№	krok 2023
Topic	General characteristics of enzymes
Task	In treatment of purulent wounds, a dressing with a certain immobilized enzyme is used. Name this enzyme.
Correct answer	Tripsin
B	Acid phosphatase
C	Catalase
D	Alkaline phosphatase
E	Arginase
№	krok 2023
Topic	Protein biosynthesis on ribosomes
Task	What enzyme catalyzes the reaction of activation of amino acids and their attachment to a specific tRNA?
Correct answer	Aminoacyl-tRNA synthetase
B	Deoxyribonuclease
C	Nucleotidase
D	DNA ligase
E	Ribonuclease
№	krok 2023
Topic	Hormones of the pancreas and adrenal medulla.
Task	and polyuria. What type of diabetes does this girl have?
Correct answer	Type 1 diabetes mellitus
B	Diabetes insipidus
C	-
D	Gestational diabetes
E	Type 2 diabetes mellitus

№	krok 2023
Topic	Hormones of the pancreas and adrenal medulla.
Task	hypertension. Blood biochemistry test detects significantly increased levels of catecholamines. What gland is
Correct answer	Adrenal medulla
B	Adenohypophysis
C	Neurohypophysis
D	Parathyroid glands
E	Adrenal cortex
№	krok 2023
Topic	Biochemical composition of human urine in health and disease.
Task	reabsorption?
Correct answer	10 mmol/L
B	1 mmol/L
C	5 mmol/L
D	20 mmol/L
E	15 mmol/L
№	krok 2023
Topic	Hemoglobin, structure, synthesis in the body.
Task	Nitrogen oxides can oxidize Fe^{2+} to Fe^{3+} in the hemoglobin molecule, creating a hemoglobin derivative that
Correct answer	Methemoglobin
B	Oxyhemoglobin
C	Deoxyhemoglobin
D	Carboxyhemoglobin
E	Carbhemoglobin
№	krok 2023

Topic	Biochemical characteristics and functions of blood.
Task	observed. What is the key factor in the mechanism of edema development, when there is not enough protein
Correct answer	Decrease of the albumin synthesis
B	Decrease of the hemoglobin synthesis
C	Increase of the albumin synthesis
D	Increase of the hemoglobin synthesis
E	Increase of the globulin synthesis
№	krok 2023
Topic	Specialized pathways for the exchange of individual amino acids.
Task	This phenomenon is caused by problems with synthesis of a certain substance. What substance is it?
Correct answer	Melanin
B	Phenylalanine
C	Tyrosine
D	Adrenaline
E	Thyroxine
№	krok 2023
Topic	Tissue, intracellular lipid metabolism
Task	fatty acids with an odd number of carbon atoms
Correct answer	Propionyl-CoA
B	Acetoacetyl-CoA
C	Oxymethylglutaryl-CoA
D	Stearoyl-CoA
E	Palmitoyl-CoA
№	krok 2023
Topic	Hormones of the pancreas and adrenal medulla.

Task	What hormone changes glucose levels in the blood and is produced in the pancreas?
Correct answer	Insulin
B	Growth hormone
C	Testosterone
D	Aldosterone
E	Somatostatin
№	krok 2023
Topic	Hormones of the pancreas and adrenal medulla.
Task	into lipids in the cells of adipose tissue. What process is involved in this transformation?
Correct answer	Synthesis of higher fatty acids
B	Heme synthesis
C	Gluconeogenesis
D	Lipolysis
E	Uric acid synthesis
№	krok 2023
Topic	Hormones of the pancreas and adrenal medulla.
Task	activated in this case?
Correct answer	Glycogen breakdown
B	Synthesis of fatty acids
C	Glycogen synthesis
D	Pentose phosphate pathway
E	Alcoholic fermentation
№	krok 2023
Topic	Thyroid and parathyroid hormones.
Task	What disorder can lead to the development of this syndrome?

Correct answer	Hypothyroidism
B	Hyperparathyroidism
C	Adrenal hypofunction
D	Hyperthyroidism
E	Hypoparathyroidism
№	krok 2023
Topic	Biosynthesis of purine and pyrimidine nucleotides
Task	compound is an intermediate product of the synthesis
Correct answer	Pyrimidine nucleotides
B	Bile acids
C	Glucose
D	Cholesterol
E	Ketone bodies
№	krok 2023
Topic	Водорозчинні вітаміни
Task	important functions of ascorbic acid in the human body?
Correct answer	Participation in hydroxylation reactions
B	Calcium absorption
C	Participation in hydrolysis reactions
D	Participation in phosphorylation reactions
E	Removal of cholesterol from the body
№	krok 2023
Topic	Alternative ways of exchange of monosaccharides.
Task	process maintains the concentration of NADPH that is necessary for the phagocytosis mechanism to occur.
Correct answer	Pentose phosphate pathway

B	Glycolysis
C	Uric acid synthesis
D	Cori cycle
E	Ornithine cycle
№	krok 2023
Topic	General characteristics of enzymes
Task	class of enzymes do they belong to?
Correct answer	Transferases
B	Ligases
C	Oxidoreductases
D	Lyases
E	Isomerases
№	krok 2023
Topic	Ammonia exchange in the human body.
Task	certain metabolite of the tricarboxylic acid cycle, forming glutamate and glutamine. What metabolite is it?
Correct answer	Alpha-ketoglutarate
B	Fumarate
C	Malate
D	Succinate
E	Citrate
№	krok 2023
Topic	Thyroid and parathyroid hormones.
Task	heart rate of 110/min. What hormone should be measured in the patient’s blood in this case?
Correct answer	Thyroxine
B	Insulin

C	Glucagon
D	Cortisol
E	Testosterone
№	krok 2023
Topic	General characteristics of enzymes
Task	What is the mechanism of action of a catalyst in a chemical reaction?
Correct answer	Reduces activation energy
B	Changes the degree of dispersion
C	Increases activation energy
D	Changes the nature of the reagents
E	Does not change the activation energy
№	krok 2023
Topic	Водорозчинні вітаміни
Task	Ascorutin is used in treatment of bleeding gums and punctate hemorrhages. What vitamin does it contain?
Correct answer	C
B	D
C	A
D	E
E	*K*
№	krok 2023
Topic	Hormones of the pancreas and adrenal medulla.
Task	Insulin is a pancreatic hormone with a hypoglycemic action. Chemically, it can be classified as a:
Correct answer	Polypeptide
B	Carbohydrate
C	Steroid

D	Nucleotide
E	Lipid
№	krok 2023
Topic	Specialized pathways for the exchange of individual amino acids.
Task	forms in skeletal muscles from pyruvate?
Correct answer	Transamination
B	Decarboxylation
C	Dehydrogenation
D	Phosphorylation
E	Isomerization
№	krok 2017,2016, 2014
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Parents of a 10-year-old child have made an appointment with an endocrinologist due to complaints of the child's low height. The child's appearance is corresponding with that of a 5-year-old. What hormone causes such changes in physical development, if its secretion is disturbed?
Correct answer	Somatotropic hormone
B	Adrenocorticotropic hormone
C	Thyroxin
D	Testosterone
E	Insulin
№	krok 2017, 2016
Topic	Carbohydrate metabolism and its regulation
Task	Purine ring biosynthesis occurs in ribose-5-phosphate through gradual accumulation of nitrogen and carbon atoms and closing of the rings. The source of ribose phosphate is the process of:
Correct answer	Pentose phosphate cycle
B	Glycolysis

C	Glyconeogenesis
D	Gluconeogenesis
E	Glycogenolysis
№	krok 2017
Topic	Fundamentals of molecular biology
Task	An oncological patient was prescribed fluorouracil that is a competitive inhibitor of thymidine synthase. It inhibits the process of:
Correct answer	Pyrimidine nucleotides synthesis
B	Carbohydrate disintegration
C	Purine nucleotides synthesis
D	Purine nucleotides disintegration
E	Lipids synthesis
№	krok 2017
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Catalysts are widely used in production of drugs. How can reaction acceleration in the presence of a catalyst be explained?
Correct answer	Activation energy decreases
B	Total collision frequency increases
C	Activation energy increases
D	Collision frequency decreases
E	Molecule speed increases
№	krok 2017
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Nicotinic acid amide fulfills important metabolic function. What disorder develops, when it is deficient in the organism?
Correct answer	Pellagra
B	Rickets

C	Anemia
D	Xerophthalmia
E	Beriberi
№	krok 2017
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
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 tricarboxylic acid cycle:
Correct answer	Oxaloacetic
B	Citric
C	Isocitric
D	Fumaric
E	Malic
№	krok 2017, 2016
Topic	Biochemistry of human nutrition. Value of nutrition
Task	An ophthalmologist has detected increased time of dark adaptation in a patient. What vitamin deficiency can result in such symptom?
Correct answer	*A*
B	*C*
C	*K*
D	B_1
E	B_6
№	krok 2017, 2016
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Natural peptides can perform various functions. What bioactive peptide is a major antioxidant and fulfills coenzyme functions?
Correct answer	Glutathione

B	Bradykinin
C	Oxytocin
D	Liberin
E	Anserine
№	krok 2017
Topic	Fundamentals of molecular biology
Task	Gout develops when purine nucleotide metabolism is disturbed. A doctor prescribed the patient allopurinol that is a competitive inhibitor of:
Correct answer	Xanthine oxidase
B	Succinate dehydrogenase
C	Alcohol dehydrogenase
D	Lactate dehydrogenase
E	Hexokinase
№	krok 2017
Topic	Biochemistry and pathobiochemistry of blood
Task	Hyperlipemia can be observed in 2-3 hours after eating fatty food. 9 hours later lipid content normalizes again. How can this condition be characterized?
Correct answer	Alimentary hyperlipemia
B	Transport hyperlipemia
C	Hyperplastic obesity
D	Retention hyperlipemia
E	Hypertrophic obesity
№	krok 2017
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient presents with icteric sclera and mucous tunics; urine is dark; feces are light-colored. Blood content of direct and indirect bilirubin is increased, urine content of direct bilirubin is increased. What pathology can be characterized by these signs?

Correct answer	Obstructive jaundice
B	Hemolytic jaundice
C	Hepatocellular jaundice
D	Jaundice of the newborn
E	Atherosclerosis
№	krok 2017
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	During practice in the laboratory the students had been investigating *in vitro* , how malonate affects enzymes of tricarboxylic acid cycle. They detected accumulation of the following metabolite:
Correct answer	Succinate
B	Malate
C	Isocitrate
D	Fumarate
E	Succinyl-CoA
№	krok 2017
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient suffers from hyperchromic B_{12}-deficiency anemia. What vitamin preparation should be prescribed in this case?
Correct answer	Cyanocobalamin
B	Riboflavin
C	Vicasol (Menadione)
D	Thiamine chloride
E	Retinol acetate
№	krok 2017
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation

Task	A sanitary-epidemic station employee has been poisoned when the premices were processed with an organophosphorous insecticide. What enzyme is inhibited by organophosphorous compounds?
Correct answer	Acetylcholinesterase
B	Lactate dehydrogenase
C	Xanthine oxidase
D	Catalase
E	Pepsin
№	krok 2017
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Indican excretion is a diagnostic criterion of intencified protein putrefaction in the intestine. Name the end product of tryptophan ”decay” occurring in the large intestine:
Correct answer	Indole
B	Putrescine
C	Benzoic acid
D	Mercaptan
E	Hydrogen sulfide
№	krok 2017, 2016, 2015
Topic	Biochemistry and pathobiochemistry of blood
Task	The second stage of detoxification involves joining certain chemical compounds with functional groups of toxines. Select one such compound:
Correct answer	Glucuronic acid
B	Higher fatty acids
C	Cholesterol
D	Glucose
E	Pyruvate
№	krok 2017, 2015
Topic	Biochemistry of human nutrition. Value of nutrition

Task	A 5-year-old child presents with abdominal distension, abdominal cramps, and diarrhea occurring 1-4 hours after drinking milk. Described symptoms are caused by the lack of enzymes that break up:
Correct answer	Lactose
B	Glucose
C	Maltose
D	Saccharose
E	Fructose
№	krok 2017
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Avidin - an egg white protein - inhibits reception of biotin (carboxylase coenzyme) by the body. What reaction will be blocked by avidin administration?
Correct answer	CO_2 attachment to pyruvate
B	NH_3 attachment to glutamate
C	NH_3 detachment from glutamine
D	Detachment of phosphate residuals
E	Beta-oxidation of fatty acids
№	krok 2017
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Main process of ammonia neutralization occurs in the liver. Arginine decomposition reaction that produces urea as a result is catalyzed with arginase. What group of enzymes does arginase belong to?
Correct answer	Hydrolases
B	Synthetases
C	Oxidoreductases
D	Transferases
E	Isomerases
№	krok 2017

Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Eicosanoids synthesis begins with freeing polyene acids from membrane phospholipids by means of a specific phospholipase. Name this enzyme:
Correct answer	Phospholipase A2
B	Cyclooxygenase
C	Phospholipase C
D	Protein kinase
E	Arginase
№	krok 2017
Topic	Carbohydrate metabolism and its regulation
Task	A patient presents with hypoxia. What metabolic process activates when oxygen supply is insufficient?
Correct answer	Anaerobic glycolysis
B	Urea cycle
C	Pentose-phosphate pathway
D	Oxidative decarboxylation of keto acids
E	Tricarboxylic acid cycle
№	krok 2017
Topic	Biochemistry of human nutrition. Value of nutrition
Task	For cardiovascular disease prevention the patient was recommended to take vitamin F . What is the chemical nature of this vitamin?
Correct answer	Complex of polyunsaturated fatty acids
B	Cholesterol derivative
C	Polysaccharide complex
D	Amino acids complex
E	Carotin derivative
№	krok 2017
Topic	Biochemistry of human nutrition. Value of nutrition

Task	Increased concentration of active oxygen forms is a mechanism of pathogenesis in a number of diseases. To prevent this process, antioxidants are prescribed. Select an antioxidant from the list below:
Correct answer	Alpha-tocopherol
B	Glucose
C	Calciferol
D	Cobalamine
E	Glicerol
№	krok 2017
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	In a human body there occur numerous reactions of direct interaction between substrate and molecular oxygen. What enzyme catalyzes attachment of two oxygen atoms to the substrate?
Correct answer	Dioxygenase
B	Catalase
C	Monooxygenase
D	Superoxide dismutase
E	Glutathione reductase
№	krok 2017
Topic	Fundamentals of molecular biology
Task	A 55-year-old man came to a doctor with complaints of acute pain in his big toes. Meat and wine remain permanently in his diet. The doctor suspects gout. What substance must be measured in the patient’s blood to confirm this diagnosis?
Correct answer	Uric acid
B	Urea
C	Lactate
D	Bilirubin
E	Ketone bodies
№	krok 2017

Topic	Biochemistry and pathobiochemistry of blood
Task	Hemoglobin break-up begins in the cells of reticuloendothelial system. What enzyme catalyzes the reduction reaction of biliverdine into bilirubin?
Correct answer	Biliverdine reductase
B	Beta-glucuronidase
C	Xanthine oxidase
D	Heme oxygenase
E	Hexokinase
№	krok 2016, 2015
Topic	Lipids metabolism and its regulation
Task	In snake venom there is a substance that causes erythrocyte hemolysis, when it is introduced into a human organism. Blood test revealed a large amount of lysolecithin (lysophosphatidylcholine). What enzyme leads to accumulation of lysolecithin in blood?
Correct answer	Phospholipase A2
B	Phospholipase A1
C	Phospholipase C
D	Phospholipase D
E	Neuraminidase
№	krok 2016
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A patient complains of tachycardia, insomnia, weight loss, irritability, sweating. Objectively: the patient has goiter and slight exophthalmos. What gland is affected, and what functional disorder is it?
Correct answer	Hyperthyroidism
B	Hypothyroidism
C	Hyperparathyroidism
D	Hypoparathyroidism
E	Adrenomedullary hyperfunction

№	krok 2016, 2015
Topic	Fundamentals of molecular biology
Task	What enzyme allows for synthesis of various genes from template-RNA to DNA in genetic engineering (this enzyme catalyzes the process discovered in RNA-viruses)?
Correct answer	Reverse transcriptase
B	Exonuclease
C	DNA-ligase
D	Helicase
E	Endonuclease
№	krok 2016
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Diet of an individual must contain vitamins. What vitamin is usually prescribed for treatment and prevention of pellagra?
Correct answer	Vitamin *P P*
B	Vitamin *C*
C	Vitamin *A*
D	Vitamin B_1
E	Vitamin *D*
№	krok 2016, 2013, 2012
Topic	Lipids metabolism and its regulation
Task	Intracellular metabolism of glycerol starts with its activation. What compound is formed in the first reaction of its conversion?
Correct answer	α-glycerolophosphate
B	Pyruvate
C	Lactate
D	Choline

E	Acetyl coenzyme A
№	krok 2016
Topic	Fundamentals of molecular biology
Task	Accidental ingestion of death cap mushrooms containing α-amanitin causes intoxication. What enzyme is inhibited with this toxine?
Correct answer	RNA polymerase II
B	DNA polymerase
C	DNA synthetase
D	Peptidyl transferase
E	Translocase
№	krok 2016
Topic	Biochemistry and pathobiochemistry of blood
Task	A 70-year-old patient presents with cardiac and cerebral atherosclerosis. Examination revealed changes of blood lipid spectre. Increase of the following lipoproteins plays a significant role in atherosclerosis pathogenesis:
Correct answer	Low-density lipoproteins
B	Very low-density lipoproteins
C	Intermediate density lipoproteins
D	High-density lipoproteins
E	Chylomicrons
№	krok 2016
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient demonstrates milky-white color of blood plasma due to high content of chylomicrons. Disintegration of triacylglycerol is disrupted. Deficiency of the following enzyme activity is observed:
Correct answer	Lipoprotein lipase
B	Amylase
C	Tripsin

D	Cholesterol esterase
E	Lactase
№	krok 2016, 2015
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A woman noticed that a cut on her skin was still bleeding even after minutes had passed. What vitamin deficiency causes such condition?
Correct answer	Vitamin *K*
B	Vitamin *A*
C	Vitamin *D*
D	Vitamin *E*
E	Vitamin B_{12}
№	krok 2016, 2015, 2013
Topic	Biochemistry of human nutrition. Value of nutrition
Task	After drinking milk a 1-year-old child developed diarrhea, flatulence. The baby is likely to have deficiency of the following enzyme:
Correct answer	Lactase
B	Maltase
C	Aldolase
D	Hexokinase
E	Glycosidase
№	krok 2016
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Patients with severe serotonin levels in brain and cerebrospinal fluid. What aminoacid is a serotonin
Correct answer	Tryptophan
B	Threonine
C	Tyrosine

D	Glutamic acid
E	Aspartic acid
№	krok 2016
Topic	Lipids metabolism and its regulation
Task	Fatty acids synthesis occurs in human body. What compound is initial in this process?
Correct answer	Acetyl coenzyme A
B	Vitamin *C*
C	Glycine
D	Succinate
E	Cholesterol
№	krok 2016, 2015, 2014
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient has icteric skin; unconjugated bilirubin content in blood is high; conjugated bilirubin in urine is not detected. There is significant amount of urobilin in urine and stercobilin in feces. Name the pathology characterized by given symptoms:
Correct answer	Hemolytic jaundice
B	Obstructive jaundice
C	Jaundice of the newborn
D	Hepatocellular jaundice
E	Atherosclerosis
№	krok 2016, 2015, 2011
Topic	Functional and clinical biochemistry of organs and tissues
Task	A 46-year-old patient was found to have hyperactivity of creatine kinase in the blood serum. What pathology can be suspected?
Correct answer	Myocardial infarction
B	Acute pancreatitis
C	Chronic hepatitis

D	Hemolytic anemia
E	Renal failure
№	krok 2016
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient consulted an ophthalmologist about deterioration of twilight vision and xerophthalmus. What drug should the doctor prescribe?
Correct answer	Retinol
B	Pyridoxine
C	Tocopherol
D	Ascorbic acid
E	Cocarboxylase
№	krok 2016
Topic	Fundamentals of molecular biology
Task	Interferons are natural antiviral and antitumor agents. What is their mechanism of action?
Correct answer	Protein synthesis depression
B	Protein synthesis increase
C	Replication activation
D	Transcription activation
E	Repair activation
№	krok 2016
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient demonstrates symmetrical dermatitis on the palms. A doctor made a diagnosis of pellagra. What vitamin deficiency can result in such symptoms?
Correct answer	Nicotinic acid
B	Cobalamin
C	Ascorbic acid
D	Folic acid

E	Cholecalciferol
№	krok 2016
Topic	Biochemistry and pathobiochemistry of blood
Task	A woman complains of nausea, vomiting, skin itch. She was diagnosed with mechanical jaundice. What is the possible cause of skin itch in such a condition?
Correct answer	Bile acids accumulating in the blood
B	Increased blood content of indirect bilirubin
C	Cholesterol accumulating in the blood
D	Direct bilirubin appearing in the blood
E	Erythrocyte disintegration products accumulating in the blood
№	krok 2016
Topic	Fundamentals of molecular biology
Task	Disintegration of adenosine nucleotides results in release of ammonia. What enzyme plays the key role in ammonia synthesis from these compounds?
Correct answer	Adenosine deaminase
B	Alcohol dehydrogenase
C	Lactate dehydrogenase
D	Alanine transaminase
E	Amylase
№	krok 2016
Topic	Fundamentals of molecular biology
Task	A patient undergoes chemotherapy with 5-fluorouracil that is a competitive inhibitor of thymidilate synthase. What process is inhibited by this drug?
Correct answer	Thymidine monophosphate synthesis
B	Purine nucleotides disintegration
C	Adenosine triphosphate synthesis
D	Purine nucleotides salvage

E	Glucose synthesis
№	krok 2015
Topic	Biochemistry and pathobiochemistry of blood
Task	Universal system of biological oxidation of nonpolar compounds (numerous drugs, toxic agents, steroid hormones, cholesterol) is microsomal oxidation. Name the cytochrome that is included in oxygenase chain of microsomes:
Correct answer	Cytochrome P-450
B	Cytochrome C
C	Cytochrome A3
D	Cytochrome A
E	Cytochrome C1
№	krok 2015
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Diet of a human must contain vitamins. What vitamin is usually prescribed for treatment and prevention of pellagra?
Correct answer	Vitamin PP
B	Vitamin C
C	Vitamin A
D	Vitamin B_1
E	Vitamin D
№	krok 2015
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	A man presents with signs of albinism: blonde hair, extreme photosensitivity, impaired vision. What amino acid metabolism is disrupted in the patient?
Correct answer	Tyrosine
B	Methionine

C	Proline
D	Histidine
E	Valine
№	krok 2015
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Substrate-linked phosphorylation occurs in the cycle of tricarboxylic acids. What compound takes part in this reacti-on?
Correct answer	Succinyl coenzyme A
B	α-ketoglutarate
C	Acetyl coenzyme A
D	Succinate
E	Malate
№	krok 2015, 2011
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Inhibition of the synthesis of bile acids from cholesterol in liver of an experimental animals has caused maldigestion of lipids. What is the role of these acids in the enteral lipidic metabolism?
Correct answer	They emulsify dietary lipids
B	They keep balance of alkaline environment in the intestines
C	They participate in the synthesis of lipids
D	They are part of LDL
E	They activate the formation of chylomicrons
№	krok 2015, 2013
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	In response to the administration of protein drugs, a patient developed an allergic reaction. The development of the allergic reaction is caused by the increased synthesis of the following compound:
Correct answer	Histamine
B	Choline

C	Adrenaline
D	Histidine
E	Serotonin
№	krok 2015
Topic	Fundamentals of molecular biology
Task	A patient complains of pain in the small joints. High concentration of uric acid is detected in his blood plasma. What pathology causes such changes?
Correct answer	Gout
B	Diabetes mellitus
C	Phenylketonuria
D	Lesch-Nyhan syndrome
E	Diabetes insipidus
№	krok 2015, 2013
Topic	Biochemistry and pathobiochemistry of blood
Task	Hemoglobin catabolism results in release of iron which is transported to the bone marrow by a certain transfer protein and is used again for the synthesis of hemoglobin. Specify this transfer protein:
Correct answer	Transferrin (siderophilin)
B	Transcobalamin
C	Haptoglobin
D	Ceruloplasmin
E	Albumin
№	krok 2015, 2011
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient has a mental disorder due to the insufficient synthesis of gamma-aminobutyric acid in the brain. Such pathological changes might be caused by the deficiency of the following vitamin:
Correct answer	Pyridoxine
B	Tocopherol

