Two days after consumption of smoked pork a patient got face and eye-lid edemata, gastrointestinal disturbances, abrupt temperature rise, muscle pain. Blood analysis showed full-blown eosinophilia. What helminth could the patient be infected with?
Trichina
Pinworm
Ascarid
Whipworm
Hookworm

A child complains of general weakness, loss of appetite, a troubled sleep, itching in theperianal area. The provisional diagnosis is enterobiasis. In order to specify this diagnosis it is necessary to perform:
Scraping from perianal folds
Roentgenoscopy
Biopsy of muscle tissue
Immune diagnostics
Duodenal contents analysis

During regular examination of schoolchildren it was revealed that a 10 year old girl had asymmetric oval eggs with a larva in the scrape from her perianal folds. What diagnosis should be made?
Enterobiasis
Ascariasis
Amebiasis
Trichocephalosis
Ancylostomiasis

In the perianal folds of a 5-year-old girl her mother has found some white "worms" that caused itch and anxiety in the child. The "worms" were sent to the laboratory. During examination the physician saw white filiform helminths 0.5-1 cm long, with pointed ends, some helminths had twisted ends. What is the most likely diagnosis?
Enterobiasis
Diphyllobothriasis
Teniasis
Ascaridiasis
Opisthorchiasis

A 10-year-old child complains of weakness, nausea, irritability. Helminthes of white color and 5-10 mm long were found on the underwear. On microscopy of the scrape from the perianal folds achromic ova of the unsymmetrical form were revealed. Indicate what helminth is parasiting on the child?
Enterobins vermicularis
Ascaris lumbricoides
Ancylostoma duodenalis
Trichina

Trichuris

In one of Polessia regions there was an outbreak of helminthiasis manifested by cramps and facial edemas. The developed preventive measures in particular included ban for eating infested pork even after heat processing. What helminthiasis was the case?
Trichinosis
Taeniarhynchosis
Teniasis
Echinococcosis
Alveococcosis

A doctor revealed tissues injury on patient's scalp with localized suppurations and diagnosed his disease as myiasis. This infestation is caused by larvae of the following insect:
Wohlfahrtia fly
Kissing bug
Stable fly (Stomoxys calcitrans)
Malarial mosquito
Mosquito

According to the data collected by WHO researchers, every year approximately 250 millon malaria cases occur in the world. This disease can be encountered predominantly in tropical and subtropical areas. The spread of this disease matches the natural habitat of the following genus of mosquitoes:
Anopheles
Culiseta
Aedes
Culex
Mansonia

According to the data of WHO, for about 250 mln of Earth population fall ill with malaria. This disease is mostly spread in tropical and subtropical regions. Range of its spread falls into the areal of the following mosquitoes:
Anopheles
Culex
Aedes
Mansonia
Culiseta

In the South and Central America there can be found a species of trypanosomes that is the causative agent of Chagas disease. What animal is the infection carrier specific to this disease?
Triatomine bug
Cockroach

Tsetse fly
Mosquito
Gnat

Ingestion of plants and mushrooms that grow along highways is dangerous due to risk of lead poisoning. What is the main source of environmental pollution with this chemical element?
Exhaust fumes
Sewage
Acid rains
Herbicides
Chemical fertilizers

Representatives of a certain human population can be characterized by elongated body, height ariability, decreased volume of muscle mass, increased length of limbs, decreased size and volume of rib cage, increased perspiration, decreased indices of base metabolism and fat synthesis. What type of adaptive evolution is it?
Tropical
Arctic
Moderate
Intermediate
Mountain

People of various nationalities, who live in the Arctic climate, develop a number of features to adapt to their environment. Representatives of the Arctic adaptive type compared to the natives of the Central Africa have the following characteristic feature:
Increased layer of subcutaneous fat
Hyperhidrosis
Lower need for fat intake
Lean stature
Elongated legs and shorter arms

A baby has microcephaly. Doctors believe that this condition is caused by the baby's mother taking actinomycin D during her pregnancy. What germ layers have been affected by this teratogen?
Ectoderm
Mesoderm
Endoderm
All the germ layers
Endoderm and mesoderm

Name the change in the nucleotide sequence of a gene that is associated with the rotation of a certain DNA segment by 180°.
Inversion

Deletion
Translocation
Repair
Duplication

The parents of a newborn came for medical and genetic counseling. Their baby is suspected to have Edwards syndrome that manifests as micrognathia, microstomia, and a short upper lip. What testing methods are necessary to clarify the diagnosis?
Cytogenetics
Biochemistry
Immunogenetics
Clinical genealogy
Dermatoglyphics

Name the sequence of special functional DNA segments and structural genes that encode synthesis of a certain group of proteins that belong to one metabolic series.
Operon
Terminator
Operator
Promoter
Regulator gene

Biochemical analysis of amino acid composition of freshly synthesized polypeptides shows that in the process of translation, in each of these proteins the first amino acid is always the same one. Name this amino acid.
Methionine
Histidine
Isoleucine
Phenylalanine
Serine

A miner consulted a physician about the appearance of body rash followed by a loss of appetite, bloating, duodenal pain, frequent bowel movements, dizziness. Ovoscopic probes of feces and duodenal contents revealed some eggs covered with a transparent membrane through which 4-8 germinal cells could be seen. What disease is likely to have occurred in the patient?
A. Ancylostomiasis
B. Strongyloidiasis
C. Trichocephaliasis
D. Hymenolepiasis
E. Enterobiasis

A 36-year-old woman goes into labor at 38 weeks. After several hours of labor a male infant is born with fever, hydrocephalus, hepatosplenomegaly, jaundice,

bilateral chorioretinitis and cerebral calcifications. Which of the following protozoan infections is the most likely cause of the infant`s condition?
Toxoplasmosis
Balantidiasis
Amebiasis
Trichomoniasis
Giardiasis

At the molecular level, the process of spontaneous passive transport of water-soluble molecules across the cell membrane takes place in living organism. The molecules move across the cell membrane from the area of a higher concentration towards the area of a lower concentration using specific transmembrane integral proteins. This type of transport does not directly require the chemical energy obtained in the process of ATP hydrolysis. Name this process.
Facilitated diffusion
Osmosis
Pinocytosis
Endocytosis
Active transport

No nitrogenous base that is a component of one DNA codon can be at the same time a component of another codon. What characteristic of the genetic code is it?
Non-overlapping
Specificity
Triplet structure
Universality
Collinearity

What hereditary disorders cause sickle cell anemia?
Gene mutation
Crossing-over
Disturbances of the mechanisms of genetic information transmission
Genomic mutation
Transduction

During meiosis, various combinations of genes form in the gametes, which ensures the appearance of new traits in the offspring. What type of variability is it?
Combinative variation
Mutational variability
Modificational variability
Chromosomal variability
Phenotypic (modificational) variability

After organ heterotransplantation transplant rejection was detected. What cells cause this process?

Killer T cells
Helper T cells
Macrophages
Suppressor T cells
B lymphocytes

In alkaptonuria, concentration of a certain acid increases in urine. Name this acid.
Homogentisic acid
Uric acid
Pyruvic acid
Phenylpyruvic acid
Acetoacetic acid

During amniocentesis, fetal cells contained two sex chromatin bodies (Barr bodies). What disease can be characterized by this finding?
Trisomy X
Patau syndrome
Turner syndrome
Klinfelter syndrome
Down syndrome

When examining a female patient a doctor observed the following: misshapen auricles, elevated palate, teeth growth disorder; mental retardation; no disruption of reproductive function. Provisional diagnosis is the «super woman» syndrome. Point out the karyotype of disease:
(47, XXX)
(47, XYY)
(47, XXY)
(45, X0)
(47, YYY)

In some areas of South Africa many people have sickle cell disease characterized by red blood cells that assume an abnormal sickle shape due to the substitution of glutamic acid for valine in the hemoglobin molecule. What is the cause of this disease?
Gene mutation
Transduction
Genomic mutation
Crossing-over
Disturbances of the mechanisms of genetic information transmission

Patients from the same family were admitted to a hospital with edema of the eyelids and face, fever, eosinophilia, headache, and muscle pain. The disease onset occurred 7-10 days after eating pork sausage. Make the diagnosis.
Trichinellosis

Cysticercosis
Echinococcosis
Taeniasis
Taeniarhvnchosis

A woman came to a genetic consultancy, concerned about the risk of giving birth to a son with hemophilia. Her husband has been suffering from this disorder since birth. The woman is healthy and there were no people with hemophilia among her ancestors. Determine the likelihood of a boy with hemophilia being born in this family:
Equals 0%
Equals 25%
Equals 1009
Equals 75%
Equals 50%

A young man provisionally diagnosed with Klinefelter syndrome came to a genetic consultancy. What genetic method can be used to confirm the diagnosis?
Cytogenetics
Genealogy
Twin study
Biochemistry
Population statistics

An infant presents with colored sclerae and mucous membranes. The infant's urine becomes dark when exposed to air. Homogentisic acid was detected in blood and urine. What disease is likely to be the cause of the infant's condition?
Alcaptonuria
Galactosemia
Albinism
Tlistidincmia
Cystinuria

A couple gave birth to a son with hemophilia. The parents themselves are healthy; but the maternal grandfather has hemophilia. Determine the type of inheritance of this trait:
Sex-linked recessive
Autosomal recessive
Sex-linked dominant
Autosomal dominant
Y-linked

A man suffers from acne and inflammatory changes in the skin of his face. Microscopy of a material obtained from the lesion foci reveals living elongated

creatures of the phylum Arthropoda type with 4 pairs of reduced limbs. What is the preliminary diagnosis?
Demodecosis
Sarcoptes scabiei lesions
Pediculosis
Flea lesions
Allergy

When examining a child, the pediatrician noted that the child presents with delayed physical and mental development. Urinalysis showed an acute increase in the levels of a keto acid that produces a qualitative color reaction with ferric chloride. What metabolic disturbance was detected in this case?
Phenylketonuria
Tyrosinemia
Alkaptonuria
Albinism
Cystinuria

The process of tissue respiration is accompanied by oxidation of organic compounds and synthesis of macroergic molecules. In what organelles does this process occur?
Mitochondria
Peroxisomes
Ribosomes
Golgi apparatus
Lysosomes

A man, who recently returned from an African country, came to theurologist complaining of painful urination. A urine sample, obtained for analysis during the daytime, contains eggs with a characteristic spike. Make the diagnosis.
Opisthorchiasis
Urogenital schitosomiasis
Dicroceliasis
Japanese schistosomiasis
Intestinal schistosomiasis

