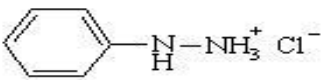
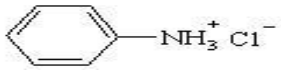
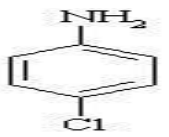
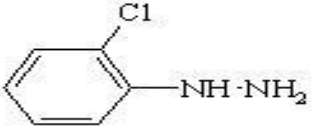
D	$S_N$ nucleophilic substitution
E	$S_R$ radical substitution
№	krok 2009
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	The highest bromination rate will be observed for the following compound:
Correct answer	
B	
C	
D	
E	

№	krok 2008
Topic	Oxocompounds
Task	A product of complete acetylation of glycerine relates to the following class of organic compounds:
Correct answer	Ester
B	Ether
C	Ketone
D	Acetal
E	Phenol
№	krok 2015
Topic	Heterocyclic compounds
Task	Quinoline reacts with the following reagent if heteroatom is present:
Correct answer	$N a N H_2$
B	$CH_4$
C	$C_2H_6$
D	$N a_2SO_4$
E	$N a N O_3$
№	krok 2015
Topic	Halogen- and nitrogen-containing hydrocarbons.
Task	Hydroxy hydrocarbons M. I. Konovalov's reaction is as follows:
Correct answer	$CH_4 + H N O_3(diluted) = CH_3N O_2 + H_2O$
B	$CH_4 + H_2SO_4 = CH_3SO_2OH + H_2O$
C	$2 C_2H_5Cl + 2N a = C_4H_{10} + 2N aCl$
D	$C_6H_6 + H N O_3(concentrated) = C_6H_5N O_2 + H_2O$
E	$CH_4 + Cl_2 = CH_3Cl + H Cl$
№	krok 2008

Topic	Oxocompounds
Task	Name a product of ester condensation of acetaldehyde (Tishchenko reaction):
Correct answer	Ethyl acetate
B	Acetone
C	Crotonic aldehyde
D	Malonic acid
E	Acetoacetic aldehyde
№	krok 2008
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	What compound will be produced as a result of interaction of aniline with nitrite acid?
Correct answer	
B	
C	

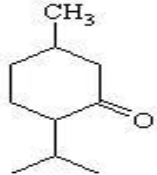
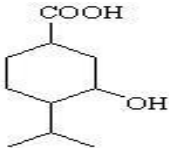
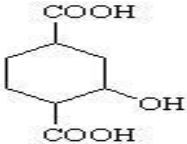
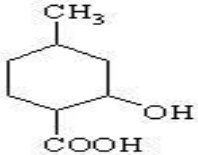
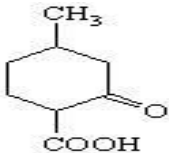
D	
E	
No	krok 2008
Topic	Oxocompounds
Task	What reagent enables differentiation of the following pair of compounds?
Correct answer	Foelling's reagent
B	$NaHSO_3$
C	$NH_2 - NH C_6H_5$
D	$H CN$
E	$H_2N - OH$
No	krok 2008
Topic	Hydrocarbons
Task	Which of the following reactions is addition reaction?
Correct answer	$CH_3-CH=CH_2 \xrightarrow{Br_2} \begin{array}{c} CH_3-CH-CH_2 \\   \quad   \\ Br \quad Br \end{array}$