C	Cyanocobalamin
D	Folic acid
E	Riboflavin
№	krok 2015
Topic	Lipids metabolism and its regulation
Task	Fatty acids arrive into mitochondria, and there their oxidation occurs. Name the vitamin-like substance that takes part in transportation of fatty acids through mitochondrial membrane:
Correct answer	Carnitine
B	Choline
C	Biotin
D	Pantothenic acid
E	Folic acid
№	krok 2014
Topic	Biochemistry of human nutrition. Value of nutrition
Task	In large intestine microorganisms synthesize vitamins that participate in organism's biochemical processes. What vitamins are mainly synthesized by microflora?
Correct answer	K, B_{12}
B	A, C
C	E, $P\,P$
D	B_1, B_2
E	B_6, E
№	krok 2014
Topic	Biochemistry of human nutrition. Value of nutrition
Task	During gastric secretory function research decrease of hydrochloric acid concentration in gastric juice was detected. What enzyme will be less active in such a condition?
Correct answer	Pepsin

B	Amylase
C	Lipase
D	Dipeptidase
E	Hexokinase
№	krok 2014
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Information transfer from peptide hormones to intracellular second messengers occures involving adenylate cyclase. What reaction is catalyzed by adenylate cyclase?
Correct answer	Cyclic adenosine monophosphate production
B	ATP breakdown into ADP and inorganic phosphate
C	ATP synthesis from adenosine monophosphate and pyrophosphate
D	ADP breakdown with adenosine monophosphate and inorganic phosphate production
E	ATP breakdown into adenosine monophosphate and pyrophosphate
№	krok 2014
Topic	Biochemistry and pathobiochemistry of blood
Task	When hydrogen peroxide solution is administered to bleeding wounds, it is broken up by one of the blood enzymes. Point out this enzyme.
Correct answer	Catalase
B	Monoamine oxidase
C	Cytochrome oxidase
D	Aspartate aminotransferase
E	Lactate dehydrogenase
№	krok 2014
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Catabolism of body’s own tissue proteins is intensified during such diseases as thyrotoxicosis and tuberculosis. This process is attended by intensive synthesis in liver and subsequent excretion with urine of the following:

Correct answer	Urea
B	Glucose
C	Acetone bodies
D	Fatty acids
E	Nucleotides
№	krok 2014
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Natural peptides can carry out various functions. What biologically active peptide is one of the main antioxidants and carries out coenzyme functions?
Correct answer	Glutathione
B	Bradykinin
C	Oxytocin
D	Releasing hormone (Liberine)
E	Anserine
№	krok 2014
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Tetanic spasms of skeletal muscles occur under low calcium concentration in blood. What endocrine disorder can this condition be associated with?
Correct answer	Hypofunction of parathyroid glands
B	Hyperfunction of adrenal cortex
C	Hypofunction of adrenal cortex
D	Hyperthyroidism
E	Hypothyroidism
№	krok 2014
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Eicosanoids, - hormone-like compounds, - are used to stimulate labor and for contraception. What substances have such an effect?

Correct answer	Prostaglandines
B	Interleukines
C	Endorphines
D	Angiotensines
E	Enkephalines
№	krok 2014
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	L-DOPA and its derivatives are used in treatment of Parkinson's disease. What aminoacid is this substance made of?
Correct answer	Tyrosine
B	Asparagine
C	Glutamate
D	Tryptophan
E	Arginine
№	krok 2014
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Milk intake has resulted in the one-year-old child having diarrhea and abdominal distension. What enzyme deficiency does the child have?
Correct answer	Lactase
B	Maltase
C	Aldolase
D	Hexokinase
E	Glycosidase
№	krok 2014, 2013, 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	The 56-year-old patient has developed megaloblastic anemia in the course of alcoholic cirrhosis. What vitamin deficiency is the main cause of anemia in this patient?

Correct answer	Folic acid
B	Lipoic acid
C	Biotin
D	Thiamine
E	Pantothenic acid
№	krok 2014
Topic	Lipids metabolism and its regulation
Task	Ketoacidosis occurs during starvation. What metabolite blood concentration increase is symptomatic of this medical condition?
Correct answer	Acetoacetate
B	Oxaloacetate
C	Malonate
D	Beta-hydroxy-beta-methylglutaryl-CoA
E	Acetyl-CoA
№	krok 2014
Topic	Lipids metabolism and its regulation
Task	The patient with myocardial infarction has been prescribed statines, cholesterol synthesis inhibitors, to prevent complications. What enzyme activity is suppressed by these medicines?
Correct answer	Beta-GHB-reductase
B	Hydroxylase
C	Lecithin-cholesterol acyltransferase
D	Esterase
E	Oxygenase
№	krok 2014
Topic	Fundamentals of molecular biology
Task	Streptomycin and other ami-noglycosides by binding with 30S-subunit of ribosome prevents formylmethionyl-tRNA joining. What process is disrupted due to this effect?

Correct answer	Translation initiation
B	Translation termination
C	Transcription initiation
D	Transcription termination
E	Replication initiation
№	krok 2014
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	The patient has hypovitaminosis PP. What amino acid taken with meals partially compensates patient's need for vitamin PP?
Correct answer	Tryptophan
B	Phenylalanine
C	Valine
D	Arginine
E	Methionine
№	krok 2014
Topic	Biochemistry and pathobiochemistry of blood
Task	The patient with mushroom poisoning has developed the following symptoms: yellow coloring of skin and sclera, dark-colored urine. Hemolytic jaundice was diagnosed. What pigment causes such coloring of the patient's urine?
Correct answer	Stercobilin
B	Conjugated bilirubin
C	Biliverdin
D	Unconjugated bilirubin
E	Verdohemoglobin
№	krok 2014
Topic	Fundamentals of molecular biology

Task	During long-term carbon tetrachloride poisoning of animals significant activity drop of aminoacyl tRNA synthetase in hepatocytes was detected. What metabolic process is disrupted in this case?
Correct answer	Protein biosynthesis
B	DNA replication
C	RNA transcription
D	Post-translational modification of peptides
E	Post-transcriptional modification of RNA
№	krok 2014
Topic	Biochemistry of human nutrition. Value of nutrition
Task	The poultry factory worker, who has been consuming 5 or more raw eggs daily, complains of weakness, drowsiness, muscle pain, loss of hair, seborrhea. What vitamin deficiency causes such condition?
Correct answer	*H* (biotin)
B	*C* (ascorbic acid)
C	*A* (retinol)
D	B_1 (thiamine)
E	B_2 (riboflavin)
№	krok 2014
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Oligomycin antibiotic is prescribed to the patient with tuberculosis. What mitochondrial process is slowed down by this medicine?
Correct answer	Oxidative phosphorylation
B	Substrate-linked phosphorylation
C	Microsomal oxidation
D	Lipid peroxidation
E	Oxidative decarboxylation
№	krok 2014

Topic	Carbohydrate metabolism and its regulation
Task	Cataract (lenticular opacity) has developed in the 52-year-old female patient with pancreatic diabetes. What process intensification has caused lenticular opacity?
Correct answer	Protein glycosylation
B	Lipolysis
C	Ketogenesis
D	Protein proteolysis
E	Gluconeogenesis
№	krok 2014
Topic	Biochemistry and pathobiochemistry of blood
Task	Detoxication rate is 4 times lower in children than in adults. What enzyme necessary for toxic compounds conjugation has low activity in children?
Correct answer	Glucuronosyltransferase
B	ALAT
C	AspAT
D	Creatine phosphokinase
E	LDH_1
№	krok 2014
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Barbiturates are used as soporifics. These substances, similarly to rotenone, are tissue respiration inhibitors. What complex level do these compounds suppress respiratory chain at?
Correct answer	NADH-coenzyme Q reductase
B	Cytochrome oxidase
C	Cytochrome C reductase
D	Adenosine triphosphate synthetase
E	Succinate dehydrogenase

№	krok 2014
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Inhibitors of one of the amides metabolism enzymes are used to treat depression. What enzyme inhibition has such an effect?
Correct answer	Flavin adenine dinucleotide (FAD)-containing monoamine oxidase (MAO)
B	Acetylcholinesterase
C	Formylkynureninase (Arylformami-dase)
D	Kynurenine 3-hydroxylase
E	Lactate dehydrogenase
№	krok 2014
Topic	Biochemistry of human nutrition. Value of nutrition
Task	The patient has mucosal dryness and mesopic vision disorder. What vitamin deficiency causes these symptons?
Correct answer	*A*
B	*P*
C	*E*
D	*C*
E	*D*
№	krok 2013, 2012
Topic	Fundamentals of molecular biology
Task	A patient with ischemic heart disease has been administered inosine which is an intermediate metabolite in the synthesis of:
Correct answer	Purine nucleotides
B	Metalloproteins
C	Lipoproteins
D	Glycoproteins
E	Ketone bodies

№	krok 2013
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Chronic pancreatitis is accompanied by the decreased synthesis and secretion of trypsin. This impairs the hydrolysis and absorption of the following substances:
Correct answer	Proteins
B	Lipids
C	Polysaccharides
D	Nucleic acids
E	Disaccharides
№	krok 2013
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Sulfanilamides inhibit the growth and development of bacteria. The mechanism of their action is based on the impairment of the following acid synthesis:
Correct answer	Folic
B	Lipoic
C	Nicotinic
D	Pantothenic
E	Pangamic
№	krok 2013
Topic	Biochemistry of human nutrition. Value of nutrition
Task	During the gastric secretion, proteolytic enzymes are secreted in form of zymogens. What enzyme is activated by hydrochloric acid?
Correct answer	Pepsin
B	Trypsin
C	Amylase
D	Lipase
E	Chymotrypsin

№	krok 2013
Topic	Fundamentals of molecular biology
Task	A child exhibits physical and mental retardation. Urine analysis revealed high concentration of orotic acid. This disease can be addressed by the constant use of:
Correct answer	Uridine
B	Adenine
C	Guanine
D	Glutamine
E	Alanine
№	krok 2013
Topic	Fundamentals of molecular biology
Task	The antitumor preparation Methotrexate is a structural analogue of folic acid. The mechanism of its action is based on the inhibition of the following enzyme:
Correct answer	Dihydrofolate reductase
B	Xanthine oxidase
C	Hexokinase
D	Creatine kinase
E	Lactate dehydrogenase
№	krok 2013
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Addison’s (bronze) disease is treated with glucocorticoids. Their effect is provided by the potentiation of the following process:
Correct answer	Gluconeogenesis
B	Glycolysis
C	Pentose phosphate cycle
D	Glycogenolysis
E	Ornithine cycle

№	krok 2013, 2012
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Food rich in carbohydrates at first increases the blood sugar and then decreases its rate due to the insulin action. What process is activated by this hormone?
Correct answer	Synthesis of glycogen
B	Gluconeogenesis
C	Breakdown of glycogen
D	Breakdown of proteins
E	Breakdown of lipids
№	krok 2013
Topic	Biochemistry of human nutrition. Value of nutrition
Task	It is known that malonyl CoA is formed from acetyl CoA and carbon dioxide under the influence of acetyl CoA carboxylase. What vitamin is a coenzyme of this enzyme?
Correct answer	Biotin
B	Folic acid
C	Pantothenic acid
D	Ascorbate
E	Thiamine
№	krok 2013
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Vitamin B_1 deficiency has a negative effect on a number of processes. This is caused by the dysfunction of the following enzyme:
Correct answer	Pyruvate dehydrogenase complex
B	Aminotransferase
C	Succinate dehydrogenase
D	Glutamate

E	Lactate dehydrogenase
№	krok 2013
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	A child with PKU has an unpleasant mouse-like odor, growth retardation, mental retardation.These symptoms are associated with the high concentration of the following substance in blood:
Correct answer	Phenylpyruvic acid
B	Glucose
C	Cholesterol
D	Adrenaline
E	Uric acid
№	krok 2013
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A 40-year-old male presented to the endocrinology department with disproprortionate enlargement of limbs, mandible and nose. These manifestations are caused by the overproduction of the following hormone:
Correct answer	Somatostatin
B	Corticotropin
C	Aldosterone
D	Adrenaline
E	Vasopressin
№	krok 2013
Topic	Lipids metabolism and its regulation
Task	Diabetes and starvation cause the excess production of ketone bodies that are used as an energy source. They are produced from the following compound:
Correct answer	Acetyl-CoA
B	Isocitrate
C	Lactate
D	Malate

E	Ketoglutarate
№	krok 2013
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient complains of severe abdominal pain, cramps, blurred vision. His relatives exhibit the same symptoms. The urine is of red colour. The patient has been hospitalized for acute intermittent porphyria. This disease might have been caused by the impaired synthesis of the following compound:
Correct answer	Heme
B	Insulin
C	Bile acids
D	Prostaglandins
E	Collagen
№	krok 2013
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	A patient with Parkinson's disease exhibits low level of dopamine which is produced from dihydroxyphenylalanine (DOPA). What enzyme catalyzes this conversion?
Correct answer	Decarboxylase
B	Deaminase
C	Hydrolase
D	Aminotransferase
E	Carboxypeptidase
№	krok 2013
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient exhibits small (petechial) hemorrhages under the skin and mucous membranes, bleeding gums, tooth decay, general weakness, edemata of the lower extremities. What vitamin deficiency can be suspected?
Correct answer	*C*
B	B_1