Karyotyping detected 47 chromosomes (3 copies of chromosome 13) in a newborn child with multiple defects of the skull, limbs, and internal organs. What diagnosis can be made in this case?
Patau syndrome
Down syndrome
Turner syndrome
Edwards syndrome
Klinefelter syndrome

A woman came to a medical and genetic consultancy requesting to assess the risk of hemophilia in her children. Her husband has hemophilia. History-taking revealed that the woman's family had no cases of hemophilia. What is the risk of this couple giving birth to a child with this disease?
Absent
75%
25%
100%
50%

In a maternity hospital, due to a mistake made by a nurse, it became necessary to determine the biological parents of the newborn babies. What must be analyzed to determine the child's parentage?
Nuclear DNA
Ribosomal RNA
Mitochondrial DNA
Small nuclear RNA
Messenger RNA

A patient with probable liver abscess was delivered to a surgical department. The patient for a long time had been on an assignment in an African country' and had recurrent cases of acute gastrointestinal disturbance. What protozoan disease can it be?
Amebiasis
Leishmaniasis
Trypanosomiasis
Toxoplasmosis
Malaria

In Tay-Sachs amaurotic idiocy that has an autosomal recessive pattern of inheritance, irreversible severe disorders of the central nervous system develop, leading to death in early childhood. In this disease, disturbed metabolism of certain substances is observed. Name these substances.
Lipids
Nucleic acids
Minerals
Carbohydrates
Amino acids

The father and mother are healthy. Amniocentesis detects that the karyotype of the fetus is 45 XO. Make the diagnosis.
Turner syndrome
Cri-du-chat syndrome
Edwards syndrome
Trisomy X

Patau syndrome

The molecule of immature mRNA (pro-mRNA) contains more triplets than there are amino acids in the synthesized protein, because translation is normally preceded by:
Processing
Mutation
Initiation
Replication
Repair

A molecular-level-process of spontaneous passive transport of water-soluble molecules across a cell membrane is modeled. The molecules move across cell membranes from an area of higher concentration toward an area of lower concentration via specific transmembrane integral proteins. This transport does not directly require chemical energy from ATP hydrolysis. Which of the following transport mechanisms is most likely mentioned?
Facilitated diffusion
Pinocytosis
–
Osmosis
Active transport

During histologic examination of the skeletal muscle specimen, the investigator discovers an organelle that has 2 membranes: smooth outer membrane and internal, that forms multiple ridges of visible folds (crysts). Which of the following is the most likely function of this structure?
Formation of mitotic spindle
Synthesis of carbohydrates
Synthesis and energy accumulation in the form of ATP
–
Intracellular digestion of macromolecules

A patient with chronic hepatitis undergoes blood test for serum protein fractions. Total protein levels are low, which indicates that in the hepatic cells the following organelles are functionally disturbed:
Granular endoplasmic reticulum
Mitochondria
Cytoskeleton
Golgi apparatus
Lysosomes

A patient with pulmonary tuberculosis is prescribed rifampicin that inhibits RNA-polymerase enzyme at the stage of initiation of the following process:
Termination
Transcription

Translation
Replication
Elongation

According to the law of constancy of chromosome numbers, most animal species have definite and constant chromosome number. The mechanism that maintains this constancy during sexual reproduction of organisms is called:
Schizogony
–
Regeneration
Amitosis
Meiosis

According to the law of constancy of chromosome numbers, most animal species have definite and constant chromosome number. The mechanism that maintains this constancy during sexual reproduction of organisms is called:
Meiosis
Schizogony
Amitosis
Regeneration
–

Students study the stages of gametogenesis. They analyze a cell with haploid number of chromosomes, with each chromosome consisting of two chromatids. The chromosomes are located in the equatorial plane of the cell. Such situation is typical of the following stage of meiosis:
Metaphase of the second division
Metaphase of the first division
Anaphase of the first division
Anaphase of the second division
Prophase of the first division

Hypertrichosis is the Y-linked character. The father has hypertrichosis, and the mother is healthy. In this family, the probability of having a child with hypertrichosis is:
0.5
0.25
0.125
0.625
1

As a result of prophylactic medical examination a 7-year-old boy was diagnosed with Lesch-Nyhan syndrome (only boys fall ill with it). The boy's parents are healthy but his grandfather by his mother's side suffers from the same disease. What type of disease inheritance is it?

Recessive, sex-linked
Dominant, sex-linked
Autosomal recessive
Autosomal dominant
Semidominance

Study of genealogy of some family is revealed that hypertrichosis is observed in each generation only for men and inherited from a father to the son. Define the type of inheritance:
Y-linked
Autosomal-recessive
Autosomal-dominant
X-linked recessive
X-linked dominant

The guide of the scientific expedition in India was native who always was with his dog. What invasive diseases can be transmitted by the dog if it is the source of invasion?
A. Echinococcosis
B. Teniasis
C. Paragonimiasis
D. Dicroceliasis
E. Fascioliasis
Enamel hypoplasia is inherited as X-linked dominant trait. In some family a mother has suffered from anomaly but father is healthy (in the family of the wife father was ill). What is the probability of a son being born with normal teeth:
50%.
75%.
25%.
0%.
100%.

A man suffering from a hereditary disease married a healthy woman. They got 5 children, three girls and two boys. All the girls inherited their father's disease. What is the type of the disease inheritance?
Dominant, X-linked
Autosomal-recessive
Autosomal-dominant
Y-linked
Recessive, X-linked

Exposure to colchicine resulted in metaphase plate of a human containing 23 chromosomes more than it is normal. Name this mutation:
Polyploidy
Aneuploidy

Polyteny
Inversion
Translocation

Parents of a sick 5-year-old girl visited a genetic consultation. Karyotype investigation revealed 46 chromosomes. One chromosome of the 15th pair was abnormally long, having a part of the chromosome belonging to the 21st pair attached to it. What mutation occurred in this girl?
Translocation
Deletion
Inversion
Deficiency
Duplication

Fetal malformations can be caused by such maternal diseases as rubella, syphilis, toxoplasmosis, cytomegaly, herpes, and chlamydiosis. These malformations belong to the following type of variability:
Modification
Mutational
Combinative
Genomic imprinting
Epimutational

A woman had been taking synthetic hormones during her pregnancy. Her newborn girl presents with excessive hairiness, which has formal resemblance to adrenogenital syndrome. This sign of variability is called:
Phenocopy
Mutation
Recombination
Heterosis
Replication

As a result of treatment of viral RNA with nitrous acid, UCA triplet mutated to UGA triplet. What kind of mutation occurred?
Transition
Nucleotide deletion
Missense
Nucleotide insertion
Inversion

In some regions of South Africa there is a spread sickle-shaped cell anemia, in which erythrocytes have shape of a sickle as a result of substitution of glutamin by valine in the hemoglobin molecule. What is the cause of this disease?
Gene mutation
Disturbance of mechanisms of genetic information realization

Crossingover
Genomic mutations
Transduction

Part of the DNA chain turned about 180 degree due to gamma radiation. What type of mutation took place in the DNA chain?
Inversion
Deletion
Doubling
Translocation
Replication

46 chromosomes were revealed on karyotype examination of the 5-year-old girl. One of the 15th pair of chromosomes is longer than usual due to connected chromosome from the 21 pair. What type of mutation does this girl have?
Translocation
Deletion
Inversion
Insufficiency
Duplication

A mother had taken synthetic hormones during pregnancy. Her daughter was born with hirsutism formally resembling of adrenal syndrome. Such manifestation of variability is called:
Phenocopy
Mutation
Recombination
Heterosis
Replication

A child with a normal karyotype is diagnosed with cleft lip and hard palate, defects of the cardiovascular system, microcephaly. The child's mother suffered rubella during pregnancy. This pathology in the child may be an example of:
Genocopy
Trisomy
Phenocopy
Monosomy
–

Pterin derivatives – aminopterin and methotrexate – are competitive inhibitors of dihydrofolate reductase. As a result, they suppress the regeneration of tetrahydrofolic acid from dihydrofolate. These medicines lead to the inhibition of intermolecular transport of one-carbon groups. In the process, the biosynthesis of the following polymer is suppressed:
DNA

Homopolysaccharides
Glycosaminoglycans
Gangliosides
Protein

A 40-year-old woman on examination presents with intensified basal metabolic rate. What hormone present in excess leads to such condition?
Triiodothyronine
Glucagon
Somatostatin
Aldosterone
Thyrocalcitonin

10 days after the administration of an antitoxic anti-diphtheritic serum, a child with diphtheria developed skin rashes accompanied by severe itching, body temperature increased up to 38°C, the child developed pain in the joints. What likely cause of these phenomena can be suggested?
Serum sickness
Atopy
Anaphylactic reaction
Delayed-type hypersensitivity
Contact allergy

During emotional excitation the heart rate of a 30-year-old person reached 112/min. The increased heart rate was caused by a change that occurred in a certain structure of the cardiac conduction system. Name this structure:
Sinoatrial node
Purkinje fibers
Atrioventricular node
His' bundle
His' bundle branches

A 16-year-old girl has no hair on the pubis and in the armpits, her mammary glands are underdeveloped, no menstruations. This condition can be caused by the following hormone imbalance:
Ovarian failure
Hypothyroidism
Hyperthyroidism
Pancreatic islet failure
Adrenal medulla hyperfunction

From the feces of a patient with acute gastroenteritis a pure culture of microorganisms was obtained. The microorganisms are small mobile slightly curved gram-negative bacilli that within 6 hours grow into a light blue him on the 1%

alkaline peptone water. Such properties are characteristic of the following microorganism:
Vibrio
Clostridium
Spirochaete
Bacillus
Spirillum

A person has diabetes mellitus with fasting hyperglycemia of over 7.2 mmol/L. What blood plasma protein allows for retrospective assessment (4-8 weeks before the examination) of glycemia levels?
Glycated hemoglobin
Fibrinogen
Ceruloplasmin
C-reactive protein
Albumin

The patient presents with smoothed out nasolabial fold, dilated right palpebral fissure (it cannot be closed when squinting, because the eyelids would not close), there are difficulties during speaking and eating (food gets stuck between the cheek and teeth). What nerve is damaged in this case?
N. facialis dexter
N. vagus dexter
N. trigeminus dexter
N. abduceus dexter
N. glossopharyngeus sinister

Due to a case of diphtheria, preventive immunization of the whole contact group of students is necessary. What preparation should be used to produce artificial active immunity?
Diphtheria anatoxin
Anti-diphtheria serum
DTP vaccine
Inactivated vaccine
Specific immunoglobulin

A patient complains of pain in the upper umbilical region. On palpation there is a mobile painful intestine. What intestine is being palpated by the doctor?
Transverse colon
Duodenum
Jejunum
Ileum
Sigmoid colon