B	$\text{CH}_3\text{-CH}=\text{CH}_2 \xrightarrow{\text{Cl}_2, t} \text{ClCH}_2\text{-CH}=\text{CH}_2 + \text{HCl}$
C	$\text{CH}_3\text{-CH}=\text{CH}_2 \xrightarrow[\text{KMnO}_4]{[\text{O}]} \begin{array}{c} \text{CH}_3\text{-CH-CH}_2 \\   \quad   \\ \text{OH} \quad \text{OH} \end{array}$
D	$n\text{CH}_3\text{-CH}=\text{CH}_2 \xrightarrow{t} \left[ \begin{array}{c} \text{CH-CH}_2 \\   \\ \text{CH}_3 \end{array} \right]_n$
E	$\begin{array}{l} \text{CH}_3\text{-CH}=\text{CH}_2 \xrightarrow{\text{O}_3} \begin{array}{c} \text{O} \quad \text{O} \\ \diagdown \quad / \\ \text{H}_3\text{C}-\text{C}-\text{C} \\ / \quad \backslash \\ \text{H} \quad \text{O} \end{array} \\ \xrightarrow{\text{Zn}+\text{CH}_3\text{COOH}} \begin{array}{c} \text{O} \\ // \\ \text{CH}_3-\text{C} \\   \\ \text{H} \end{array} + \begin{array}{c} \text{O} \\ // \\ \text{H}-\text{C} \\   \\ \text{H} \end{array} \end{array}$
№	krok 2008
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Choose a diazonium salt among the given compounds:
Correct answer	 $\text{C}_6\text{H}_5\text{-N}^+\equiv\text{NCl}^-$

B	
C	
D	
E	
№	krok 2008, 2010
Topic	Oxocompounds
Task	The given reaction is called:
Correct answer	Acylation
B	Esterification
C	Addition
D	Removal
E	Regrouping
№	krok 2008



Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Choose a generalized reaction that will help to reveal an amino group in the following compounds:
Correct answer	Isonitrile assay
B	Diazotization
C	Azo dye generation
D	Alkylation
E	Acylation
№	krok 2008
Topic	Heterocyclic compounds
Task	What denomination corresponds with the given formula?
Correct answer	Benzo [b] pyridine
B	Benzo [b] pyrone-4
C	Imidoazopyrimidine
D	Pyrazinopyrimidine
E	Benzothiazole
№	krok 2008
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	According to the IUPAC nomenclature the given compound has the following denomination:
Correct answer	1, 2, 3 – propanetriol
B	1 – propanol
C	2 – propanol
D	1 – propanethiol
E	1, 2 – propanediol
№	krok 2008
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Oxidation of menthol by potassium dichromate in sulfuric acid (chrome mixture) results in production of:

Correct answer	
B	
C	
D	
E	
№	krok 2008
Topic	Classification, nomenclature, isomerism of organic compounds
Task	Name type of bond between complementary bases:
Correct answer	Hydrogen bond
B	Covalent $\pi$ -bond

C	Ionic bond
D	Covalent $\sigma$ -bond
E	Semipolar bond
№	krok 2007
Topic	Oxocompounds
Task	What of the given reagents is applied for determination of aldehyde group?
Correct answer	$[Ag(NH_3)_2]OH$
B	$Br_2(H_2O)$
C	$Ca(OH)_2$
D	Solution of $KMnO_4$
E	25% solution of $H_2SO_4$
№	krok 2007
Topic	Hydrocarbons
Task	What compounds entered into a reaction if its products were nitrobenzene and water:
Correct answer	$C_6H_6 + HNO_3(K) \rightarrow$
B	$C_6H_6 + HNO_2 \rightarrow$

C	$C_6H_5Cl + KNO_2 \rightarrow$
D	$C_6H_5NH_2 + HNO_2 \rightarrow$
E	$C_6H_5OH + NaNO_2 \rightarrow$
№	krok 2007
Topic	Hydrocarbons
Task	What of the given reagents is applied for determination of aldehyde group?
Correct answer	$[Ag(NH_3)_2]OH$
B	$Br_2(H_2O)$
C	$Ca(OH)_2$
D	Solution of $KMnO_4$
E	25% solution of $H_2SO_4$
№	krok 2007
Topic	Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons
Task	Salicylic acid relates to the phenol acids. Presence of phenolic hydroxyl can be proved by means of reaction with:
Correct answer	$FeCl_3$