C	*A*
D	*D*
E	*E*
№	krok 2013
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A parturient woman diagnosed with uterine inertia has been delivered to the maternity ward. The doctor gave her an injection of the drug that activates the contraction of smooth muscles of the uterus. What hormone is a component of this drug?
Correct answer	Oxytocin
B	Gastrin
C	Secretin
D	Angiotensin
E	Bradykinin
№	krok 2012
Topic	Introduction to biochemistry. Enzymes and coenzymes. Metabolism regulation
Task	Rates of chemical reactions of the same order are compared by:
Correct answer	Constant of chemical reaction rate
B	Chemical reaction rate
C	Endpoint of a reaction
D	Change in the reactants concentration
E	Change in the concentration of the reaction products
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Amylolytic enzymes catalyze the hydrolysis of polysaccharides and oligosaccharides. They have an effect upon the following chemical bond:
Correct answer	Glycosidic
B	Hydrogen

C	Peptide
D	Amide
E	Phosphodiester
№	krok 2012
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Depressive states can be treated by means of drugs inhibiting the enzyme that inactivates biogenic amines. Specify this enzyme:
Correct answer	MAO (monoamine oxidase)
B	LDH (lactate dehydrogenase)
C	CPK (creatine phosphokinase)
D	AST (aspartate aminotransferase)
E	ALT (alanine aminotransferase)
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Proteolytic enzymes of gastric juice exhibit maximum activity in the medium with the following pH:
Correct answer	pH 3,2-3,5
B	pH 6,5
C	pH 7,0
D	pH 9,0
E	pH 0,5-1,0
№	krok 2012
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Urine analysis revealed a decrease in sodium ion concentration. Which hormone provides an enhanced reabsorption of sodium ions in the convoluted nephron tubules?
Correct answer	Aldosterone
B	Vasopressin
C	Somatostatin

D	Adrenaline
E	Acetylcholine
№	krok 2012
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A 40-year-old patient has developed polyuria (10-12 liters per day) and polydipsia induced by damage to the hypothalamo-hypophyseal tract. What hormone deficiency causes such disorders?
Correct answer	Vasopressin
B	Oxytocin
C	Corticotropin
D	Somatotropin
E	Thyrotropin
№	krok 2012
Topic	Introduction to biochemistry. Enzymes and coenzymes. Metabolism regulation
Task	Sulfonamides are widely used as bacteriostatic agents. The mechanism of antimicrobial action of sulfonamides is based on their structural similarity to:
Correct answer	Para-aminobenzoic acid
B	Glutamic acid
C	Folic acid
D	Nucleic acid
E	Antibiotics
№	krok 2012
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	A patient consulted a doctor about sunburns, decreased visual acuity. His hair, skin and eyes are not pigmented. He has been diagnosed with albinism. The patient presents with the following enzyme deficiency:
Correct answer	Tyrosinase
B	Arginase
C	Carbonic anhydrase

D	Histidine decarboxylase
E	Hexokinase
№	krok 2012
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Fatty degeneration of liver is prevented by lipotropic substances. Which of the following substances relates to them?
Correct answer	Methionine
B	Cholesterol
C	Bilirubin
D	Glycine
E	Glucose
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient has an increased concentration of hippuric acid in the urine. This acid is the product of benzoic acid detoxification in the liver of. In the human body benzoic acid is formed from the following amino acid:
Correct answer	Phenylalanine
B	Succinate
C	Lactate
D	Aspartate
E	Malate
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	The end product of starch hydrolysi is:
Correct answer	D-glucose
B	D-fructose
C	Saccharose
D	Maltose

E	D-galactose
№	krok 2012
Topic	Biochemistry and pathobiochemistry of blood
Task	A 70-year-old patient has been found to have atherosclerosis of heart and brain vessels. Examination revealed the changes in the lipid profile. Pathogenesis of atherosclerosis is greatly influenced by an increase in the following lipoproteins rate:
Correct answer	Low-density lipoprotein
B	Very-low-density lipoproteins
C	Intermediate-density lipoproteins
D	High-density lipoprotein
E	Chylomicrons
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A 28-year-old male got a burn that caused an increase in spontaneous secretion of gastric juice. It is associated with secretion of the following substance:
Correct answer	Histamine
B	Secretin
C	Gastric inhibitory peptide
D	Cholecystokinin-Pancreozymin
E	Serotonin
№	krok 2012
Topic	Functional and clinical biochemistry of organs and tissues
Task	A patient was found to have an increased blood serum LDH-1 activity. In which organ is the pathological process localized?
Correct answer	Heart
B	Liver
C	Kidneys

D	Stomach
E	Muscles
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A male patient was found to have hypovitaminosis *P P* . What amino acid taken with food may partially compensate the vitamin *P P* deficiency?
Correct answer	Tryptophan
B	Phenylalanine
C	Valine
D	Arginine
E	Methionine
№	krok 2012
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Alkaptonuria is characterized by an excessive urinary excretion of homogentisic acid. Development of this disease is associated with disorder of the following amino acid metabolism:
Correct answer	Tyrosine
B	Tryptophan
C	Alanine
D	Methionine
E	Asparagine
№	krok 2012
Topic	Biochemistry of human nutrition. Value of nutrition
Task	The patient uses a daily basis for several raw eggs, which contain antivitamin biotin - avidin. Violations of any phase of lipid metabolism might arise?
Correct answer	Fatty acid biosynthesis
B	Cholesterol biosynthesis
C	Lipid absorption

D	Glycerol oxidation
E	Lipid transport in blood
№	krok 2012
Topic	Carbohydrate metabolism and its regulation
Task	Caffeine inhibits phosphodiesterase which converts cAMP to AMP. The most typical feature of caffeine intoxication is the reduced intensity of:
Correct answer	Glycogen synthesis
B	Protein phosphorylation
C	Pentose phosphate pathway
D	Glycolysis
E	Lipolysis
№	krok 2011, 2010
Topic	Functional and clinical biochemistry of organs and tissues
Task	Production of primary urine in kidneys is induced by filtration in renal corpuscles. What components of blood plasma are absent in the primary urine?
Correct answer	Proteins
B	Amino acids
C	Glucose
D	Urea
E	Ions
№	krok 2011, 2010
Topic	Biochemistry of human nutrition. Value of nutrition
Task	High-grade deficit of the ascorbic acid causes development of scorbutus. This pathology develops due to the disturbed synthesis of the following connective tissue protein:
Correct answer	Collagen
B	Prothrombin
C	Fibrinogen

D	Albumin
E	Ceruloplasmin
№	krok 2011, 2009
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Cardiac diseases are treated with cocarboxylase preparation. This preparation is the coenzymatic form of the following vitamin:
Correct answer	B_1
B	B_6
C	B_{12}
D	C
E	P
№	krok 2011, 2010
Topic	Biochemistry and pathobiochemistry of blood
Task	Examination of a patient revealed an increase in low-density lipoprotein concentration in blood serum. The patient can be expected to have the following disease:
Correct answer	Atherosclerosis
B	Pneumonia
C	Glomerulonephritis
D	Acute pancreatitis
E	Gastritis
№	krok 2011, 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient was prescribed a bile preparation for better digestion of fatty food. What components of this preparation cause fat emulsification?
Correct answer	Bile acids
B	Cholesterol and its ethers

C	Diglycerides
D	Bilirubinglucuronids
E	Bile pigments
№	krok 2011, 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	It is known that digestion of proteins, fats and carbohydrates happens due to protease, lipase and amylase respectively. What digestive juice contains all three enzyme groups enough for digestion?
Correct answer	Juice of pancreas
B	Saliva
C	Gastric juice
D	Bile
E	Juice of large intestine
№	krok 2011, 2010
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Biochemical function of water-soluble vitamins depends on their ability to turn into the coenzymatic forms. Specify the coenzymatic form of the vitamin B_2 (riboflavin):
Correct answer	FMN (flavin mononucleotide)
B	NAD+ (nicotinamide adenine dinucleotide)
C	TMP (thiamine monophosphate)
D	TDP (thiamine diphosphate)
E	PALP (pyridoxal phosphate)
№	krok 2011, 2010, 2009
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Enzymes (biological catalysts) are used as pharmacologic preparations.What is the mechanism of enzyme action in the biochemical reactions?
Correct answer	They reduce the energy of reaction activation

B	They increase the energy of reaction activation
C	They inhibit the reaction process
D	They change the constant of the reaction rate
E	They change the reaction order
№	krok 2011, 2010, 2008
Topic	Functional and clinical biochemistry of organs and tissues
Task	Stable contraction of myofibrilla of muscle fibers takes place due to accumulation of the following ions in the cytoplasm:
Correct answer	Calcium
B	Potassium
C	Sodium
D	Magnesium
E	Hydrogen
№	krok 2011, 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Digestion of proteins in the digestive tract is a complex process of their hydrolysis till peptides and free amino acids. What enzymes decompose proteins in the duodenum?
Correct answer	Trypsin, chemotrypsin
B	Enterokinase, lipase
C	Amylase, maltase
D	Pepsin, gastricsin
E	Lipase, phospholipase
№	krok 2011
Topic	Fundamentals of molecular biology
Task	A 56 year-old patient complains about limitation of movements and pain in hand joints, mainly at night. Objectively: there is a disfiguring painful swelling of affected joints. Blood and urine have high concentration of uric acid. What disease has developed?

Correct answer	Gout
B	Pellagra
C	Phenylketonuria
D	Alkaptonuria
E	Tyrosinosis
№	krok 2011, 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient with low immunity, frequent colds is recommended to take ascorutine as a more effective drug than ascorbic acid. What constituent substance of this preparation intensifies action of vitamin *C*?
Correct answer	Vitamin *P*
B	Vitamin *A*
C	Glucose
D	Lactose
E	Vitamin *D*
№	krok 2011, 2010, 2009
Topic	Lipids metabolism and its regulation
Task	Inflammatory processes in the gall bladder exert negative influence on the colloidal properties of bile. This may lead to gallstone formation. One of the causes of their formation is the crystallization of the following substance:
Correct answer	Cholesterol
B	Albumine
C	Haemoglobin
D	Urates
E	Oxalates
№	krok 2011, 2010
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange

Task	Transamination is the biochemical process in which amino groups of different amino acids take form of one of the amino acids. What amino acid is it?
Correct answer	Glutamic
B	Glycine
C	Valine
D	Leucine
E	Arginine
№	krok 2011, 2010
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Aminotransferases are the enzymes that transfer an amino group from one compound to another. What compound is the acceptor of amino groups?
Correct answer	α-ketoglutaric acid
B	Acetone
C	Lactic acid
D	Succinic acid
E	Butyric acid
№	krok 2011, 2009
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Alpha-cells of pancreas stimulate synthesis of the glucagon hormone that is involved into the carbohydrate metabolism. It has the following effect on liver processes:
Correct answer	Activates glycogenolysis
B	Activates alcoholic fermentation
C	Inhibits glycogenolysis
D	Inhibits glycolysis
E	Activates lypogenesis
№	krok 2011, 2010
Topic	Carbohydrate metabolism and its regulation

Task	Under anaerobic conditions during glycolysis ATP is synthesized by the way of substrate phosphorylation. This process uses energy of other high-energy compounds. Specify one of such compounds:
Correct answer	Phosphoenol pyruvate
B	Glucose 6-phosphate
C	Lactate
D	Pyruvate
E	Glucose
№	krok 2011, 2009
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A patient complains about an increase in heart rate, hyperperspiration, irritability, sleeplessness. He has been presenting with these symptoms for the latest six months. They indicate the hyperfunction of the following endocrine gland:
Correct answer	Thyroid gland
B	Pancreas
C	Adrenal glands
D	Sexual glands
E	Thymus
№	krok 2011
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A woman in labour has been given a drug that activates contractions of the smooth muscles of uterus. Which hormone is a part of this drug?
Correct answer	Oxytocin
B	Gastrin
C	Secretin
D	Angiotensin
E	Bradykinin
№	krok 2011