Due to a trauma, the posterior roots of the spinal cord of a 40-year-old man were destroyed. What disorders will be observed in the innervation region of these roots?
Loss of all types of sensation
Disturbed function of cross-striated skeletal muscles
Loss of thermal and vibrational sensation
Loss of pain sensation
Disturbed function of smooth muscles

A 28-year-old woman came to a polyclinic with complaints of a headache. The doctor offered her paracetamol, taking into consideration that the woman has a somatic disease. What concomitant disease made it necessary to prescribe her specifically paracetamol?
Peptic ulcer disease of the stomach
Atherosclerosis
Nephritis
Rheumatoid arthritis
Cholecystitis

A lab rat has subcutaneously received mercury(II) chloride in the amount of 5 mg/kg. 24 hours later the plasma creatinine concentration increased several times. What mechanism of retention azotemia is observed in this case?
Decreased glomerular filtration
Increased glomerular filtration
Increased creatinine secretion in the renal tubules
Increased creatinine production in the muscles
Increased creatinine reabsorption

Autopsy of the body of a person, who died after an abdominal surgery, revealed numerous thrombi in the veins of the lesser pelvis. Clinically, thromboembolism syndrome was registered. Where should the pathologist search for thromboembolas?
Pulmonary arteries
Portal vein
Brain
Lower limb veins
Left ventricle of the heart

A patient with an injury of the greater psoas muscle was delivered to the traumatology center. The patient has lost the ability to extend the lower leg at the knee joint. What nerve is damaged in this case?
Femoral nerve
Obturator nerve
Ilioinguinal nerve
Iliohypogastric nerve
Genitofemoral nerve

A patient has disturbed vision in the lateral visual fields of both eyes (bilateral hemianopsia). What nerve structure is affected?
Optic chiasm
Right optic tract
Left optic tract
Retina
Optic nerves

A patient complains of frequent and excessive urination and thirst. Urinalysis revealed the following: 24-hour diuresis – 19 liters, specific gravity – 1.001. These values are characteristic of:
Diabetes insipidus
Diabetes mellitus
Steroid diabetes
Thyrotoxicosis
Addison's disease

Blood test of the patient revealed albumin content of 20 g/L and increased activity of lactate dehydrogenase isoenzyme 5 (LDH5). These results indicate disorder of the following organ:
Liver
Kidneys
Lungs
Spleen
Heart

Section shows a significant enlargement of the patient's right kidney. There is a nephrolith at the place of the incision. Renal pelvic lumen is distended with accumulating urine. The renal parenchyma is substantially thinned out. What is the most correct diagnosis?
Hydronephrosis
Hydroureteronephrosis
Pyelectasis
Renal cyst
Nephroblastoma

When checking donor blood at the blood transfusion station, antibodies to human immunodeficiency virus were found in the blood serum of one of the donors. What method is recommended for confirmation of HIV-infection diagnosis?
Western blot (immunoblotting)
Enzyme-linked immunosorbent assay
Electron microscopy
Immunofluorescence
Radioimmunoassay

A man suffering from a hereditary disease married a healthy woman. They got 5 children, three girls and two boys. All the girls inherited their fathers' disease. What is the type of the disease inheritance?
Dominant, X-linked
Recessive, X-linked
Autosomal dominant
Autosomal recessive
Y-linked

A couple has a son with haemophilia. The parents are healthy but the maternal grandfather also has haemophilia. Specify the type of inheritance:
Recessive sex-linked
Recessive autosomal
Semidominance
Autosomal dominant
Dominant sex-linked

Examination of newborns in one of the Ukrainian cities revealed a baby with phenylketonuria. The baby's parents do not suffer from this disease and have two other healthy children. Specify the most likely parents genotype with phenylketonuria gene:
Aa x Aa
Aa x aa
Aa x AA
Aa x aa
AA x aa

Electrocardiogram of a 45-year-old man showed absence of P-wave in all the leads. What part of the conducting system is blocked?
Sinu-atrial node
Branches of the bundle of His
Purkinje's fibers
Atrioventricular node
Common branch of the bundle

When a patient with traumatic impairment of the brain was examined, it was discovered that he had stopped to distinguish displacement of an object on the skin. What part of the brain was damaged?
Posterior central gurus
Parietal zone of the cortex
Occipital zone of the cortex
Frontal central gurus
Frontal zone

Different functional groups can be presented in the structure of L-amino acids radicals. Identify the group that is able to form ester bond:
-OH
-CONH2
-SH
-CH3
-NH2

The conjugated protein necessarily contains special component as a non-protein part. Choose the substance that can not carry out this function:
HNO3
Thiamine pyrophosphate
Glucose
AMP
ATP

Moving of the daughter chromatids to the poles of the cell is observed in the mitotically dividing cell. On what stage of the mitotic cycle is this cell?
Anaphase
Metaphase
Prophase
Interfase
Telophase

The patient with diabetes mellitus has been delivered in hospital in the state of unconsciousness. Arterial pressure is low. The patient has acidosis. Point substances, which accumulation in the blood results in these manifestations:
Ketone bodies
High fatty acids
Cholesterol esters
Amino acids
Monosaccharides

A 58-year-old female has undergone surgery for necrotic bowel. Despite having been treated with antibiotics, on postoperative day 5, she develops symptoms (fever, hypotension, tachycardia, declining urine output, and confusion) consistent with septic shock. What hemodynamic support would be helpful?
Fluids and Dobutamine infusion
Dobutamine infusion
Fluid administration
Atropine administration
Antibiotic administration

It was proved that a molecule of immature mRNA (precursor mRNA) contained more triplets than amino acids found in the synthesized protein. The reason for that is that translation is normally preceded by:
Processing
Reparation
Initiation
Mutation
Replication

Examination of a patient revealed reduced contents of magnesium ions that are necessary for attachment of ribosomes to the granular endoplasmatic reticulum. It is known that it causes disturbance of protein biosynthesis. What stage of protein biosynthesis will be disturbed?
Translation
Replication
Transcription
Aminoacid activation
Termination

Patient 54 year-old, 5th day after surgical operation. Blood count: Erythrocytes 3,61012/l, Hemoglobin 95 g/l, Erythrocyte's hemoglobin content (color index) 0,78; Leukocytes 16109l, Platelets 450109l Blood picture: anizocytosis, poikilocytosis, reticulocytes- 3,8%. What anemia does this patient have?
Acute posthemorragic anemia
Hypoplastic anemia
Chronic posthemorragic anemia
Acquired hemolytic anemia
Anemia from iron deficiency

The patient with pneumonia was treated with antibiotics for a long period. After treatment patient complains of frequent and watery stool, abdominal pain. What is the reason of intestine function disorder?
Intestinal disbacteriosis development
Hereditary enzyme defect
Autoimmune reaction development
Antibiotics toxic influence on the GIT
Bacteria toxins influence

A 46 year-old patient has complained of headache, fatigue, thirst, pains in the spine and joints for the last 2 years. Clinically observed disproportional enlargement of hands, feet, nose, superciliary arches. He notes that he needed to buy bigger shoes three times. What is the main reason of such disproportional enlargement of different parts of the body?
Cartilaginous tissue proliferation under growth hormone influence
Increased sensitivity of the tissues to growth hormone

Increased sensitivity of the tissues to insulin
Joints chronic inflammation development
Joints dystrophy development

A 55-year-old patient with continuing ventricular arrhythmias was admitted to the hospital. The patient is taking timolol drops for glaucoma, daily insulin injections for diabetes mellitus, and an ACE inhibitor for hypertension. You have decided to use phenytoin instead of procainamide. What is the reason?
The anticholinergic effect of procainamide would aggravate glaucoma
The hypertensive effects of procainamide would aggravate the hypertension
The cholinergic effects of procainamide would aggravate the diabetes
The local anesthetic effect of procainamide would aggravate the hypertension
The local anesthetic effect of procainamide would potentiate diabetes

A 25-year-old woman with red and itchy eczematoid dermatitis visits your office. She had a dental procedure one day earlier with administration of a local anesthetic. There were no other findings, although she indicated that she had a history of allergic reactions. Which of the following drugs is most likely involved?
Procaine
Etidocaine
Lidocaine
Cocaine
Bupiva

The CNS stimulation produced by methylxanthines, such as caffeine, is most likely due to the antagonism of one of the following receptors:
Adenosine receptors
Glutamate receptors
Glycine receptors
GABA receptors
Cholinergic muscarinic receptors
Dysenteric amoeba

According to the data of WHO, for about 250 million of Earth population fall ill with malaria. This disease is mostly spread in tropical and subtropical regions. Range of its spread falls into the areal of the following mosquitoes:
Anopheles
Aedes
Culiseta
Mansonia
Culex

Labeled amino acids alanine and tryptophane were introduced to a mouse in order to study localization of protein biosynthesis in its cells. Around what organelles will the accumulation of labeled amino acids be observed?

Ribosomes
Cell centre
Golgi apparatus
Lysosomes
Agranular endoplasmic reticulum

A 46-year-old female patient has continuous history of progressive muscular (Duchenne's) dystrophy. Which blood enzyme changes will be of diagnostic value in this case?
Creatine phosphokinase
Lactate dehydrogenase
Pyruvate dehydrogenase
Glutamate dehydrogenase
Adenylate cyclase

A laboratory experiment on a dog was used to study central parts of auditory system. One of the mesencephalon structures was destroyed. The dog has lost the orienting response to auditory signals. What structure was destroyed?
Inferior colliculi of corpora quadrigemina
Superior colliculi of corpora quadrigemina
Substantia nigra
Reticular formation nuclei
Red nucleus

A patient has decreased concentration of magnesium ions that are required for ribosomes connection to granular endoplasmic reticulum. This condition is known to disrupt the process of protein biosynthesis. Disruption occurs at the following stage:
Translation
Transcription
Replication
Amino acids activation
Processing

Poisoning caused by botulinum toxin that prevents calcium ions from entering axone nerve endings of motoneurons is lifethreatening because it can lead to:
Respiratory arrest
Cardiac arrest
Vasotonic disorder
Vomiting
Diarrhea

A 16-year-old adolescent is diagnosed with hereditary UDP (uridine diphosphate) glucuronyltransferase deficiency. Laboratory tests revealed hyperbilirubinemia caused mostly by increased blood content of the following substance:

Unconjugated bilirubin
Conjugated bilirubin
Urobilinogen
Stercobilinogen
Biliverdine