B	$NaOH$
C	$H_2SO_4$ (concentrated)
D	$CH_3COOH$ (ice)
E	$CH_3OH$ ( $H^+$ )
№	krok 2007
Topic	Oxocompounds
Task	Choose a reagent for production of an acetic acid hydrazide from ethyl acetate:
Correct answer	$H_2N NH_2$
B	$NH_3$
C	$H_2N CH_3$
D	$C_6H_5NH_2$
E	$C_6H_5NHNH_2$
№	krok 2007
Topic	Heterocyclic compounds
Task	<i>Pyridine can be characterized by reactions of (<math>\sigma E</math>) electrophilic and (<math>\sigma N</math>) nucleophilic substitution. Low reactivity of p</i>
Correct answer	Electron-acceptor properties of nitrogen atom
B	Aromatic nature of pyridine nucleus
C	Alkaline properties
D	Hybridization of carbon atoms
E	Cycle size
№	krok 2007
Topic	Oxocompounds
Task	Choose a reagent that can be used for generation of propanol-2 from acetone:
Correct answer	$H_2$

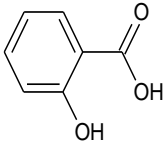
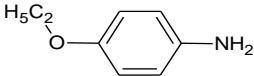
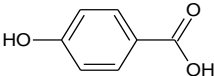
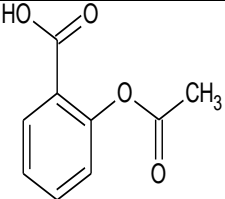
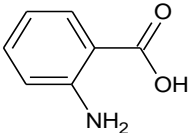
B	CH <sub>3</sub> OH
C	CH <sub>3</sub> I
D	H CN
E	<i>H COH</i>
№	krok 2007
Topic	Carbohydrates. Proteins. Lipids
Task	Three enumerated test tubes contain solutions of glucose, fructose and starch. What reagent can help to detect fructose?
Correct answer	Selivanov's
B	Lugol's
C	Fehling's
D	Chempure
E	Tollens'
№	krok 2007
Topic	Hydrocarbons
Task	What of the given compounds makes the reactions of electrophilic substitution ( $S_E$ ) the easiest?
Correct answer	Phenol
B	Toluol
C	Chlorobenzene
D	Benzaldehyde
E	Benzene sulfacid
№	krok 2007
Topic	Hydrocarbons
Task	What compound can be synthesized from bromobenzene and bromoethane by Wurtz-Fittig's reaction?
Correct answer	Ethylbenzene

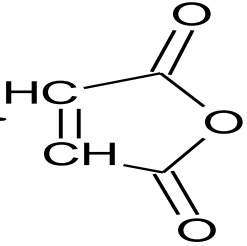
B	Methylbenzene
C	Bromoethyl benzene
D	O-Bromoethyl benzene
E	P-Diethylbenzene
№	krok 2007
Topic	Classification, nomenclature, isomerism of organic compounds
Task	One of the causes of optical activity is that molecule structure contains an organic compound:
Correct answer	Asymmetric carbon atom
B	Double bond
C	Triple bond
D	Functional group
E	Asymmetry plane
№	krok 2007
Topic	Oxocompounds
Task	Choose an initial compound for one-stage synthesis of phthalic acid:
Correct answer	O-xylol
B	Salicylic acid
C	1,2-dichlorobenzene
D	2-chlorobenzoic acid
E	M-xylol
№	krok 2007
Topic	Heterocyclic compounds
Task	What of the following compounds has acidofuge properties?
Correct answer	Pyrrrole
B	Pyrazole
C	Pyridine
D	Pyrimidine

E	Imidazole
№	krok 2007
Topic	Oxocompounds
Task	What substances can be derived by alkaline hydrolysis of tripalmitine?
Correct answer	Sodium palmitate and glycerin
B	Glycerin and palmitic acid
C	Palmitic acid and sodium hydroxide
D	Glycerin and sodium stearate
E	Sodium palmitate and water
№	krok 2007
Topic	Hydrocarbons
Task	Sulfation of naphthaline by concentrated sulfuric acid at the temperature over $160^{\circ}C$ leads to formation of:
Correct answer	2-naphthaline sulfacid
B	1-naphthaline sulfacid
C	3-naphthaline sulfacid
D	4-naphthaline sulfacid
E	5-naphthaline sulfacid
№	krok 2021
Topic	05 Heterocyclic compounds.
Task	Dibazol (Bendazol) is a hypotensive antispasmodic drug. Its mechanism of action is based on its ability to block phosphodiesterase type 4 enzyme activity. This drug contains the following heterocyclic compound:
Correct answer	Benzimidazole
B	Thiazole
C	Pyridine