Topic	Functional and clinical biochemistry of organs and tissues
Task	One of saliva functions is the bactericidal one. It can be fulfilled due to the following substance:
Correct answer	Lysozyme
B	Amylase
C	Bradykinin
D	Maltase
E	Mucin
№	krok 2011
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Study of secretory function of stomach revealed a decrease in hydrochloric acid concentration in gastric juice. This must cause hypoactivity of the following enzyme:
Correct answer	Pepsin
B	Hexokinase
C	Amylase
D	Lipase
E	Dipeptidase
№	krok 2011
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Pheochromocytoma provokes hypersecretion of adrenaline and noradrenaline. The concentration of free fatty acids is higher than normal. In this case hyperlipidemia is caused by activation of the following enzyme:
Correct answer	Triglyceride lipase
B	Phospholipase *C*
C	Phospholipase A_2
D	Phospholipase A_1
E	Glycogen phosphorylase
№	krok 2011

Topic	Biochemistry of human nutrition. Value of nutrition
Task	The microflora of the colon plays an important part in the process of digestion. What vitamins does it synthesize?
Correct answer	Vitamins *K* and *B* group
B	Vitamin *C*
C	Vitamin *P P*
D	Vitamin *E*
E	Vitamin *A*
№	krok 2011
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Examination of a patient revealed an increase in ammonia and citrulline concentration in blood, a decrease in urea concentration in urine as well as citrullinuria. This condition is caused by the deficiency of the following enzyme:
Correct answer	Arginine-succinate synthetase
B	Glutamine synthetase
C	Ornithine carbamoyl transferase
D	Glutaminase
E	Arginine-succinate lyase
№	krok 2011
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient complains of general weakness, dyspnea, palpitation. Examination revealed inflammation of the mucous membrane of tongue, lips, especially in the corners of mouth; inflammation and increased vascularization in the external membrane of eye. What is the likely cause of this pathological condition:
Correct answer	Hypovitaminosis B_2
B	Hypovitaminosis *A*
C	Hypovitaminosis *C*

D	Hypervitaminosis *A*
E	Hypervitaminosis B_1
№	krok 2011
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Examination of a patient revealed an increase in 17-ketosteroid concentration in urine. Hydroxylation of 17-ketosteroids is possible with the enzymes of the following system:
Correct answer	Microsomal oxidation
B	Krebs cycle
C	Protein synthesis system
D	Pentose phosphate cycle
E	Ornithine cycle
№	krok 2011
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	A patient consulted a doctor about intolerance to the sun rays. He presents with skin burns, impaired vision. He has been diagnosed with albinism. It is caused by the deficiency of the following enzyme:
Correct answer	Tyrosinase
B	DOPA-oxidase
C	Phenylalanine hydroxylase
D	Ornithine carbamoyl transferase
E	Arginase
№	krok 2011
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Examination of a patient revealed toxic hepatitis developed on the background of the use of medicines. This diagnosis can be confirmed by the activity of the following enzyme of blood serum:
Correct answer	Alanine amino transferase
B	Creatine phosphokinase

C	Pyruvate dehydrogenase
D	Maltase
E	Malate dehydrogenase
№	krok 2010
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	After examination a patient has been diagnosed with alkaptonuria. This pathology is caused by the deficit of the following enzyme:
Correct answer	Homogentisic acid oxidase
B	Diamine oxidase
C	Acetylcholinesterase
D	Thyroxin hydroxylase
E	Monoamine oxidase
№	krok 2010, 2009, 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Water-soluble vitamins take coenzyme form in an organism. Thiamine diphosphate is the coenzyme of the following vitamin:
Correct answer	B_1
B	B_2
C	C
D	B_6
E	B_{12}
№	krok 2010
Topic	Functional and clinical biochemistry of organs and tissues
Task	A patient complains of pain behind the breastbone on the left, perspiration and palpitation. Which of the following enzymes should be found in blood in order to confirm the diagnosis of myocardium infarction?
Correct answer	AspAT, CPK, LDH-1

B	AlAT, aldolase, LDH-4
C	Amylase, alkaline phosphatase, AlAT
D	Acid phosphatase, LDH-5, LDH-4
E	α-fetoprotein, aldolase, CPK
№	krok 2010, 2009, 2008
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A patient has bradycardia, moderate hypotension, decrease of basal metabolism, edemata. What disorder can induce such syndrome?
Correct answer	Thyroid hypofunction
B	Parathyroid hypofunction
C	Thyroid hyperfunction
D	Parathyroid hyperfunction
E	Adrenal hypofunction
№	krok 2010
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Single-oxygenase system of membranes of endoplasmic hepatocyte reticulum includes flavoprotein NADF-cytochrome, R-450-reductase and R-450-cytochrome. It stimulates inactivation of biologically active substances or neutralization of toxic compounds by catalyzing the reaction of:
Correct answer	Hydroxylation
B	Oxidation
C	Methylation
D	Acetylation
E	Reduction
№	krok 2010, 2009
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Early pregnancy test involves analysis of a woman’s urine. Pregnancy is ascertained by presence of the following hormone:

Correct answer	Chorionic gonadotropin
B	Estriol
C	Aldosterone
D	Testosterone
E	Progesterone
№	krok 2010
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Decarboxylation of the amino acid histidine results in formation of histamine in the cells. Neutralization of this biogenic amine takes place due to the following enzyme:
Correct answer	Diaminooxidase (DAO)
B	Monoaminooxidase (MAO)
C	Catalase
D	Aminotransferase
E	Aminopeptidase
№	krok 2010
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	For treatment of the psychosis a patient was administered the neuroleptic aminazine. The main way of its biotransformation in the organism is induction of microsomal oxidation. Specify the principal component of this system:
Correct answer	Cytochrome R-450
B	Cytochrome C
C	Cytochrome oxidase
D	NAD-dehydrogenase
E	CoQ-reductase
№	krok 2010
Topic	Biochemistry of human nutrition. Value of nutrition

Task	In order to prevent adipose degeneration of liver after the viral hepatitis a patient should be administered lipotropins. Name one of them:
Correct answer	Choline
B	Tryptophan
C	Allopurinol
D	Contrykal
E	Vicasol
№	krok 2010
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	The thyroid gland synthesizes a hormone that lowers the rate of Ca^{2+} concentration in blood thus facilitating its deposition in bones. What hormone is it?
Correct answer	Calcitonin
B	Thyroxin
C	Triiodthyronine
D	Adrenaline
E	Parathormone
№	krok 2010
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Examination of a patient revealed reddening of oral mucosa, cracks on the lips and mouth corners, face skin dryness and desquamation, conjunctiva inflammation, vasculature invasion into the cornea. The possible cause of this pathology is the deficit of the following vitamin:
Correct answer	B_2
B	*C*
C	*E*
D	*K*
E	*D*

№	krok 2010
Topic	Biochemistry of human nutrition. Value of nutrition
Task	It is known that the digestion of proteins, fats and carbohydrates is possible due to the protease, lipase and amylase respectively. What digestive juice contains the enough supply of all the groups of enzymes?
Correct answer	Pancreatic
B	Saliva
C	Gastric
D	Bile
E	Gastric juice and bile
№	krok 2010
Topic	Biochemistry of human nutrition. Value of nutrition
Task	An elderly woman complains of twilight vision impairment. Which of the following vitamins should be administered in this case?
Correct answer	*A*
B	*C*
C	*E*
D	*D*
E	*P P*
№	krok 2010, 2009, 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient is 50 years old. Ad a result of continuous improper diet he has developed hypovitaminosis *C* Lesion of connective tissue is caused by low activity of the following enzyme:
Correct answer	Proline hydroxylase
B	Alanine aminotransferase
C	Pyruvate carboxylase
D	Tryptophane hydroxylase
E	Glutaminase

№	krok 2010
Topic	Lipids metabolism and its regulation
Task	Systematic and intensive physical exercise causes reduction of fat concentration in the adipose tissues. It is released from the cells into the blood in form of:
Correct answer	Free fatty acids and glycerine
B	Chylomicrons
C	Lipoproteins
D	Ketone bodies
E	Glucose
№	krok 2010
Topic	Biochemistry of human nutrition. Value of nutrition
Task	The pancreas secretes an enzyme that is able to hydrolyze α-1,4-glycosidic linkages in a glycogen molecule. Specify this enzyme:
Correct answer	α-amylase
B	Phosphatase
C	Enterokynase
D	Chemotrypsin
E	Lysozyme
№	krok 2010
Topic	Biochemistry and pathobiochemistry of blood
Task	Transport form of lipids in blood are lipoproteins. Cholesterol is transported to the liver mostly in form of:
Correct answer	High-density lipoproteins
B	Low-density lipoproteins
C	Very-low-density lipoproteins
D	Interferons
E	Albumins
№	krok 2010

Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Nonsteroid anti-inflammatory drugs are used in medical practice for treating the rheumatoid arthritis, osteoporosis, inflammatory dseases of the connective tissue. These preparations inhibit the activity of the following enzyme:
Correct answer	Cyclooxygenase
B	Hexokinase
C	Succinate dehydrogenase
D	Aminotransferase
E	Xanthine oxid
№	krok 2009
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	A patient has taken a large dose of a barbiturate hypnotic (amytal) that inhibits NAD-dependent dehydrogenase of the respiratory chain. What process running in the mitochondria will be disturbed?
Correct answer	ATP synthesis
B	Glycogen synthesis
C	Amino acid synthesis
D	Lipide synthesis
E	Glucose synthesis
№	krok 2009
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	A drug which inhibits ATP synthesis in a cell has been used during an experiment. What type of transmembrane transport will be disturbed?
Correct answer	Active
B	Diffusion
C	Osmosis
D	Filtration
E	Facilitated diffusion

№	krok 2009
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Increase in secretion of hydrochloric acid in the stomach of an experimental animal can be provoked by subcutaneous injection of the following gastrointestinal hormone:
Correct answer	Gastrin
B	Secretin
C	Cholecystokinin
D	Somatostatin
E	Motilin
№	krok 2009
Topic	Carbohydrate metabolism and its regulation
Task	During starvation the normal rate of glucose in blood is sustained due to the gluconeogenesis stimulation. Which of the following substances can be used as a source for glucose synthesis?
Correct answer	Alanine
B	Adenine
C	Ammonia
D	Nicotinamide
E	Urea
№	krok 2009
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Oxidative deamination of biogenic amines in the tissues is catalyzed by the following enzyme:
Correct answer	Monoaminooxidase
B	Aspartate transaminase
C	Alanine transaminase
D	Decarboxylase
E	Acetylcholinesterase
№	krok 2009

Topic	Fundamentals of molecular biology
Task	Analysis of a patient's urine revealed increased concentration of the uric acid. The patient was prescribed allopurinol. What is the biochemical mechanism of its action?
Correct answer	Xanthine oxidase inhibition
B	Cyclooxigenase activation
C	Desaminase inhibition
D	Phosphorylase inhibition
E	Nucleosidase inhibition
№	krok 2009, 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	It is known that proteins, fats and carbohydrates are digested by means of proteases, lipases and amylases, respectively. Which of digestive juices contains all these groups of enzymes enough for digestion?
Correct answer	Pancreatic juice
B	Saliva
C	Gastric juice
D	Bile
E	Juice of large intestine
№	krok 2009
Topic	Biochemistry and pathobiochemistry of blood
Task	It is known that the unconjugated bilirubin being the product of heme catabolism is detoxicated in liver. Which compound is involved into the bilirubin detoxication within the hepatocytes?
Correct answer	Glucuronic acid
B	Urea
C	Mevalonic acid
D	Lactic acid
E	Glycin
№	krok 2009

Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Analysis of a patient's urine showed an increase in Na^+ ions concentration and a decrease is K^+ ions concentration. This might be caused by the reduced secretion of the following hormone:
Correct answer	Aldosterone
B	Insulin
C	Thyroxine
D	Hydrocortisone
E	Prolactin
№	krok 2009
Topic	Biochemistry of human nutrition. Value of nutrition
Task	After a stomach resection a patient presented with weakness, skin pallor, face puffiness, enlargement of liver and spleen. Analysis of the peripheral blood revealed megaloblasts and megalocytes; hyperchromatism (colour index - 1,3). What type of anaemia is observed in this patient?
Correct answer	B_{12}-deficient
B	Haemolytic
C	Hypoplastic
D	Iron-deficient
E	Toxic
№	krok 2009
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Ammonia is generated in different tissues and organs and then transported to liver for detoxication and conversion into urea. What amino acid transports it from skeletal muscles to liver?
Correct answer	Alanine
B	Histidine
C	Glycin
D	Serine