After implantation of a cardiac valve a young man systematically takes indirect anticoagulants. His state was complicated by hemorrhage. What substance content has decreased in blood?
Prothrombin
Haptoglobin
Heparin
Creatin
Ceruloplasmin

It has been found out that one of a pesticide components is sodium arsenate that blocks lipoic acid. Which enzyme activity is impaired by this pesticide?
pyruvate dehydrogenase complex
Microsomal oxidation
Methemoglobin reductase
Glutathione peroxidase
Glutathione reductase

Pure culture of microorganisms was obtained from pharynx of a child with suspected diphtheria. Morphologic, tinctorial, cultural, and biochemical properties of the microorganisms were studied and revealed to be characteristic of diphtheria agents. What investigation should be additionally performed to make a conclusion, that these microorganisms are pathogenic diphtheria bacilli?
Determine toxigenic properties
Determine proteolytic properties
Determine urease activity
Determine cystinase activity
Determine amylolytic activity

A 7-year-old child has acute onset of disease: temperature rise up to 38oC, rhinitis, cough, lacrimation, and large-spot rash on the skin. Pharyngeal mucosa is edematous, hyperemic, with whitish spots in the buccal area. What kind of inflammation causes the changes in the buccal mucosa?
Catarrhal inflammation
Suppurative inflammation
Fibrinous inflammation
Hemorrhagic inflammation
Serous inflammation

A patient with probable liver abscess was delivered to a surgical department. The patient for a long time had been on an assignment in an African country and had recurrent cases of acute gastrointestinal disturbance. What protozoan disease can it be?
Amebiasis
Trypanosomiasis
Leishmaniasis
Malaria
Toxoplasmosis

A 41-year-old man has a history of recurrent attacks of heartbeats (paroxysms), profuse sweating, headaches. Examination revealed hypertension, hyperglycemia, increased basal metabolic rate, and tachycardia. These clinical presentations are typical for the following adrenal pathology:
Hyperfunction of the medulla
Hypofunction of the medulla
Hyperfunction of the adrenal cortex
Hypofunction of the adrenal cortex
Primary aldosteronism

A 12-year-old child has developed nephritic syndrome (proteinuria, hematuria, cylindruria) 2 weeks after the case of tonsillitis, which is a sign of affected glomerular basement membrane in the kidneys. What mechanism is the most likely to cause the basement membrane damage?
Immune complex
Granulomatous
Antibody-mediated
Reaginic
Cytotoxic

Cells of healthy liver actively synthesize glycogen and proteins. What organelles are the most developed in them?
Granular and agranular endoplasmic reticulum
Cell center
Lysosomes
Mitochondria
Peroxisomes

A patient with hypertensic crisis has increased content of angiotensin II in blood. Angiotensin pressor effect is based on:
Contraction of arteriole muscles
Activation of biogenic amine synthesis
Prostaglandin hyperproduction
Vasopressin production stimulation
Activation of kinin–kallikrein system

On examination of a newborn boy's external genitalia a fissure in the urethra opening on the inferior surface of his penis is detected. What maldevelopment is it?
Hypospadias
Hermaphroditism
Epispadia
Monorchism
Cryptorchidism

For people adapted to high external temperatures profuse sweating is not accompanied by loss of large volumes of sodium chloride. This is caused by the effect the following hormone has on the perspiratory glands:
Aldosterone
Vasopressin
Cortisol
Thyroxin
Natriuretic

Emotional stress causes activation of hormone-sensitive triglyceride lipase in the adipocytes. What secondary mediator takes part in this process?
Cyclic adenosine monophosphate
Cyclic guanosine monophosphate
Adenosine monophosphate
Diacylglycerol
Ions of Ca^{2+}

During regular check-up a child is detected with interrupted mineralization of the bones. What vitamin deficiency can be the cause?
Calciferol
Riboflavin
Tocopherol
Folic acid
Cobalamin

A 37-year-old woman complains of headache, vertigo, troubled sleep, numbness of limbs. For the last 6 years she has been working at a gas-discharge lamp-producing factory in a lead-processing shop. Blood test findings: low hemoglobin and RBC level, serum iron concentration exceeds the norm by several times. Specify the type of anemia:
Iron refractory anemia
Iron-deficiency anemia
Minkowsky-Shauffard disease
Hypoplastic anemia
Metaplastic anemia

A patient with acute myocardial infarction has been administered heparin as a part of complex therapy. Some time after heparin injection the patient developed hematuria. What heparin antagonist should be injected to remove the complication?
Protamine sulfate
Vicasol
Aminocaproic acid
Neodicumarin
Fibrinogen

A 39-year-old man who had been operated for the stomach ulcer died 7 days after the surgery. Autopsy revealed that peritoneal leaves were dull, plephoric, covered with massive yellow-greenish films, the peritoneal cavity contained about 300 ml of thick yellow-greenish liquid. What pathologic process was revealed in the peritoneal cavity?
Fibrinous suppurative peritonitis
Serous peritonitis
Fibrinous serous peritonitis
Peritoneal commissures
Fibrinous haemorrhagic peritonitis

Despite the administration of cardiotonics and thiazide diuretic a patient with chronic heart failure has persistent edemas and the risk of ascites arose. What medication should be administered to enhance the diuretic effect of the administered drugs?
Spironolactone
Furosemide
Amiloride
Clopamide
Manithol
A 3-year-old child with meningeal symptoms died. Postmortem macroscopy of the pia matter revealed miliary nodules which were microscopically represented by a focus of caseous necrosis with masses of epithelioid and lymphoid cells with large cells containing crescent-shaped peripheral nuclei situated between them. Specify the type of meningitis in the child:
Tuberculous
Syphilitic
Brucellar
Grippal
Meningococcal

A 66-year-old woman had intravenous injection of magnesium sulfate solution to stop hypertensive crisis. However, her arterial pressure did not decrease and after repeated introduction of the same preparation she developed sluggishness, slow response to stimuli; the patient is unconsciousness and her respiration is inhibited.

What preparation is antagonist of magnesium sulfate and can remove the symptoms of its overdose?
Calcium chloride
Potassium chloride
Sodium chloride
Activated carbon
Potassium permanganate

A patient working at a pig farm complains of paroxysmal abdominal pain, liquid feces with mucus and blood, headache, weakness, fever. Examination of large intestine revealed ulcers from 1 mm up to several cm in diameter, feces contained oval unicellular organisms with cilia. What disease can be suspected?
Balantidiasis
Amebiasis
Toxoplasmosis
Lambliasis
Trichomoniasis

An unconscious patient was delivered by ambulance to the hospital. On objective examination the patient was found to present no reflexes, periodical convulsions, irregular breathing. After laboratory examination the patient was diagnosed with hepatic coma. Disorders of the central nervous system develop due to accumulation of the following metabolite:
Ammonia
Urea
Glutamine
Bilirubin
Histamine

When playing a child received a hit to the presternum region. As a result of this trauma an organ located behind the presternum was damaged. Name this organ:
Thymus
Thyroid gland
Heart
Pericardium
Larynx

A child suffers from dry cough. What non-narcotic antitussive drug will relieve the patient's condition?
Glaucine hydrochloride
Codeine phosphate
Morphine hydrochloride
Potassium iodide
Althaea officinalis root extract

A patient has insufficient blood supply to the kidneys, which has caused the development of pressor effect due to constriction of arterial resistance vessels. This condition results from the vessels being strongly affected by the following substance:
Angiotensin II
Angiotensinogen
Renin
Catecholamines
Norepinephrine

When blood circulation in the damaged tissue is restored, lactate accumulation stops and glucose consumption decelerates. These metabolic changes are caused by activation of the following process:
Aerobic glycolysis
Anaerobic glycolysis
Lipolysis
Gluconeogenesis
Glycogen biosynthesis

A doctor examined a patient, studied the blood analyses, and reached a conclusion, that peripheral immunogenesis organs are affected. What organs are the most likely to be affected?
Tonsils
Thymus
Kidneys
Red bone marrow
Yellow bone marrow

When studying the signs of pulmonary ventilation, reduction of forced expiratory volume has been detected. What is the likely cause of this phenomenon?
Obstructive pulmonary disease
Increase of respiratory volume
Increase of inspiratory reserve volume
Increase of pulmonary residual volume
Increase of functional residual lung capacity

A patient had a trauma that caused dysfunction of motor centres regulating activity of head muscles. In what parts of cerebral cortex can the respective centre normally be located?
Inferior part of precentral gyrus
Superior part of precentral gyrus
Supramarginal gyrus
Superior parietal lobule
Angular gyrus

A patient has been diagnosed with influenza. His condition drastically worsened after taking antipyretic drugs. He is unconscious, AP is 80/50 mm Hg, Ps is 140/m, body temperature dropped down to 35, 8^0 C. What complication developed this patient?
Collapse
Hyperthermia
Hypovolemia
Acidosis
Alkalosis

Due to the use of poor-quality measles vaccine for preventive vaccination, a 1- year-old child developed an autoimmune renal injury. The urine was found to contain macromolecular proteins. What process of urine formation was disturbed?
Filtration
Reabsorption
Secretion
Reabsorption and secretion
Secretion and filtration

A patient has been given atropine sulfate for rapid relief of spastic colon symptoms. The use of this drug is contraindicated during the followng disease:
Glaucoma
Bronchial asthma
Bradycardia
Hypotension
Gastric ulcer

A 47-year-old man developed intestinal colic against the background of essential hypertension. In this situation it would be most efficient to arrest the colic by administering drugs of the following group:
Myotropic antispasmodics
Anticholinesterase agents
Sympathomimetics
M-cholinomimetics
Adrenomimetic

A man is suffering from diarrhea. In summer he spent his vacation in the south at the sea coast. Bacteria with the following properties were detected in his feces: gramnegative curved mobile monotrichous bacilli that do not produce spores or capsules. They are undemanding to nutrient medium but require alkaline reaction (pH 8,5-09,5). Described are the agents of the following enteric infection:
Cholera
Shigellosis
Typhoid fever
Colienteritis

Pseudotuberculosis

Autopsy of a man who had been working as a miner for many years and died from cardiopulmonary decompensation revealed that his lungs were airless, sclerosed, their apex had emphysematous changes, the lung surface was greyish-black, the incised lung tissue was coal-black. What disease caused death?
Anthracosis
Silicosis
Talcosis
Asbestosis
Aluminosis

Microscopy of stained (Ziehl-Neelsen staining) smears taken from the sputum of a patient with chronic pulmonary disease revealed red bacilli. What property of tuberculous bacillus was shown up?
Acid resistance
Alkali resistance
Alcohol resistance
Capsule formation
Sporification