D	Benzene
E	Pyrimidine
Автор	STEP – 2021
№	krok 2021
Topic	04 Oxy compounds.
Task	Acetylsalicylic acid is produced in the course of the following reaction:What type of reaction is it?
Correct answer	Acylation
B	Reduction
C	Elimination
D	Electrophilic substitution
E	Addition
№	krok 2021
Topic	02. Hydrocarbons
Task	Select an alicyclic hydrocarbon from the listed compounds:
Correct answer	Cyclohexene
B	Anthracene
C	Phenanthrene
D	Benzene
E	Naphthalene
№	krok 2021
Topic	02. Hydrocarbons
Task	What gas decolorizes bromine water?
Correct answer	Ethen
B	Ethane
C	Butane
D	Methane

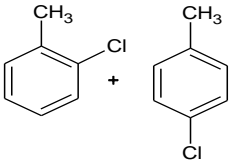
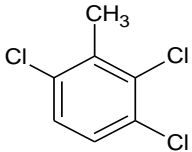
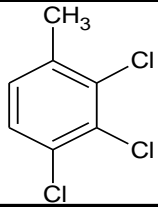
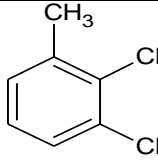
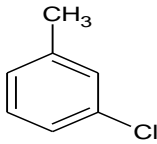
E	Propane
№	krok 2021
Topic	04 Oxy compounds.
Task	Salicylic acid derivatives are widely used in medicine. Specify the formula of salicylic acid:
Correct answer	
B	
C	
D	
E	
№	krok 2021

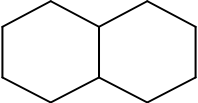
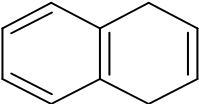
Topic	03 Subject Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.
Task	The end-product of heating bromoethane with an aqueous solution of potassium hydroxide is:
Correct answer	Ethanol
B	Ethanoic acid
C	Diethyl ether
D	Ethane
E	Ethene
№	krok 2021
Topic	02. Hydrocarbons
Task	Which of the following reactions is a substitution reaction?
Correct answer	$\text{C}_6\text{H}_6 + \text{Cl}_2 \xrightarrow{\text{FeCl}_3} \text{C}_6\text{H}_5\text{Cl} + \text{HCl}$
B	$\text{C}_6\text{H}_6 + \text{O}_2 \xrightarrow{\text{V}_2\text{O}_5} \text{HC} \begin{array}{l} \diagup \text{O} \\ \text{C} \\ \diagdown \text{O} \end{array} + \text{CO}_2 + \text{H}_2\text{O}$ 
C	$\text{C}_6\text{H}_6 + \text{O}_2 \longrightarrow \text{CO}_2 + \text{H}_2\text{O}$

D	$\text{C}_6\text{H}_6 + \text{Cl}_2 \xrightarrow{h\nu} \text{C}_6\text{H}_6\text{Cl}_6$
E	$\text{C}_6\text{H}_6 + 3\text{H}_2 \xrightarrow{t^\circ, \text{Ni}} \text{C}_6\text{H}_{12}$
No	krok 2021
Topic	02. Hydrocarbons
Task	Specify the Wurtz reaction among those given below:
Correct answer	$2\text{CH}_3\text{I} + 2\text{Na} \longrightarrow \text{H}_3\text{C}-\text{CH}_3 + 2\text{NaI}$
B	$\text{C}_2\text{H}_5\text{Br} + \text{Na}^+\text{O}^-\text{C}_3\text{H}_7 \longrightarrow \text{H}_5\text{C}_2-\text{O}-\text{C}_3\text{H}_7 + \text{NaBr}$
C	$\text{H}_3\text{C}-\text{CH}_2-\text{COONa} \xrightarrow{\text{NaOH fusion}} \text{H}_3\text{C}-\text{CH}_3$