E	Valine
№	krok 2009
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Vitamin *A* is quickly oxidized in the open air and hereupon looses its biological activity. What component of the foodstuffs mainly prevents the oxidation of the vitamin?
Correct answer	Tocopherol
B	Nicotinic acid
C	Common salt
D	Protein
E	Fat
№	krok 2009
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Antiinflammatory effect of a number of drugs is caused by the inhibition of arachidonic acid release. This acid is the precursor of:
Correct answer	Prostaglandins
B	Uric acid
C	Urea
D	Haem
E	Cholesterol
№	krok 2009
Topic	Lipids metabolism and its regulation
Task	To prevent fatty degeneration of liver after viral hepatitis, a patient should be administered lipotropic factors. Indicate one of them:
Correct answer	Choline
B	Tryptophane
C	Allopurinol
D	Contrical

E	Vicasol
№	krok 2009
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient suffers from the cerebral atherosclerosis. Blood count showed hyperlipoproteinemia. You will most likely observe increase in the concentration of the following plasma lipoprotein class:
Correct answer	Low-density lipoproteins
B	High-density lipoproteins
C	Chylomicrons
D	Globulin complexes with steroid hormones
E	Fatty acid complexes with albumines
№	krok 2009
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	A patient presents with weakening of the inhibitory processes of CNS which is associated with disturbed production of gamma-aminobutyric acid. What substance is the GABA precursor?
Correct answer	Glutamate
B	Tryptophane
C	Methionine
D	Valine
E	Glycin
№	krok 2009
Topic	Lipids metabolism and its regulation
Task	A patient has been administered *L*-carnitine. This preparation ensures transmembrane transfer of the following substances:
Correct answer	Higher fatty acids
B	Amino acids
C	Purine nucleotides
D	Pyrimidine nucleotides

E	Glucose
№	krok 2009, 2008
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Low rate of vitamin B_6 in the dietary intake leads to disturbance of protein metabolism. What biochemical processes in the patient's organism will become less active?
Correct answer	Transamination
B	Reduction-oxidation
C	Phosphorilation
D	Methylation
E	Hydrolysis
№	krok 2008
Topic	Functional and clinical biochemistry of organs and tissues
Task	Generation of primary urine in kidneys is induced by filtration in renal corpuscles. What components of blood plasma are absent in the primary urine?
Correct answer	Proteins
B	Amino acids
C	Glucose
D	Urea
E	Ions
№	krok 2008
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient has high concentration of chylomicrons in blood, especially after taking fatty food. He has also type I hyperlipoproteinemia that resulted from deficiency of the following enzyme:
Correct answer	Lipoprotein lipase
B	Adenylate cyclase
C	Protein kinase

D	Phospholipase C
E	Prostaglandin synthetase
№	krok 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient has neurasthenic syndrome, diarrhea, dermatitis. This is associated with deficiency of the following vitamin:
Correct answer	Nicotinic acid
B	Vitamin *K*
C	Vitamin *D*
D	Folic acid
E	Vitamin B_{12}
№	krok 2008
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Pharmaceutical preparations of protein hydrolysate are applied for parenteral proteinic feeding. Hydrolysates are of full value if they contain essential amino acids. Which of the following amino acids relates to the essential ones:
Correct answer	Methionine
B	Cysteine
C	Alanine
D	Serine
E	Glycine
№	krok 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient has impaired mesopic vision, his phoTOPIC: vision is normal. What is the probable cause of such vision anomaly?
Correct answer	Vitamin *A* deficiency

B	Hyperopia
C	Cones disfunction
D	Myopia
E	Vitamin *D* deficiency
№	krok 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Enzyme hyaluronidase breaks down hyaluronic acid thus increasing intercellular permeability. Which vitamin strengthens vascular walls and inhibits activity of hyaluronidase?
Correct answer	*P*
B	*A*
C	B_1
D	B_2
E	*D*
№	krok 2008
Topic	Biochemistry and pathobiochemistry of blood
Task	A patient underwent an operation. After it he was prescribed glycosaminoglycan that has coagulating action. Specify this substance:
Correct answer	Heparin
B	Keratan sulfate
C	Hyaluronic acid
D	Chondroitin-6-sulfate
E	Chondroitin-4-sulfate
№	krok 2008
Topic	Carbohydrate metabolism and its regulation
Task	Gluconeogenesis plays an important part in maintaining normal glucose rate in blood during starvation. Name the main substrate of this process:

Correct answer	Amino acids
B	Cholesterol
C	Nucleic acids
D	Bile acids
E	Acetone
№	krok 2008
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Steroid hormones are synthesized out of a precursor that contains cyclopentanoperhydrophenanthrene. Name this precursor:
Correct answer	Cholesterol
B	Acetyl-CoA
C	Malonyl-CoA
D	Levulinic acid
E	Tyrosine
№	krok 2008
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	As a result of reduced water reabsorption in nephron tubules daily diuresis of a patient has increased up to 10 litres. This might be caused by reduced secretion of the following hormone:
Correct answer	Vasopressin
B	Aldosterone
C	Parathormone
D	Thyrocalcitonin
E	Insulin
№	krok 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Fatty food is digested by means of several digestive juices. Which of them enables fat emulsification?
Correct answer	Bile

B	Saliva
C	Intestinal juice
D	Gastric juice
E	Pancreatic juice
№	krok 2008
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Introduction of glucocorticoids induces strengthening of glucose concentration in blood. Which of the following processes will be activated in liver?
Correct answer	Gluconeogenesis
B	Glycogenolysis
C	Oxidation of fatty acids
D	Ketogenesis
E	Glycolysis
№	krok 2008, 2007
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Urea is a derivative of carbonic acid. Choose a denomination of urea:
Correct answer	Diamide of carbonic acid
B	Monoamide of carbonic acid
C	Ethylic ether of carbamic acid
D	Diethylic ether of carbonic acid
E	Dimethylic ether of carbonic acid
№	krok 2008
Topic	Functional and clinical biochemistry of organs and tissues
Task	Blood analysis revealed rise of activity of LDH_1, LDH_2, aspartate aminotransferase, kreatine phosphokinase-MB. Biochemical disorder is observed in the following organ:
Correct answer	Heart

B	Skeletal muscles
C	Kidneys
D	Liver
E	Pancreas
№	krok 2008
Topic	Fundamentals of molecular biology
Task	A 56 year old patient complains about limitation of movements and pain in hand joints, mainly at night. Objectively: there is a disfiguring painful swelling of affected joints. Blood and urine have high concentration of uric acid. What disease has developed?
Correct answer	Gout
B	Pellagra
C	Phenylketonuria
D	Alkaptonuria
E	Tyrosinosis
№	krok 2008
Topic	Basic regularities of metabolism. A cycle of tricarboxylic acids. Molecular basis of bioenergetics
Task	Electronic microscopy of a cell revealed mitochondrial destruction. What processes are disturbed?
Correct answer	ATP synthesis
B	Protein biosynthesis
C	Glycolysis
D	Synthesis of nucleic acids
E	Fat synthesis
№	krok 2008
Topic	Fundamentals of molecular biology
Task	Patient’s joints are enlarged, look like thickened disfigured knots. Blood analysis revealed high concentration of uric acid and its salts. This state is caused by metabolic disorder of the following substances:
Correct answer	Purines

B	Pyrimidines
C	Porphyrines
D	Cholesterol
E	Phospholipids
№	krok 2008
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Albinism is characterized by lacking formation of melanin in an organism. This disease is caused by metabolic disorder of the following amino acid:
Correct answer	Phenylalanine
B	Methionine
C	Alanine
D	Glutargine
E	Asparagine
№	krok 2008
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A boy is 4 year old. Glucose concentration in blood plasma is 12 millimole/l. This might be caused by deficiency of the following hormone:
Correct answer	Insulin
B	Glucagon
C	Cortisol
D	Somatotropin
E	Adrenocorticotropin
№	krok 2008
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Thyroid hormones are derivatives of amino acids. What amino acid underlies the structure of these
Correct answer	Tyrosine
B	Proline

C	Tryptophan
D	Serine
E	Glutamine
№	krok 2008
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Decarboxylation of 5-hydroxytryptophane gives origin to a certain biogenic amine with vasoconstrictive action. What biogenic amine is it?
Correct answer	Serotonin
B	Histamine
C	Gamma-aminobutyric acidc
D	Putrescine
E	Cadaverine
№	krok 2008
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A male patient who suffers from chronic intestinal obstruction has intensified putrefaction of proteins in the colon. What toxic substance originates from tryptophane in this case?
Correct answer	Indole
B	Bilirubin
C	Lactate
D	Kreatine
E	Glucose
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient was diagnosed with anacydic gastritis. What enzyme activity will be reduced?
Correct answer	Pepsin
B	Amylase
C	Lipase

D	Chemotrypsin
E	Trypsin
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient was prescribed with bile preparation for the purpose of improvement of rich food digestion. What components of this preparation take part in fat emulsification?
Correct answer	Bile acids
B	Cholesterol and its ethers
C	Diglyceride
D	Bilirubin-glucuronids
E	Higher fatty acids
№	krok 2007
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	An important role during starvation diet belongs to gluconeogenesis that helps to maintain normal rate of glucose in blood. Name the main substrate of this process:
Correct answer	Aminoacids
B	Cholesterine
C	Nucleic acids
D	Bile acids
E	Acetone
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Interaction of catecholamines with β-adrenoreceptors increases the level of cyclic adenosine monophosphate in tissue cells. Name an enzyme that catalyzes reaction of cyclic adenosine monophosphate generation:
Correct answer	Adenylate cyclase
B	Phosphodiesterase
C	Phosphatase

D	Guanylate cyclase
E	Creatine kinase
№	krok 2007
Topic	Biochemistry and pathobiochemistry of blood
Task	Erythrocytes contain carbonic acid produced from CO_2 and H_2O. What enzyme ensures synthesis of carbonic acid in erythrocytes and its decomposition in pulmonary capillaries?
Correct answer	Carbonic anhydrase
B	Alkaline phosphatase
C	Elastase
D	Lipase
E	Amylase
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Synthesis of steroid hormons arises from a precursor that contains cyclopentane perhydrophenantrene ring. Name this precursor:
Correct answer	Cholesterine
B	Acetyl-CoA
C	Malonyl-CoA
D	Levulinic acid
E	Tyrosine
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	When fats get into an organism they are digested and absorbed. What products of fat hydrolysis are absorbed in an intestine?
Correct answer	Glycerine, fatty acids
B	Amino acids

C	Monosaccharides
D	Lipoproteids
E	Polypeptides
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Analysis of urine composition revealed changed concentration of sodium ions. Which of hormones provides regulation of sodium ions reabsorption in nephron canaliculi?
Correct answer	Aldosterone
B	Vasopressin
C	Somatostatin
D	Adrenaline
E	Parathormone
№	krok 2007
Topic	Biochemistry and pathobiochemistry of blood
Task	It is known that indirect bilirubin generated as a result of heme disintegration is detoxicated in liver. What organic compound takes part in bilirubin detoxication in hepatocytes?
Correct answer	Uridine diphosphate glucuronic acid
B	Urea
C	Mevalonic acid
D	Lactic acid
E	Glycin
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A patient ill with pheochromocytoma has high secretion of the following hormone:
Correct answer	Adrenaline
B	Glucagon
C	Insulin

D	Thyroxin
E	Somatotropin
№	krok 2007
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Some products of amino acid decarboxylation are biologically active substances. What CNS inhibition mediator is formed by decarboxylation of glutamic acid?
Correct answer	GABA
B	Putrescine
C	Histamine
D	Cadaverine
E	Asparagine
№	krok 2007
Topic	Biochemistry and pathobiochemistry of blood
Task	Some proteins in the human organism have buffer properties. Which aminoacid allows hemoglobine to reveal its buffer properties in blood?
Correct answer	Histidine
B	Alanine
C	Isoleucine
D	Valine
E	Threonine
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Thyroid hormones are related to aminoacid derivatives. What aminoacid is the structure of these hormones based upon?
Correct answer	Tyrosine
B	Proline
C	Tryptophane

D	Serine
E	Glutamine
№	krok 2007
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Biochemical meaning of transamination is that amino groups of different aminoacids are assembled in form of one of aminoacids. What aminoacid is it?
Correct answer	Glutamine
B	Asparaginic
C	Valine
D	Leucine
E	Arginine
№	krok 2007
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Transport of some substances is accompanied by utilization of metabolic energy (ATP energy). This process is called:
Correct answer	Active transport
B	Simple diffusion
C	Filtration
D	Osmosis
E	Facilitated diffusion
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Preventive examination of a woman revealed enlargement of her thyroid gland, exophthalmos, high body temperature, increase of heart rate up to 110 times per minute. It is advisable to determine content of the following hormone in blood:
Correct answer	Thyroxine
B	Noradrenaline