Parents of a 10 year old boy consulted a doctor about extension of hair covering, growth of beard and moustache, low voice. Intensified secretion of which hormone must be assumed?
Of testosterone
Of somatotropin
Of ostrogen
Of progesterone
Of cortisol

Examination of coronary arteries revealed atherosclerotic calcified plaques closing vessel lumen by 1/3. The muscle has multiple whitish layers of connective tissue process was revealed in the myocardium?
Diffusive cardiosclerosis
Tiger heart
Postinfarction cardiosclerosis
Myocarditis
Myocardium infarction

It was revealed that T-lymphocytes were affected by HIV. Virus enzyme - reverse transcriptase (RNA-dependent DNA polymerase) - catalyzes the synthesis of:
DNA on the matrix of virus *mRNA*
Virus informational RNA on the matrix of DNA
DNA on virus ribosomal RN A
Viral DNA on DNA matrix

mRN A on the matrix of virus protein

A 35 year old man with a trauma of his left hand was admitted to the traumatology department. Objectively: cut wound of palmar surface of left hand; middle phalanxes of I-V fingers don't bend. What muscles are damaged?
Superficial finger flexor
Profound finger flexor
Lumbrical muscles
Palmar interosseous muscles
Dorsal interosseous muscles

Histological examination of a skin tissue sampling revealed granulomas consisting of macrophagal nodules with lymphocytes and plasmatic cells. There are also some big macrophages with fatty vacuoles containing causative agents of a disease packed up in form of spheres (Virchow's cells). Granulation tissue is well vascularized. What disease is this granuloma typical for?
Lepra
Tuberculosis
Syphilis
Rhinoscleroma
Glanders

In order to estimate toxigenity of diphtheria agents obtained from patients the cultures were inoculated on Petri dish with nutrient agar on either side of a filter paper strip that was put into the centre and moistened with antidiphtheric antitoxic serum. After incubation of inoculations in agar the strip-like areas of medium turbidity were found between separate cultures and the strip of filter paper. What immunological reaction was conducted?
Precipitation gel reaction
Coomb's test
Agglutination reaction
Rings precipitation reaction
Opsonization reaction

A patient taking clonidine for essential hypertension treatment was using alcohol that caused intense inhibition of central nervous system. What may it be connected with?
Effect potentiating
Effect summation
Cumulation
Intoxication
Idiosyncrasy

Examination of an ovary specimen stained by hematoxylin-eosine revealed a follicle in which follicular epithelium consisted of 1-2 layers of cubic cells. There was also a bright red membrane around the ovocyte. What follicle is it?
Primary
Primordial
Secondary
Mature
Atretic

A patient with clinical signs of encephalitis was delivered to the infectious diseases hospital. Anamnesis registers a tick bite. Hemagglutination-inhibition reaction helped to reveal antibodies to the causative agent of tick-borne encephalitis in the dilution 1:20 which is not diagnostic. What actions should the doctor take after he had got such result?
To repeat the examination with serum taken 10 days later
To examine the same serum
To apply more sensitive reaction
To repeat examination with another diagnosticum
To deny diagnosis of tick-borne encephalitis

A 40 year old man noticed a reddening and an edema of skin in the area of his neck that later developed into a small abscess. The incised focus is dense, yellowish-green. The pus contains white granules. Histological examination revealed drusen of a fungus, plasmatic and xanthome cells, macrophages. What type of mycosis is the most probable?
Actinomycosis
Aspergillosis
Candidosis
Sporotrichosis
Coccidioidomycosis

Continuous taking of some drugs foregoing the pregnancy increases the risk of giving birth to a child with genetic defects. What is this effect called?
Mutagenic effect
Embryotoxic effect
Teratogenic effect
Fetotoxical effect
Blastomogenic effect

A man with a wound of his limb that had been suppurating for a long time died from intoxication. Autopsy revealed extreme emaciation, dehydration, brown atrophy of liver, myocardium, spleen and cross-striated muscles as well as renal amyloidosis. What diagnosis corresponds with the described picture?
Chroniosepsis
Septicopyemia

Septicemia
Chernogubov's syndrome
Brucellosis

6 months after labour a woman had uterine hemorrhage. Gynaecological examination of uterine cavity revealed a dark-red tissue with multiple cavities resembling a "sponge". Microscopic examination of a tumour revealed in blood lacunas atypic light epithelial Langhans cells and giant cells of syncytiotrophoblast. What tumour is it?
Chorioepithelioma
Squamous cell nonkeratinous carcinoma
Adenocarcinoma
Fibromyoma
Cystic mole

An animal with aortic valve insufficiency got hypertrophy of its left heart ventricle. Some of its parts have local contractures. What substance accumulated in the myocardiocytes
caused these contractures?
Calcium
Potassium
Lactic acid
Carbon dioxide
Sodium

A girl is diagnosed with adrenogenital syndrome (pseudohermaphroditism). This pathology was caused by hypersecretion of the following adrenal hormone:
Androgen
Estrogen
Aldosterone
Cortisol
Adrenalin

In course of an experiment a big number of stem cells of red bone marrow was in some way destructed. Regeneration of which cell populations in the loose connective tissue will be inhibited?
Of macrophags
Of fibroblasts
Of pigment cells
Of lipocytes
Of pericytes

Examination of a 70 year old patient revealed insulin-dependent diabetes. What drug should be administered?
Glibenclamid

Insulin
Mercazolilum
Parathyroidin
Cortisone

A human body cools in water much faster than in the air. What way of heat emission in water is much more efficient?
Heat conduction
Convection
Heat radiation
Sweat evaporation
–

A patient suffering from chronic cardiac insufficiency was recommended to undergo a prophylactic course of treatment with a cardiological drug from the group of cardiac glycosides that is to be taken enterally. What drug was recommended?
Digoxin
Strophanthine
Corglycon
Cordiamin
Cordarone

An ophthalmologist used a 1% mesaton solution for the diagnostic purpose (pupil dilation for eye-ground examination). What is the cause of mydri- asis induced by the drug?
Activation of a_1 adrenoreceptors
Activation of a_2 adrenoreceptors
Block of a_1 adrenoreceptors
Activation of a_1 adrenoreceptors
Activation of M-cholinoreceptors

Prophylactic medical examination of a 36 year old driver revealed that his AP was 150/90 mm Hg. At the end of the working day he usually hears ear noise, feels slight indisposition that passes after some rest. He was diagnosed with essential hypertension. What is the leading pathogenetic mechanism in this case?
Neurogenetic
Nephric
Humoral
Endocrinal
Reflexogenic

A cerebral trauma caused increased ammonia generation. What amino acid participates in the excretion of ammonia from the cerebral tissue?
Glutamic
Tyrosine

Valine
Tryptophan
Lysine

While studying maximally spiralized chromosomes of human karyotype the process of cell division was stopped in the following phase:
Metaphase
Prophase
Interphase
Anaphase
Telophase

48 hours after tuberculine test (Mantoux test) a child had a papule 10 mm in diameter on the spot of tuberculine injection. What hypersensitivity mechanism underlies these changes?
Cellular cytotoxicity
Anaphylaxy
Antibody-dependent cytotoxicity
Immunocomplex cytotoxicity
Granulomatosis

A patient was admitted to the surgical department with suspected inflammation of Meckel's diverticulum. What part of bowels should be examined in order to discover the diverticulum in course of an operation?
Ileum
Duodenum
Jejunum
Caecum
Colon ascendens

Power inputs of a man were measured. In what state was this man if his power inputs were lower than basal metabolism?
Sleep
Relaxation
Simple work
Nervous tension
Rest

Examination of a newborn boy's genitalia revealed an urethral hiatus that opens on the undersite of his penis. What malformation is it?
Hypospadias
Hermaphroditism
Epispadia
Monorchism
Cryptorhidism

A concentrated solution of sodium chloride was intravenously injected to an animal. This caused decreased reabsorption of sodium ions in the renal tubules. It is the result of the following changes of hormonal secretion:
Aldosterone reduction
Aldosterone increase
Vasopressin reduction
Vasopressin increase
Reduction of atrial natriuretic factor

As a result of destruction of certain brainstem structures an animal has lost its orientative reflexes in response to strong photic stimuli. What structures were destroyed?
Anterior tubercles of quadrigeminal plate
Posterior tubercles of quadrigeminal plate
Red nuclei
Vestibular nuclei
Black substance

Myocyte cytoplasm contains a big number of dissolved metabolites glucose oxidation. Name one of them that turns directly into a lactate:
Pyruvate
Oxaloacetate
Glycerophosphate
Glucose 6-phosphate
Fructose 6-phosphate

Mother of a 2 year old child consulted a stomatologist. In the period of pregnancy she was irregularly taking antibiotics for an infectious disease Examination of the child revealed incisor destruction, yellow enamel, brown rim around the dental cervix. What drug has apparent teratogenic effect?
Doxacycline
Furosemide
Ampiox
Xantinol nicotinate
Octadine

A 59 year old patient is a plant manager. After the tax inspection of his plant he felt intense pain behind his breastbone irradiating to his left arm. 15 minutes later his condition came to normal. Which of the possible mechanisms of stenocardia development is the leading in this case?
High catecholamine concentration in blood
Coronary atherosclerosis
Intravascular aggregation of blood corpuscles
Coronary thrombosis

Functional heart overload

A patient recovered from Sonne dysentery and was once more infected with the same causative agent. What is such infection form called?
Reinfection
Recidivation
Superinfection
Persisting infection
Chronic infection

A 56 year old patient came to a hospital with complaints about weakness, tongue pain general and burning, sensation of limb numbness. In the past he underwent resection of forestomach. In blood: Hb-80 g/l; erythrocytes -2,0-10^{12} l; colour index - 1,2 leukocytes - 3,5 – 10^{9}/l. What anemia type is it?
B_{12}-folate deficient
Hemolytic
Posthemorrhagic
Aplastic
Iron-deficient

A 35 year old patient applied to a doctor with complaints about having intense rhinitis and loss of sense of smell for a week. Objectively: nasal cavity contains a lot of mucus that covers mucous membrane and blocks olfactory receptors. In what part of nasal cavity are these receptors situated?
Superior nasal turbinate
Median nasal turbinate
Inferior nasal turbinate
Common nasal meatus
Vestibule of nose

A 17 year old boy fell seriously ill, the body temperature rose up to 38. 5°C, there appeared cough, rhinitis, lacrimation, nasal discharges. What inflammation is it?
Catarrhal
Serous
ESnous
Purulent
Hemorrhagic

A patient with disturbed cerebral circulation has problems with deglutition. What part of brain was damaged?
Brainstem
Cervical part of spinal cord
Forebrain
Interbrain
Midbrain