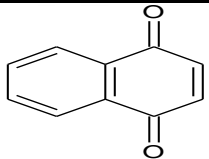
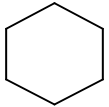
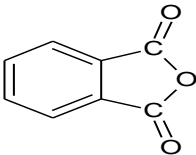
D	$2 \text{HC}\equiv\text{CH} + 2\text{H}_2 \xrightarrow{\text{t}^\circ} \text{H}_3\text{C}-\text{CH}_3$
E	$\text{H}_3\text{C}-\text{CH}_2-\text{Cl} + 2\text{HI} \longrightarrow \text{H}_3\text{C}-\text{CH}_3 + \text{I}_2 + \text{HCl}$
№	krok 2021
Topic	02. Hydrocarbons
Task	What numerical value must n have, so that the Huckel rule (4n+2) applies for anthracene?
Correct answer	n =3
B	n =0
C	n =1
D	n =2
E	n =10
№	krok 2021
Topic	04 Oxy compounds.
Task	Specify the scheme of biuret formation among the reactions given below:
Correct answer	$\begin{array}{c} \text{H}_2\text{N}-\text{C}-\text{NH}_2 \\ \parallel \\ \text{O} \end{array} + \begin{array}{c} \text{H}_2\text{N}-\text{C}-\text{NH}_2 \\ \parallel \\ \text{O} \end{array} \xrightarrow[\text{-NH}_3]{\text{t}^\circ} \begin{array}{c} \text{H}_2\text{N}-\text{C}-\text{NH}-\text{C}-\text{NH}_2 \\ \parallel \quad \parallel \\ \text{O} \quad \text{O} \end{array}$

B	$\text{Cl}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{Cl} + 2 \text{CH}_3\text{OH} \xrightarrow{-2\text{HCl}} \text{H}_3\text{CO}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{OCH}_3$
C	$\text{H}_2\text{N}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{NH}_2 + \text{C}_2\text{H}_5\text{I} \xrightarrow{-\text{HI}} \text{H}_2\text{N}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{NH}-\text{C}_2\text{H}_5$
D	$\text{H}_2\text{N}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{NH}_2 + \begin{array}{c} \text{O} \\ \parallel \\ \text{C}-\text{CH}_3 \\   \\ \text{Cl} \end{array} \xrightarrow{-\text{HCl}} \text{H}_2\text{N}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{NH}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{CH}_3$
E	$\text{Cl}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{Cl} + 2\text{NH}_3 \xrightarrow{-2\text{HCl}} \text{H}_2\text{N}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{NH}_2$
№	krok 2021
Topic	02. Hydrocarbons
Task	Benzene nitration occurs in the presence of:
Correct answer	Concentrated HNO <sub>3</sub> (concentrated H <sub>2</sub> SO <sub>4</sub> ) (nitrating mixture)
B	KNO <sub>2</sub>
C	NaNO <sub>2</sub> (excess HCl)
D	Diluted HNO <sub>3</sub> , t, p
E	CH <sub>3</sub> COONO <sub>2</sub>
№	krok 2021

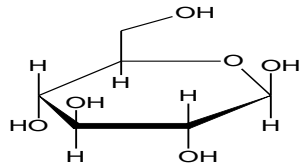
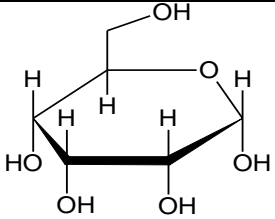
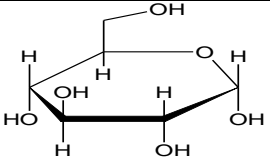
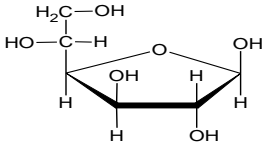
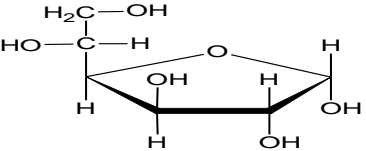
Topic	02. Hydrocarbons
Task	What compound will be produced as the result of toluene chlorination in the presence of FeCl <sub>3</sub> catalyst?
Correct answer	 <p>The image shows two chemical structures of chlorinated toluene isomers. On the left is o-chlorotoluene (1-methyl-2-chlorobenzene), where a benzene ring has a methyl group (CH<sub>3</sub>) at the top position and a chlorine atom (Cl) at the ortho position (position 2). On the right is p-chlorotoluene (1-methyl-4-chlorobenzene), where a benzene ring has a methyl group (CH<sub>3</sub>) at the top position and a chlorine atom (Cl) at the para position (position 4). A plus sign (+) is placed between the two structures.</p>
B	 <p>The image shows a benzene ring with a methyl group (CH<sub>3</sub>) at the top position. There are three chlorine atoms (Cl) attached to the ring at positions 2, 3, and 5.</p>
C	 <p>The image shows a benzene ring with a methyl group (CH<sub>3</sub>) at the top position. There are three chlorine atoms (Cl) attached to the ring at positions 2, 3, and 4.</p>
D	 <p>The image shows a benzene ring with a methyl group (CH<sub>3</sub>) at the top position. There are two chlorine atoms (Cl) attached to the ring at positions 2 and 4.</p>
E	 <p>The image shows a benzene ring with a methyl group (CH<sub>3</sub>) at the top position and a chlorine atom (Cl) at the meta position (position 3).</p>
No	krok 2021
Topic	03 Subject Halogen- and nitrogen-containing hydrocarbons. Hydroxy hydrocarbons.