C	Adrenaline
D	Insulin
E	Cortisol
№	krok 2007
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Ions of heavy metals are very toxic. They block *SH* -groups that are a part of active centre of enzymes. What is the type of their inhibition mechanism?
Correct answer	Noncompetitive
B	Allosteric
C	Competitive
D	Uncompetitive
E	Substrate
№	krok 2007
Topic	Carbohydrate metabolism and its regulation
Task	ATP synthesis in glycolisis under anaerobic conditions takes place by means of substrate phosphorilation. In course of this process the energy of other high-energy compounds is used. Name such a substance:
Correct answer	Phosphoenolpyruvate
B	Glucose 6-phosphate
C	Lactate
D	Pyruvate
E	Glucose
№	krok 2007
Topic	Lipids metabolism and its regulation
Task	A patient was prescribed L-carnitine preparation. This preparation provides transmembrane transfer of the following substances:
Correct answer	Higher fatty acids
B	Aminoacids

C	Purine nucleotides
D	Pyrimidine nucleotides
E	Glucose
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A 50 y.o. patient suffers from hypovitaminosis *C* (scurvy) as a result of continious improper feeding. Reduced activity of which enzyme is the cause of connective tissue affection in this pathology?
Correct answer	Proline hydroxylase
B	Alanine aminotransferase
C	Pyruvate carboxylase
D	Tryptophane hydroxylase
E	Glutaminase
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Decreased rate of B_6 vitamin in dietary intake results in disorder of protein metabolism. What biochemical processes in the patient's organism will become less active?
Correct answer	Transamination
B	Oxidation-reduction
C	Phosphorilation
D	Methylation
E	Hydrolysis
№	krok 2007
Topic	Introduction to biochemistry. Enzymes and coenzymes.Metabolism regulation
Task	Dehydregenases are enzymes that detach hydrogen atoms from the substrate. What enzyme class is lactate dehydrogenase related to?
Correct answer	Oxidoreductases

B	Transferases
C	Hydrolases
D	Isomerases
E	Lipases
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A woman in labour was given a preparation that activates contractions of smooth uterine muscles. What hormone is contained in this preparation?
Correct answer	Oxytocin
B	Gastrin
C	Secretin
D	Angiotensin
E	Bradykinin
№	krok 2007
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Introduction of a hormone into a man's organism resulted in increased water reabsorption in kidneys, high vascular tone, rise of arterial pressure. What hormone was introduced?
Correct answer	Vasopressin
B	Adrenaline
C	Thyroxine
D	Aldosterone
E	Noradrenaline
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Bile contains of bile acids. Choose one of them:
Correct answer	Cholic
B	Glutamine

C	Lactic
D	Arachidonic
E	Pyruvic acid
№	krok 2007
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Pancreas secretes an enzyme that is aible to break up α − 1,4-glycosidic linkages in a glycogen molecule. What enzyme is it?
Correct answer	α-amylase
B	Phosphatase
C	Enterokinase
D	Chemotrypsin
E	Lysozyme
№	krok 2018
Topic	Fundamentals of molecular biology
Task	A patient with gout was prescribed allopurinol - a competitive inhibitor of xanthine oxidase. Xanthine oxidase is a terminal enzyme of catabolism of:
Correct answer	Purine nucleotides
B	Glycoproteins
C	Phospholipids
D	Higher fatty acids
E	Heteropolysaccharides
№	krok 2018
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Inheritable genetic disorders can result in disturbed enzyme synthesis in the human body. What enzyme deficiency results in disturbed break-up of lactose:
Correct answer	Lactase
B	Maltase

C	Invertase
D	Lipase
E	Peptidase
№	krok 2018
Topic	Introduction to biochemistry. Enzymes and coenzymes. Metabolism regulation
Task	To treat the patients with purulent wounds, a dressing with a certain immobilized enzyme is used. Name this enzyme:
Correct answer	Tripsin
B	Arginase
C	Catalase
D	Alkaline phosphatase
E	Acid phosphatase
№	krok 2018
Topic	Introduction to biochemistry. Enzymes and coenzymes. Metabolism regulation
Task	An enzyme transports structure fragments from one substrate into another. Name this class of enzymes:
Correct answer	Transferases
B	Isomerases
C	Oxidoreductases
D	Ligases
E	Hydrolases
№	krok 2018
Topic	Introduction to biochemistry. Enzymes and coenzymes. Metabolism regulation
Task	Enzymes are widely used as drugs in pharmacy. What is the main feature that separates enzymes from nonbiological catalysts?
Correct answer	High specificity and selectivity
B	High universality
C	Low universality

D	High dispersion
E	High homogeneity
№	krok 2018
Topic	Fundamentals of molecular biology
Task	An oncological patient was prescribed fluorouracil that is a competitive inhibitor of thymidine synthase. It inhibits the process of:
Correct answer	Pyrimidine nucleotides synthesis
B	Carbohydrate disintegration
C	Purine nucleotides synthesis
D	Purine nucleotides disintegration
E	Lipids synthesis
№	krok 2018
Topic	Biochemistry and pathobiochemistry of blood
Task	On examination the patient’s sclera and oral mucosa are icteric. What biochemical blood value can be expected to be increased?
Correct answer	Bilirubin
B	Amylase
C	Glucose
D	Albumin
E	Cholesterol
№	krok 2018
Topic	Biochemistry of human nutrition. Value of nutrition
Task	An ophthalmologist has detected increased time of dark adaptation in a patient. What vitamin deficiency can result in such symptom?
Correct answer	A
B	C
C	K

D	B1
E	B6
№	krok 2018
Topic	Metabolism fundamentals. Citric acid cycle. Molecular basis of bioenergetics
Task	Natural peptides can carry out various functions. What bioactive peptide is a major antioxidant and functions as a coenzyme?
Correct answer	Glutathione
B	Bradykinin
C	Oxytocin
D	Liberin
E	Anserine
№	krok 2018
Topic	Fundamentals of molecular biology
Task	Gout develops when purine nucleotide metabolism is disturbed. The doctor prescribed the patient allopurinol that is a competitive inhibitor of:
Correct answer	Xanthine oxidase
B	Succinate dehydrogenase
C	Alcohol dehydrogenase
D	Lactate dehydrogenase
E	Hexokinase
№	krok 2018
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient has a gallstone lodged in the common bile duct, which blocks bile supply to the intestine. What digestive process will be disturbed in this case?
Correct answer	Fat digestion
B	Protein absorption
C	Carbohydrate digestion

D	Carbohydrate absorption
E	Protein digestion
№	krok 2018
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Increased concentration of active oxygen forms is a mechanism of pathogenesis in a number of diseases. To prevent this process, antioxidants are prescribed. Select an antioxidant from the list below:
Correct answer	α-tocopherol
B	Glucose
C	Calciferol
D	Cobalamine
E	Glicerol
№	krok 2018
Topic	Fundamentals of molecular biology
Task	A 55-year-old man came to a doctor with complaints of acute pain in his big toes. Meat and wine are a permanent fixture in his diet. The doctor suspects gout. What substance must be measured in the patient's blood to confirm this diagnosis?
Correct answer	Uric acid
B	Urea
C	Lactate
D	Bilirubin
E	Ketone bodies
№	krok 2018
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	To stimulate birth activity, a certain neurohypophyseal hormone is used. Name this hormone:
Correct answer	Oxytocin
B	Insulin
C	Glucagon

D	Thyroxine
E	Testosterone
№	krok 2018
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A 12-year-old boy is of short stature, but his mental development corresponds with that of his age group. What hormone deficiency is the most likely to cause this pathology?
Correct answer	Somatotropin
B	Insulin
C	Oxytocin
D	Vasopressin
E	Adrenaline
№	krok 2019
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient suffers from diarrhea,dermatitis, and dementia. What vitamin islikely to be deficient in this patient, causingthe patient's condition?
Correct answer	Nicotinic acid
B	Vitamin K
C	Vitamin D
D	Tocopherol
E	Retinol
№	krok 2019
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	An unconscious patient was brought into the intensive care unit. Acetone breath,acute hyperglycemia, and ketonemia aredetected. What complication of diabetesmellitus occurred in this case?
Correct answer	Diabetic coma
B	Hypoglycemic coma
C	Cataract

D	Acute acetone poisoning
E	Nephritis
№	krok 2019
Topic	Biochemistry and pathobiochemistry of blood
Task	Serum total protein is one of metabolicindicators. What reaction is usually used in clinical laboratories to measure this value?
Correct answer	Biuret
B	Ninhydrin
C	Xanthoproteic
D	Fohl
E	Nitroprussid
№	krok 2019
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	Thyroid gland produces a hormone that regulates Ca2+ levels in blood, which facilitates mineralization of bone tissue. What hormone has such an effect?
Correct answer	Thyrocalcitonin
B	Thyroxin
C	Triiodothyronine
D	Dopamine
E	Adrenaline
№	krok 2019
Topic	Biochemistry of human nutrition. Value of nutrition
Task	A patient is diagnosed with acute pancreatitis. For diagnostic purpose it is necessary to measure the activity of the following enzyme in the patient’s blood:
Correct answer	Amylase
B	Aldolase
C	LDH

D	Creatine kinase
E	Pepsin
№	krok 2019
Topic	Fundamentals of molecular biology
Task	What enzyme allows for synthesis of various genes from template-RNA to DNA in genetic engineering (this enzyme catalyzes the process discovered in RNAviruses)?
Correct answer	Reverse transcriptase
B	Exonuclease
C	DNA-ligase
D	Helicase
E	Endonuclease
№	krok 2019
Topic	Fundamentals of molecular biology
Task	Primary structure of nucleic acids is a polynucleotide chain that has a certain composition and order of the nucleotides.What bonds stabilize this structure?
Correct answer	3, 5-phosphodiester
B	Peptide
C	Glycosidic
D	Disulfide
E	Amide
№	krok 2019
Topic	Fundamentals of molecular biology
Task	Gout develops when purine nucleotide metabolism is disturbed. A doctorprescribed the patient allopurinol that is a competitive inhibitor of:
Correct answer	Xanthine oxidase
B	Succinate dehydrogenase
C	Alcohol dehydrogenase

D	Lactate dehydrogenase
E	Hexokinase
№	krok 2019
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Cocarboxylase is used in medicine as a pharmaceutical preparation for treatment of myocardial dystrophy and conditions that affect muscles and peripheral CNS. What vitamin is a component of this preparation?
Correct answer	B1
B	B2
C	B6
D	*C*
E	B12
№	krok 2019
Topic	Functional and clinical biochemistry of organs and tissues
Task	A patient complains of polyuria. Urine test detects no pathologic components, but urine specific gravity is abnormally low. What hormone secretion is likely to be disturbed in this patient?
Correct answer	Vasopressin
B	Somatotropin
C	Thyrotropin
D	Insulin
E	Cortisol
№	krok 2019
Topic	Molecular mechanisms of action of hormones on target cells. Biochemistry of hormonal regulation
Task	A patient with hyperproduction of thyroid hormones has been prescribed Merkazolilum. This drug inhibits the following enzyme participating in iodothyronine synthesis:
Correct answer	Iodide peroxidase
B	Aromatase
C	Reductase

D	Decarboxylase
E	Aminotransferase
№	krok 2019
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Ascorutin vitamin preparation is used for treatment of bleeding gums and punctate hemorrhages. What vitamin does this preparation contain?
Correct answer	*C*
B	*K*
C	*D*
D	*A*
E	*E*
№	krok 2019
Topic	Biochemistry of human nutrition. Value of nutrition
Task	Ascorutin vitamin preparation is used for treatment of bleeding gums and punctatehemorrhages. What vitamin does this preparation contain?
Correct answer	C
B	K
C	D
D	A
E	E
№	krok 2019
Topic	Biochemistry and pathobiochemistry of blood
Task	A man developed high plasma iron levels due to intensified hemolysis of erythrocytes. What plasma protein transports iron?
Correct answer	Transferrin
B	Interferon
C	Ceruloplasmin

D	Albumin
E	Histone
№	krok 2019
Topic	Biochemistry of human nutrition. Value of nutrition
Task	In case of hypovitaminosis of a certain vitamin, disturbed proliferation of epithelial and connective tissue can be observed.Patients with this type of hypovitaminosis usually present with impaired vision and spatial orientation. Name this vitamin:
Correct answer	Retinol
B	Cholecalciferol
C	Tocopherol
D	Riboflavin
E	Pyridoxine
№	krok 2019
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Antihistamines are used in treatment of allergic responses, because histamine functions as an allergic response mediator.Name the amino acid from which histamine is produced:
Correct answer	Histidine
B	Glycine
C	Asparagine
D	Tyrosine
E	Alanine
№	krok 2019
Topic	Lipids metabolism and its regulation
Task	Cholesterol synthesis inhibitors are used as antiatherosclerotic drugs. Select one such drug from the list:
Correct answer	Lovastatin
B	Sulfanilamide
C	Benzylpenicillin