Vitamin B_1 deficiency results in disturbance of oxidative decarboxylation of α ketoglutaric acid. This will disturb synthesis of the following coenzyme:
Thiamine pyrophosphate
Nicotinamide adenine dinucleotide (NAD)
Flavine adenine dinucleotide (FAD)
Lipoic acid
Coenzyme

Examination of a patient shows decreased leukocyte and erythrocyte count and low hemoglobin levels in the peripheral blood, as well as appearance of large cells (megaloblasts). What vitamin is likely to be deficient in this case, causing this condition?
Folic acid
Biotin
Niacin
Ascorbic acid
Riboflavin

Laboratory diagnostics of hepatitis B has determined the presence of viral DNA in the patient's blood. What reaction is usually used for this purpose?
Polymerase chain reaction
Enzyme-linked immunosorbent assay
Complement fixation test
Hemagglutination inhibition test
Indirect hemagglutination test

A 15-year-old patient complains of general weakness, dizziness, and rapid fatigability. Examination detects changed shape of erythrocytes and reduced erythrocyte count. A provisional diagnosis of sickle cell anemia was made. What amino acid replacement occurs in hemoglobin, causing the development of this pathological condition?
Glutamate becomes replaced with valine
Valine becomes replaced with aspartate
Glutamate becomes replaced with aspartate
Valine becomes replaced with glutamate
Glutamate becomes replaced with alanine

A 7-year-old child was diagnosed with anemia. Laboratory testing detects pyruvate kinase deficiency in the erythrocytes. What process is disturbed in this case, playing the main role in the anemia development?
Anaerobic glycolysis
Gluconeogenesis
Anaerobic glycogenolysis
Amino acid decarboxylation

Amino acid deamination

Copper deficiency has an effect on energy metabolism in the human body. What substance becomes deficient as a result of this process?
Cytochrome oxidase
Pyruvate carboxylase
Lactate dehydrogenase
Arginase
Succinate dehydrogenase

The study of a blood smear obtained from a patient with an inflammatory process detects a large number of round cells with a segmented nucleus (three or more segments) and fine pink-violet granulation in the cytoplasm. What blood cells were detected?
Neutrophilic granulocytes
Eosinophilic granulocytes
Erythrocytes
Lymphocytes
Basophilic granulocytes

Laboratory testing detects glucose in the urine of an 18-year-old patient, while glucose levels in the patient's blood plasma are normal. What is the likely cause of this disorder?
Tubular absorption
Insulin secretion
Secretion of glucocorticoid
Ihbular secretion
Glomerular filtration

The corpus luteum forms during the luteal phase of the menstrual cycle. This temporary endocrine gland stimulates the synthesis of a certain hormone. What hormone is it?
Progesterone
Corticosterone
Parathyroid hormone
Aldosterone
Testosterone

Alveoli of the lungs have special cells, through which gas exchange occurs. These cells are a part of the blood-air barrier. Name these cells.
Alveolar type I cells
Alveolar type II cells
Microvillous epithelial cells
Clara cells
Alveolar macrophages

Vitamin A deficiency causes impaired twilight vision. What cells have this receptor function?
Neurosensory rod cells
Bipolar neurons
Neurosensory cone cells
Retinal horizontal cells
Ganglionic neurons

In the nucleus of a cell, a molecule of mature mRNA, which is smaller in size, was formed from a large molecule of immature mRNA. The stages of this transformation together are called
Processing
Replication
Translation
Recognition
Termination

A patient was hospitalized with provisional diagnosis diphyllobothriasis. What food products could have caused this disease?
Fish
Milk and eggs
Beef
Pork
Vegetables and fruits

A young man has come to the genetic consultation. He complains of abnormalities in his physical and reproductive development. Microscopy of his oral mucosa cells shows one Barr body. What karyotype is the most likely in this young man?
47, XXY
47, XY, +18
45, X 0
47, XYY
47, XY, +21

There are several stages in the process of translation. At one of these stages, a complex forms that consists of a ribosome, mRNA and aminoacyl-tRNA-methionine. What is the name of this stage?
Initiation
Elongation
Termination
Transcription
Repair

A child has 3 copies of chromosome 18, which resulted in characteristic cranial elongation from front to back, maldevelopments of the musculoskeletal system, fused fingers and maldevelopments of skeletal muscules. What hereditary pathology is observed in this?
Edwards syndrome
Down syndrome
Patau syndrome
Klinefelter syndrome
Turner syndrome

Laboratory diagnostics of hepatitis B has determined the presence of viral DNA in the patient's blood. What reaction is usually used for this purpose?
Polymerase chain reaction
Complement fixation test
Hemagglutination inhibition test
Enzyme-linked immunosorbent assay
Indirect hemagglutination test

A patient with bronchopulmonary aspergillosis developed allergic rhinitis. Enzyme-linked immunosorbent assay detects elevated levels of IgE. What cell type expresses receptors for IgE on its cell surface, which stimulates the cell to respond to parasites, such as worms?
Mast cells
NK cells
Promonocytes
B cells
T cells

A repeated Widal agglutination test shows an increase from 1:100 to 1:400 in the titers of antibodies to S. typhi O-antigens in the patient's serum. How can the obtained results be interpreted?
The patient has typhoid fever
The patient is a chronic carrier of typhoid microbes
The patient has a past history of typhoid fever
The patient is an acute carrier of typhoid microbes
The patient was previously vaccinated against typhoid fever

A doctor suspects diphtheria in a patient. Bacterioscopy of a throat swab detected rod-shaped bacteria with volutin granules. What etiotropic drug would be the drug of choice in this case?
Antidiphtheric antitoxic serum
Bacteriophage
Interferon
Diphtheria toxoid
Eubiolic

A 10-year-old child underwent a Mantoux test (with tuberculin). After 48 hours, a papule up to 8 mm in diameter appeared at the site of tuberculin injection. What type of hypersensitivity reaction developed after administration of tuberculin?
Type IV hypersensitivity reaction
Arthus reaction
Atopic reaction
Type II hypersensitivity reaction
Serum sickness

A patient has dysfunction of masticatory muscles, caused by damage to the trigeminal motor nucleus. What pari of the brain is damaged in this case?
Pons
Medulla oblongata
Diencephalon
Cerebellum
Mesencephalon

A patient presents with a purulent inflammatory process in the thigh region (a post-injection abscess). What lymph nodes become enlarged because of this process?
Inguinal
Popliteal
Paratracheal
Posterior cervical
Submandibular

A patient has been diagnosed with hydrocele testis (an increase in the amount of fluid in a serous cavity). Between what testicular tunics can the pathological content be located in this case?
Between the parietal and visceral laminae of the tunica vaginalis of the testicle
Between the skin and tunica dartos
Between the tunica dartos and internal spermatic fascia
Between the internal spermatic fascia and tunica vaginalis of the testicle
Between the skin and cremaster muscle

After falling from a tree, a person has problems with extending an arm into a horizontal position. What muscle most likely has been injured in this case?
M. deltoideus
M. triceps brachii
M. coracobrachialis
M. anconeus
M. supinator

During a surgery for gallstones in bile ducts, the surgeon must find the common hepatic duct. It is located between the layers of the following ligament:

Hepatoduodenal ligament
Round ligament of the liver
Ligamentum venosum
Hepatogastric ligament
Hepatorenal ligament

What internal organ plays the largest role in humoral regulation of erythropoiesis?
Kidneys
Lungs
Liver
Pancreas
Gastrointestinal tract

A person entered a room with increased levels of carbon dioxide in the air. How will the breathing of this person change?
Respiration rate and depth will increase
Respiration depth will decrease
Respiration rate will decrease
Respiration depth will increase
Respiration rate will increase

The height of a 10-year-old child is 178 cm, while the child's weight is 64 kg. What endocrine gland is dysfunctional in the child, causing this condition?
Pituitary gland
Parathyroid gland
Gonads
Thyroid gland
Adrenal glands

A patient presents with impaired twilight vision. What vitamin preparation should be prescribed to this patient?
Retinol acetate
Ascorbic acid
Pyridoxine hydrochloride
Nicotinic acid
Cyanocobalamin

Laboratory testing detects glucose in the urine of an 18-year-old patient, while glucose levels in the patient's blood plasma are normal. What is the likely cause of this disorder?
Tubular reabsorption
Insulin secretion
Secretion of glucocorticoids
Ihbular secretion
Glomerular filtration

A 43-year-old patient, who had been suffering from tuberculosis for a long time, developed bleeding from the lungs, which resulted in the patient's death. Autopsy detected several oval and round cavities in the lungs. The walls of the cavities were formed by necrotic masses and lung tissue. What form of tuberculosis can be characterized by these pathological changes?
Acute cavernous tuberculosis
Fibrocavitary tuberculosis
Acute focal tuberculosis
Tuberculoma
Gaseous pneumonia

A patient with a suspected systemic disease underwent a biopsy of an area of increased density and immobility in the skin. In the dermis, the study detected all types of connective tissue disorganization with a weak cellular reaction, gross sclerosis, and hyalinosis. What disease can be characterized by these pathological changes?
Scleroderma
Polyarteritis nodosa
Dermatofibroma
Psoriasis
Systemic lupus erythematosus

Autopsy of the body of a man who died of croupous pneumonia revealed an opaque liquid in the pleural cavity and a grayish film on the visceral pleura. What type of inflammation is observed on the visceral pleura?
Fibrinous
Purulent
Hemorrhagic
Catarrhal
Granulomatous

Microscopy of the kidney biopsy material detected foci with granular eosinophilic masses in their center, surrounded by an infiltrate consisting of lymphocytes, epithelioid cells, and isolated Langhans cells. What pathological process corresponds with the described changes?
Granulomatous inflammation
Alternative inflammation
Coagulative necrosis
Proliferation and differentiation of macrophages
Caseous necrosis

A 10-year-old child underwent a Mantoux test (with tuberculin). After 48 hours, a papule up to 8 mm in diameter appeared at the site of tuberculin injection. What type of hypersensitivity reaction developed after administration of tuberculin?