Task	Dimethylethylamine belongs to:
Correct answer	Tertiary amines
B	Secondary amines
C	Quaternary ammonium salts
D	Primary amines
E	-
№	krok 2021
Topic	05 Heterocyclic compounds.
Task	What reagent must interact with pyridine to obtain 2-aminopyridine?
Correct answer	Sodium amide
B	Ammonium hydroxide
C	Ammonium chloride
D	Ammonia
E	Hydrazine
№	krok 2021
Topic	02. Hydrocarbons
Task	What compound is formed after complete hydrogenation of naphthalene?
Correct answer	
B	



C	
D	
E	
№	krok 2021
Topic	04 Oxy compounds.
Task	What name does this compound have in the IUPAC nomenclature?
Correct answer	3-Oxobutanoic acid
B	-
C	$\beta$ -Ketopropionic acid
D	Butyric acid
E	Butyraldehyde
№	krok 2021
Topic	04 Oxy compounds.
Task	Primary alcohols upon their oxidation form:

Correct answer	$\begin{array}{c} \text{O} \\ // \\ \text{R}-\text{C} \\ \backslash \\ \text{H} \end{array}$
B	$\begin{array}{c} \text{R}-\text{C}-\text{R} \\    \\ \text{O} \end{array}$
C	$\text{R}-\text{CH}_2-\text{O}-\text{CH}_2-\text{R}$
D	$\begin{array}{c} \text{O} \\ // \\ \text{R}-\text{C} \\ \backslash \\ \text{O}-\text{R} \end{array}$
E	$\begin{array}{c} \text{O} \quad \text{O} \\    \quad    \\ \text{R}-\text{C}-\text{C}-\text{R} \end{array}$
№	krok 2021
Topic	06 Carbohydrates. Proteins. Lipids.
Task	Which formula corresponds with $\beta$ - D-glucopyranose?

Correct answer	
B	
C	
D	
E	
№	krok 2021
Topic	04 Oxy compounds.
Task	Ethyl formate is produced in the result of the following reaction:

Correct answer	$\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} + \text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{H}_2\text{SO}_4}$
B	$\text{H}_5\text{C}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} + \text{CH}_3\text{OH} \xrightarrow{\text{H}_2\text{SO}_4}$
C	$\text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} + \text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{H}_2\text{SO}_4}$
D	$\text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} + \text{CH}_3\text{OH} \xrightarrow{\text{H}_2\text{SO}_4}$
E	$\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} + \text{CH}_3\text{OH} \xrightarrow{\text{H}_2\text{SO}_4}$
№	krok 2021
Topic	04 Oxy compounds.
Task	Which of the following compounds is a complex ether (an ester)?

Correct answer	$\text{CH}_3\text{COOCH}_3$
B	$\text{C}_2\text{H}_5\text{OH}$
C	$\text{C}_{15}\text{H}_{31}\text{COOH}$
D	$\text{CH}_3\text{-O-C}_2\text{H}_5$
E	$\text{CH}_3\text{-O-CH}_3$