D	Pancreatin
E	Chloramphenicol
№	krok 2019
Topic	Metabolism of amino acids. Enzymopathy of amino acid exchange
Task	Aspartame is used as a sweetener and in treatment of diabetes mellitus. What amino acid does it contain?
Correct answer	Aspartic acid
B	Glutamic acid
C	Valine
D	Leucine
E	Methionine
№	krok 2019
Topic	Biochemistry and pathobiochemistry of blood
Task	Hemoglobin break-up begins in the cells of reticuloendothelial system. What enzyme catalyzes the reduction reaction of biliverdine into bilirubin?
Correct answer	Biliverdine reductase
B	Beta-glucuronidase
C	Xanthine oxidase
D	Heme oxygenase
E	Hexokinase
№	krok 2020
Topic	Thyroid and parathyroid hormones.
Task	A woman complains of palpitations, muscle weakness, and increased appetite. Objectively, she presents with thyroid gland enlargement. Hypersecretion of what hormone is likely in this case?
Correct answer	Thyroxine
B	Glucagon
C	Calcitonin
D	Cortisol

E	Aldosterone
№	krok 2020
Topic	Water-soluble vitamins B1, B2, B6, PP
Task	Vitamin derivatives function as coenzymes. Thiamine pyrophosphate is the coenzyme form of:
Correct answer	Vitamin B_1
B	Vitamin B_5
C	Vitamin B_6
D	Vitamin B_2
E	Vitamin B_3
№	krok 2020
Topic	Hormones of the pancreas and adrenal medulla.
Task	Insulin is a pancreatic hormone with hypoglycemic action. Chemically, it can be classified as a:
Correct answer	Polypeptide
B	Carbohydrate
C	Nucleotide
D	Lipid
E	Steroid
№	krok 2020
Topic	Hormones of the pancreas and adrenal medulla.
Task	Administration of adrenaline leads to increased levels of glucose in the blood. What process is mainly activated in this case?
Correct answer	Glycogen breakdown
B	Synthesis of fatty acids
C	Glycogen synthesis
D	Pentose-phosphate pathway
E	Alcoholic fermentation

№	krok 2020
Topic	Tissue exchange of nucleotides
Task	Gout develops when purine nucleotide metabolism is disturbed. A doctor prescribed the patient allopurinol that is a competitive inhibitor of:
Correct answer	Xanthine oxidase
B	Lactate dehydrogenase
C	Hexokinase
D	Succinate dehydrogenase
E	Alcohol dehydrogenase
№	krok 2020
Topic	Fat-soluble vitamins.
Task	Increased concentration of active oxygen forms is a mechanism of pathogenesis in a number of diseases. To prevent this process, antioxidants are prescribed. Select an antioxidant from the list below:
Correct answer	Alpha-tocopherol
B	Scopolamine
C	Glucose
D	Starch
E	Cobalamine
№	krok 2020
Topic	Water-soluble vitamins
Task	A patient presents with decreased secretory function of the stomach, which is accompanied by anemia. What vitamin has anti-anemic action?
Correct answer	Cobalamin
B	Nicotinic acid
C	Thiamine
D	Retinol
E	Tocopherol

№	krok 2020
Topic	Respiratory function of blood
Task	In a closed garage, a driver was staying for a long time in his car, with the engine running. After a time he developed a headache and started vomiting. This condition is caused by formation of the following compound:
Correct answer	Carboxyhemoglobin
B	Deoxyhemoglobin
C	Cyanmethemoglobin
D	Oxyhemoglobin
E	Myoglobin
№	krok 2020
Topic	Intracellular glucose catabolism.
Task	When glucose breaks down during glycolysis, a number of transformations occur. In the first reaction, glucose 6- phosphate transforms into the following compound:
Correct answer	Fructose 6-phosphate
B	Acetyl coenzyme A
C	Mannose 6-phosphate
D	Fructose 1-phosphate
E	Galactose 1-phosphate
№	krok 2020
Topic	: Biochemistry of coagulation, anti-coagulation and fibrinolytic blood systems.
Task	Coumarins, vitamin *K* antagonists, suppress the processes of blood coagulation. What protein synthesis is blocked by coumarins?
Correct answer	Prothrombin
B	Gamma globulin
C	Albumin
D	Transferrin

E	Ceruloplasmin
№	krok 2020
Topic	Intracellular glucose catabolism.
Task	In the result of prolonged fasting, carbohydrate stores in the human body disappear rapidly. What metabolic reactions maintain blood glucose levels in this case?
Correct answer	Glycogenolysis
B	Anaerobic glycolysis
C	Gluconeogenesis
D	Aerobic glycolysis
E	Pentose-phosphate pathway
№	krok 2020
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	Cholesterol derivatives produced in the liver are necessary for digestion of lipids. Name these derivatives:
Correct answer	Bile acids
B	Calciferols
C	Catecholamines
D	Corticosteroids
E	Acetyl coenzyme A
№	krok 2020
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	Gastric secretory function of a patient was analyzed. No hydrochloric acid and no enzymes were detected in the gastric juice of the patient. Name this condition:
Correct answer	Achylia
B	Hypoaciditas
C	Hypochlorhydria
D	Achlorhydria
E	Hyperchlorhydria

№	krok 2020
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	In the human body, some carbohydrates cannot be digested in the gastrointestinal tract. Select one such carbohydrate:
Correct answer	Cellulose
B	Sucrose
C	Lactose
D	Starch
E	Glycogen
№	krok 2020
Topic	Hormones of the pancreas and adrenal medulla.
Task	An unconscious patient was brought into the intensive care unit. Acetone breath, acute hyperglycemia, and ketonemia are detected. What complication of diabetes mellitus occurred in this case?
Correct answer	Diabetic coma
B	Acute acetone poisoning
C	Hypoglycemic coma
D	Nephritis
E	Cataract
№	krok 2020
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	Proteolytic enzymes of gastrointestinal tract catalyze protein hydrolysis. What chemical bonds do these enzymes break?
Correct answer	Peptide bonds
B	Glycosidic bonds
C	Ether bonds
D	Phosphodiester bonds
E	Hydrogen bonds

№	krok 2021
Topic	Hemoglobin, structure, synthesis in the body.
Task	Mutation in the gene that controls the synthesis of beta chain results in formation ofabnormal hemoglobin forms. Select the mutant hemoglobin:
Correct answer	HbS
B	HbA
C	HbF
D	HbA2
E	HbAl
№	krok 2021
Topic	Nutritional Biochemistry
Task	Illegal emigrants from Somalia were detained at the Ukrainian border. During medical examination, their 3-year-old child presents with muscle hypotonia and dystrophy, skin depigmenlation, decreased turgor, and enlarged abdomen. The child is underweight. The diagnosis of kwashiorkor was made. This pathology is a type of partial starvation, namely the deficiency of:
Correct answer	Proteins
B	Lipids
C	Carbohydrates
D	Energy
E	Vitamins
№	krok 2021
Topic	Thyroid and parathyroid hormones.
Task	Some hormones arc synthesized from amino acids in the body. What amino acid is the precursor to the thyroxine hormone?
Correct answer	Tyrosine
B	Histidine
C	Glutamine

D	Cysteine
E	Arginine
№	krok 2021
Topic	Water-soluble vitamins
Task	A patient presents with decreased secretory function of the stomach, which is accompanied by anemia. What vitamin has an anti-anemic action?
Correct answer	Cobalamin
B	Tocopherol
C	Nicotinic acid
D	Retinol
E	Thiamine
№	krok 2021
Topic	Fat-soluble vitamins.
Task	Because of protracted diarrhea, a 5- year-old child developed vision disorders, frequentin flammations of oral mucosa, and conjunctivitis, which can indicate a developing hypovitaminosis of vitamin
Correct answer	A
B	B6
C	B1
D	B2
E	PP
№	krok 2021
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	In the human body, some carbohydrates cannot be digested in the gastrointestinal tract. Select one such carbohydrate:
Correct answer	Cellulose
B	Starch
C	Sucrose

D	Lactose
E	Glycogen
№	krok 2021
Topic	Tissue exchange of nucleotides
Task	A man with gout has a significant increase in blood levels of uric acid. Uric acid is an end product of the metabolism of:
Correct answer	Purine bases
B	Globulins
C	Triglycerides
D	Albumins
E	Fatty acids
№	krok 2021
Topic	Tissue exchange of nucleotides
Task	A man came to a doctor complaining of a severe joint pain. Urinalysis shows increased levels of uric acid, which indicates
Correct answer	Intensive breakdown of purine nucleotides
B	Increased glycogenolysis activity
C	Increased glycolysis activity
D	Increased synthesis of ketone bodies
E	Increased activity of fatty acid beta- oxidation
№	krok 2021
Topic	Thyroid and parathyroid hormones.
Task	A child with mental retardation is diagnosed with cretinism. What hormone deficiency is the main factor in the development of nervous system dysfunction in this disease?
Correct answer	Thyroid hormones
B	Catecholamines
C	Estrogens

D	Glucocorticoids
E	Androgens
№	krok 2021
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	A man’s diet consists mostly of fatty foods. What enzyme should he be prescribed to normalize his digestive processes?
Correct answer	Lipase
B	Maltase
C	DNAse
D	Hyaluronidase
E	Catalase
№	krok 2021
Topic	Hemoglobin, structure, synthesis in the body.
Task	After eating early vegetables that had high nitrite levels, a child developed hemic hypoxia. It is caused by accumulation of the following substance:
Correct answer	Methemoglobin
B	Carboxyhemoglobin
C	Deoxyhemoglobin
D	Oxyhemoglobin
E	Carbhcmoglobin
№	krok 2021
Topic	Hemoglobin, structure, synthesis in the body.
Task	During hemoglobin catabolism, iron is released. Then it enters the bone marrow and is again used for the synthesis of hemoglobin. Which of the following proteins helps in iron transport?
Correct answer	Transferrin
B	Haptoglobin
C	Ceruloplasmin

D	Transcobalamin
E	Albumin
№	krok 2021
Topic	Fat-soluble vitamins.
Task	A woman has accidentally cut her skin. 20 minutes later she noticed that the wound did not stop bleeding. What vitamin is absent or deficient in this case, causing this condition?
Correct answer	K
B	A
C	E
D	PP
E	D
№	krok 2021
Topic	Digestion of carbohydrates, lipids, proteins, nucleoproteins in the gastrointestinal tract.
Task	Cholesterol derivatives produced in the liver are necessary for digestion of lipids. Name these derivatives:
Correct answer	Bile acids
B	Calciferols
C	Acetyl coenzyme A
D	Corticosteroids
E	Catecholamines
№	krok 2021
Topic	Mechanism of tissue respiration. Peroxide and microsomal oxidation
Task	Activation of lipid peroxidation is one of the mechanisms that damage biostructures and cause development of a cellular pathology. Name the compound that takes part in neutralization of organic peroxides:
Correct answer	Glutathione
B	Taurine
C	Methionine
D	Glycine

E	Alanin
№	krok 2021
Topic	Fat-soluble vitamins.
Task	A woman presents with poor twilight vision and dry conjunctiva and cornea. What vitamin deficiency can cause such disorders?
Correct answer	A
B	B
C	D
D	C
E	B12
№	krok 2021
Topic	Hormones of the pancreas and adrenal medulla.
Task	child developed acute hunger, tremor, excessive sweating, and dizziness. What caused this condition in the child?
Correct answer	Hypoglycemia
B	Hyperglycemia
C	Ketonemia
D	Hyperlipemia
E	Glucosuria
№	krok 2021
Topic	Intracellular glucose catabolism.
Task	When glucose breaks down during glycolysis, a number of transformations occur. In the first reaction, glucose 6- phosphate transforms into the following compound:
Correct answer	Fructose 6-phosphate
B	Galactose 1-phosphate
C	Fructose 1-phosphate
D	Acetyl coenzyme A

E	Mannose 6-phosphate
№	krok 2021
Topic	Intracellular glucose catabolism.
Task	To treat alcoholism in a patient, the doctor used the mechanism for suppressing ethanol addiction that amplifies the toxic effect of alcohol. What ethanol oxidation product is neurotoxic?
Correct answer	Acetaldehyde
B	Carbon dioxide
C	Ammonia
D	Lactate
E	Pyruvate