Type IV hypersensitivity reaction
Arthus reaction
Atopic reaction
Type II hypersensitivity reaction
Serum sickness

A 49-year-old patient complains of persistently elevated blood pressure (155/120 mm Hg). The recommended hypotensive therapy, lasting for a month, was ineffective. Additional examination detected hypernatremia, hypochloremia, and adrenal hyperplasia. The diagnosis of primary hyperaldosteronism was made. Because surgical treatment was impossible in this case, the patient was recommended a pharmacological therapy with a mineralocorticoid receptor antagonist. What drug was recommended for the patient?
Spironolactone
Captopril
Metoprolol
Losartan
Amlodipine

A 45-year-old man with acute pneumonia was prescribed a penicillin antibiotic. However, when tested for personal tolerance to this antibiotic, he developed an allergic response. What drug should be prescribed for treatment in this case?
Erythromycin
Benzylpenicillin
Phenoxymethylpenicillin
Bicillin-5
Ciprofloxacin

All nonsteroidal anti-inflammatory drugs can damage the gastric mucosa. To find the substances that do not cause this complication, it is necessary to know what it is associated with. To reduce the severity of this complication, the drug's effect on a certain molecular substrate must be reduced. Name this molecular substrate.
Cyclooxygenase-1
Lysosomal enzymes
Kallikrein
Cyclooxygenase-2
Adenylate cyclase

A patient has an attack of bronchospasm. What membrane cytoreceptors of bronchial smooth muscles should be stimulated to improve the patient's condition?
Correct answer beta-adrenergic receptors
Histamine H2 receptors
Nicotinic acetylcholine receptors
a-adrenergic receptors
Muscarinic acetylcholine receptors

A patient presents with impaired twilight vision. What vitamin preparation should be prescribed to this patient?
Retinol acetate
Ascorbic acid
Pyridoxine hydrochloride
Nicotinic acid
Cyanocobalamin

There are cortical and medullary substances separated by connective tissue layer in the endocrine gland specimen. Parenchyma cells make up three zones in cortical substance, with rounded masses in the superficial zone, parallel chords in the middle one, reticular structure of cell chords in the deep one. What gland is it?
Adrenal gland
Pituitary gland
Hypothalamus
Thyroid gland
Epiphysis

Angiocardiography of a 60-year-old male patient revealed constriction of a vessel located in the left coronary sulcus of the heart. What is the pathological vessel called?
Ramus circumflexus
Ramus interventricularis posterior
Ramus interventricularis anterior
V. cordis parva
A. coronaria dextra

A patient has been found to have a marked dilatation of saphenous veins in the region of anterior abdominal wall around the navel. This is a symptom of pressure increase in the following vessel:
V. portae hepatis
V. mesenterica inferior
V. cava inferior
V. cava superior
V. mesenterica superior

A 29-year-old male with a knife wound of neck presents with bleeding. During the initial d-bridement of the wound the surgeon revealed the injury of a vessel found along the lateral edge of the sternocleidomastoid muscle. Specify this vessel:
V. jugularis externa
A. carotis interna
V. jugularis interna
V. jugularis anterior
A. carotis externa

Electrical activity of neurons is being measured. They fire prior to and at the beginning of inhalation. Where are these neurons situated?
Medulla oblongata
Mesencephalon
Spinal cord
Cerebral cortex
Diencephalon

A laboratory experiment on a dog was used to study central parts of auditory system. One of the mesencephalon structures was destroyed. The dog has lost the orienting response to auditory signals. What structure was destroyed?
Inferior colliculi of corpora quadrigemina
Substantia nigra
Reticular formation nuclei
Superior colliculi of corpora auadrigemina
Red nucleus

During appendectomy a patient had the a. appendicularis figated. This vessel branches from the following artery:
A. ileocolica
A. colica dextra
A. sigmoidea
A. mesenterica inferior
A. colica media

A specimen shows an organ covered with the connective tissue capsule with trabeculae radiating inward the organ. There is also cortex containing some lymph nodules, and medullary cords made of lymphoid cells. What organ is under study?
Lymph node
Spleen
Red bone marrow
Tonsils
Thymus

A patient complains that at the bare mention of the tragic events that once occurred in his life he experiences tachycardia, dyspnea and an abrupt rise of blood pressure. What structures of the CNS are responsible for these cardiorespiratory reactions in this patient?
Cerebral cortex
Cerebellum
Specific thalamic nuclei
Lateral hypothalamic nuclei
Quadrigemina of mesencephalon

As a result of a continuous chronic encephalopathy, a patient has developed spontaneous motions and a disorder of torso muscle tone. These are the symptoms of the disorder of the following conduction tract:
Tractus rubrospinalis
Tractus spinothalamicus
Tractus corticonuclearrs
Tractus corticospinalis
Tractus tectospinalis

A 41-year-old male patient has a history of recurrent attacks of heartbeats (paroxysms), profuse sweating, headaches. Examination revealed hypertension, hyperglycemia, increased basal metabolic rate, and tachycardia. These clinical presentations are typical for the following adrenal pathology:
Hyperfunction of the medulla
Hypofunction of the medulla
Primary aldosteronism
Hyperfunction of the adrenal cortex
Hypofunction of the adrenal cortex

During ventricular systole, the cardiac muscle does not respond to additional stimulation because it is in the phase of:
Absolute refractoriness
Subnormal excitability
There is no correct answer
Hyperexcitability
Relational refractoriness
A 49-year-old man complains of pain in his metatarsophalangeal joints and joint deformation. In blood hyperuricemy can be observed. X-ray has revealed metatarsophalangeal joint space narrowing, erosion, periarticular calcification of the both joints, osteoporosis. Microscopy has revealed inflammatory granulomatous reaction surrounding necrotizing masses in the area of the first metatarsophalangeal joint. Choose the most likely diagnosis:
Gout (podagra)
Urolithiasis
Pyrophosphate arthropathy
Rheumatoid arthritis
Hyperparathyroidism

Cells of healthy liver actively synthesize glycogen and proteins. What organelles are the most developed in them?
Granular and agranular endoplasmic reticulum
Cell center
Lysosomes
Mitochondria
Peroxisomes

An alcoholic has alcoholic psychosis with evident psychomotor agitation. What neuroleptic drug should be administered for emergency aid?
Aminazine
Halothane
Diazepam
Sodium bromide
Reserpine

A 35-year-old man with peptic ulcer disease has undergone antrectomy. After the surgery secretion of the following gastrointestinal hormone will be disrupted the most:
Gastrin
Cholecystokinin
Neurotensin
Secretin
Histamine

A patient has been hospitalised with provisional diagnosis of virus B hepatitis. Serological reaction based on complementation of antigen with antibody chemically bound to peroxidase or alkaline phosphatase has been used for disease diagnostics. What is the name of the applied serological reaction?
Immune-enzyme analysis
Immunofluorescence test
Radioimmunoassay technique
Bordet-Gengou test
Antigen-binding assay

A therapeutist has an appointment with a 40-year-old patient complaining of recurrent pain attacks in his hallux joints and their swelling. Urine analysis revealed its marked acidity and pink colour. What substances can cause such changes in the urine?
Uric acid salt
Magnesium sulfate
Ammonium salts
Calcium phosphate
Chlorides

Since a patient has had myocardial infarction, atria and ventricles contract independently from each other with a frequency of 60-70 and 35—40 per minute. Specify the type of heart block in this case:
Complete atrioventricular
Intraventricular
Intra-atrial
Partial atrioventricular

Sino-atrial

A 10-year-old child has painful swallowing, neck edema, temperature rise up to 39.0°C, the whole body is covered with bright-red petechial rash. Back of the throat and tonsils are hyperemic, the tongue is crimsoncolored. Tonsillar surface is covered with isolated grayish-colored necrosis nidi. What disease is it?
Scarlet fever
Meningococcal nasopharyngitis
Influenza
Diphtheria
Measles

Healthy parents with unremarkable family history have the child with multiple developmental defects. Cytogenetic analysis revealed the trisomy 13 in the somatic cells (Patau syndrome). What phenomenon has caused the defects?
Abnormal gametogenesis
Recessive mutation
Somatic mutation
Dominant mutation
Chromosomal mutation

A patient with acute myocardial infarction has been administered heparin as a part of complex therapy. Some time after heparin injection the patient developed hematuria. What heparin antagonist should be injected to remove the complication?
Protamine sulfate
Neodicumarin
Vicasol
Fibrinogen
Aminocaproic acid

This year influenza epidemic is characterised by patients' body temperature varying from 36.9°C to 37.9°C. Such fever is called:.
Subfebrile
High
Hyperpyretic
Moderate
Apyretic

A woman poisoned with unknown substance was hospitalised in a toxicological department. What group of drugs can be administered to decrease absorption and introduction of the poison to her body?
Adsorbents
Organic nitrates
Neuroleptics
Antioxidants

Cholinesterase inhibitors

During surgery performed in abdominal cavity a surgeon located ligament of liver stretching from anterior abdominal wall (navel) to inferior surface of liver. What ligament is it?
Round ligament of the liver
Falciform ligament of the liver
Coronary ligament of the liver
Venous ligament of the liver
Triangular ligament of the liver

Examination of an 18-year-old girl revealed the following features: hypoplasia of the ovaries, broad shoulders, narrow pelvis, shortening of the lower extremities, «sphinx neck». Mental development is normal. The girl was diagnosed with Turner's syndrome. What kind of chromosome abnormality is it?
Monosomy X
Nullisomy X
Trisomy 18
Trisomy X
Trisomy 13

Negative environmental factors have caused the dysfunction of myosatellite cells. What function of the whole muscle fibre is likely to be changed in this case?
Regeneration
Contraction
Contractile thermogenesis
Trophism
Relaxation

A 12-year-old patient has white non-pigmented spots on the skin. The spots appeared after the patient became 10 years old, and they constantly grow. This spots appeared due to the lack of the following skin cells:
Melanocytes
Adipocytes
Labrocytes
Fibrocytes
Plasmocytes

Pancreas is known as a mixed gland. Endocrine functions include production of insulin by beta cells. This hormone affects the metabolism of carbohydrates. What is its effect upon the activity of glycogen phosphorylase (GP) and glycogen synthase (GS)?
It inhibits GP and activates GS
It does not affect the activity of GP and GS
It inhibits both GP and GS

It activates both GP and GS
It activates GP and inhibits GS

A 6-year-old child with suspected active tuberculous process underwent the diagnostic Mantoux test. What immunobiological preparation was injected?
Tuberculin
DTP vaccine
Tularinum
BCG vaccine
Td vaccine

Granulomas containing lymphocytes and macrophages were detected during analysis of skin biopsy material. Among macrophages there are large cells with fat inclusions, which contain microorganisms in spheric packages (Virchow's cells). The following disease is based on the described type of hypersensitivity:
Leprosy
Epidemic typhus
Tuberculosis
Rhinoscleroma
Syphilis

As a result of an injury, the integrity of the anterior spinal cord root was broken. Specify the neurons and their processes that had been damaged:
Axons of motor neurons
Dendrites of association neurons
Axons of sensory neurons
Dendrites of motor neurons
Dendrites of sensory neurons

A patient has been administered an anti-inflammatory drug that blocks the action of cyclooxygenase. Specify this anti-inflammatory agent:
Aspirin
Thiamin
Allopurinol
Creatine
Analgene

In the surgical ward, the dressing material was udergoing sterilization in an autoclave. Through an oversight of a nurse the mode of sterilization was changed and the temperature in the autoclave reached only 100°C instead of the due 120°C. What microorganisms can stay viable under these condition?
Bacilli and Clostridia
Corynebacteria and mycobacteria
Salmonella and klebsiella
Mold and yeast fungi

Staphylococci and streptococci

A 30-year-old patient’s blood test revealed the following: erythrocyte count is 6•10^12/L, hemoglobin is 10.55 mmol/l. Vaquez’s disease was diagnosed. Name the leading part of pathogenesis:
Neoplastic erythroid hyperplasia
Iron-deficiency
Hypoxia
Acidosis
B12-deficiency

A patient with femoral neck fracture, who for a long time had to remain in bed in a forced (supine) position, has developed dark-brown lesions along the backbone; soft tissues are swollen, in the areas of maceration there is a foul-smelling liquid. Name the clinicopathologic type of necrosis:
Bedsore
Sequestrum
Infarction
Coagulation necrosis
Dry gangrene

For the study of serum proteins various physical and physicochemical methods can be used. In particular, serum albumins and globulins can be separated by this method:
Electrophoresis
Spectrography
Dialysis
Polarography
Refractometry

A drycleaner's worker has been found to have hepatic steatosis. This pathology can be caused by the disruption of synthesis of the following substance:
Phosphatidylcholine
Phosphatidic acid
Urea
Tristearin
Cholic acid

Inherited diseases, such as mucopolysaccharidoses, are manifested in metabolic disorders of connective tissue, bone and joint pathologies. The sign of this disease is the excessive urinary excretion of the following substance:
Glycosaminoglycans
Urea
Lipids
Amino acids

Glucose

The resuscitation unit has admitted a patient in grave condition. It is known that he had mistakenly taken sodium fluoride which blocks cytochrome oxidase. What type of hypoxia developed in the patient?
Tissue
Hypoxic
Respiratory
Hemic
Cardiovascular

An electron micrograph shows a cell-to-cell adhesion consisting, in each cell, of an attachment plaque. The intercellular space is filled with electron-dense substance including transmembrane fibrillar structures. Specify this adhesion:
Desmosome
Synapse
Adherens junction
Nexus
Tight junction

A young woman suddenly developed fever up to 39°C accompanied by a strong headache. Examination revealed marked nuchal rigidity. Spinal puncture was performed. Gram-stained of cerebrospinal fluid smear contained many neutrophils and Gram-positive diplococci. What bacteria could be the cause of this disease?
Streptococcus pneumoniae
Haemophilus influenza
Neisseria meningitidis
Pseudomonas aeruginosa
Staphylococcus aureus

During pathomorphological kidney investigation of a patient, who for a long time had been suffering from osteomyelitis and died from progressing renal failure, the following was revealed: deposits of homogeneous eosinophilic masses in glomerular mesangium, arterial and arteriolar walls, and stroma, which became red when stained with Congo red. What pathological process is this?
Amyloidosis
Carbohydrate degeneration
Calcinosis
Hyalinosis
Mucoid swelling

A person with the fourth blood group (genotype IAIB) has in erythrocytes both antigen A controlled by allele IA and antigen B controlled by allele IB. This phenomenon is an example of the following gene interation:
Codominance

Complementarity
Polymery
Epistasls
Semidominance

One of the factors that cause obesity is the inhibition of fatty acids oxidation due to:
Low level of carnitine
Excessive consumption of fatty foods
Choline deficiency
Lack of carbohydrates in the diet
Impaired phospholipid synthesis

A 65-year-old patient with a history of coronary artery disease presents to the doctor's office complaining of dizziness and sudden onset of a «bluish discoloration» of his skin. Physical examination reveals cyanotic patient. His blood pressure is 100/50 mm Hg, heart rate rate 110/min., respiratory 14/min. Laboratory testing is significant for methemoglobinemia. Which of the following medications did this patient most likely misuse?
Nitrovasodilator
Smooth muscle relaxant
a-adrenoreceptor antagonists
Adenosine
Calcium channel blockers

One of the causes of chronic pancreatitis is the autolysis of pancreatic parenchyma due to intraorganic conversion of trypsinogen into tripsin. How does this process occur in the duodenum under normal conditions?
Limited proteolysis
ADP-ribosylation
Acetylation
Phosphorilation
Allosteric regulation

A 40-year-old woman dies of intracerebral hemorrhage after the hypertensive emergency. During an autopsy the pathologist reveals severe obesity, excess of body hair and wide purplish stria on the abdomen. Microscopic examination of pituitary gland reveals hyperplastic acini populated by a homogenous cluster of deeply basophilic cells. Which of the following was the most likely underlying disease?
Cushing disease
Arterial hypertension
Shechan's syndrome
No correct answer
Hyperthyroidism

What diagnostic method should be used in industry to test the raw leather for presence of B. antracis?
Ascoli's thermoprecipitation test
Microscopy with Aujeszky stain
Microscopy with Burry-Gins stain
Bacteriological analysis
Serological test

During the surgery on the small intestine the surgeon revealed an area of the mucous membrane with a single longitudinal fold among the circular folds. Which portion of the small intestine is this structure typical for?
Pars descendens duodeni
Pars ascendens duodeni
Pars horizontalis duodeni
jejunum
Distal ileum

A 78-year-old woman presents to the emergency department for fever and generalized malaise. Her symptoms began several days ago, when she noticed pain with urination and mild blood in her urine. Earlier this morning she experienced chills, flank pain and mild nausea. Her temperature is 38.7°C, blood pressure is 140/80 mm Hg, heart rate is 98/min. Later she dies of unknown cause. At autopsy, her kidney is swollen with punctate abscesses that outlined by a thin red margin (signs of marginal vascular dilation). Microscopic observation reveals a large number of neutrophils. Which of the following is the most likely diagnosis?
Acute pyelonephritis
Acute glomerulonephritis
Nephrolithiasis
Polycystic kidney disease
Amyloidosis

A patient with chronic bronchitis was prescribed a drug with mucolytic action. Name this drug:
Ambroxol
Atropine sulfate
Magnesium sulfate
Anaprilin (Propranolol)
Paracetamol

A 59-year-old man has signs of jaundice and portal hypertension. Histology of the puncture biopsy material obtained from the liver reveals the following: lobar and trabecular structure is disturbed, a number of hepatocytes have signs of fatty degeneration, porto-portal connective tissue septa and pseudolobules with periportal lymphoid-macrophageal infiltration are being formed. What liver disease is described?

Hepatic cirrhosis
Chronic hepatosis
Toxic dystrophy
Viral hepatitis
Alcoholic hepatitis

A microslide demonstrates an organ with its wall consisting of three layers. The inner layer has tubular glands and undergoes cyclic changes. Name this organ:
Uterus
Urinary bladder
Esophagus
Vagina
Ureter

A mother of a 4-month-old male infant brought him to pediatrician with complaints of food rejection and weight loss. He started having trouble latching onto his bottle. He has also become extremely lethargic. Examination reveals diminished muscle tone in all four limbs, and hepatosplenomegaly. An ophthalmoscopic exam reveals macular cherry red spots. During the next few weeks, hepatosplenomegaly progresses, the boy fails to thrive, and he continues to reject food. Chest X-ray shows a reticulonodular pattern and calcified nodules. Biopsy of the liver shows foamy histiocytes. A Niemann-Pick disease is suspected. Which of the following is the most likely deficient enzyme in this patient?
Sphingomyelinase
Phenylalanine-hydroxylase
Galactocerebrosidase
Glucose-6-phosphatase
Glucocerebrosidase

A 14-year old girl presents to the emergency department for evaluation of an «infected leg». She states there is no history of trauma but mentions she had a history of sickle cell disease. On physical examination, her upper part of right shin is very painful, red, swollen and hot. Her temperature is 39.2*C. An X-ray shows focal bony lysis and loss of trabecular architecture in the metaphysis of right tibia. Increased activity of which of the following cells is the most likely cause of bone reabsorption in this patient?
Osteoclasts
Osteoblasts
Osteocytes
Chondroblasts
Chondrocytes

A group of researchers aimed to study cardiac physiology found that overstretching of atria in the heart leads to decreased sodium reabsorption in the distal convoluted

tubule and increase in glomerular filtration rate. Which of the following is the most likely cause of physiologic effects discovered by researchers?
Natriuretic peptide
Renin
Aldosterone
Angiotensin
Antidiuretic hormone

A specimen of a parenchymal organ shows poorly delineated hexagonal lobules surrounding a central vein, and the interlobular connective tissue contains embedded triads (an artery, a vein and an excretory duct). What organ is it?
Liver
Thyroid
Spleen
Pancreas
Thymus

A 2-year-old boy is diagnosed with Down syndrome. What chromosomal changes may be the cause of this disease?
Trisomy 21
Trisomy X
Monosomy X
Trisomy 18
Trisomy 13

An 18-year-old girl comes to her physician with concern about her health because she has not achieved menarche. She denies any significant weight loss, changes in mood, or changes in her appetite. She mentions that her mother told her about mild birth defects, but she cannot recall the specifics. Past medical history and family history are benign. On physical examination, the patient is short in stature, has a short and webbed neck and wide chest. Staining of buccal smear reveals absence of Barr bodies in the nucleus of epithelial cells. A urine pregnancy test is negative. Which of the following genetic disorders is the most likely cause of this patient's condition?
Turner syndrome
Edwards syndrome
Patau syndrome
Klinefelter syndrome
Cri du chat («cat-cry») syndrome

After severe emotional strain a 45-year-old man suddenly developed constricting pain in the area of his heart. The pain was irradiating into his left arm, neck, and left shoulder blade. His fase was pale and covered in cold sweat. Nitroglycerine was able to relieve the pain. What condition developed in the patient in this case?
Angina pectoris

Psychogenic shock
Myocardial infarction
Gastric ulcer perforation
Stroke

A 23-year-old woman was brought into the emergency department complaining of bloody diarrhea, tiredness, and dizziness. A few days ago she went to a fast food reataurant for a birthday party. Her friends are experiencing similar symptoms. Laboratory studies show anemia. What samples should be obtained for microbiologic testing in this case?
Stool
Cerebrospinal fluid
Bile
Urine
Blood

Histological microslide shows a gastrointestinal organ. The wall of this organ consists of 4 layers: mucosal, submucosal, muscular, and serous. The muscular layer has folds and pits. What organ has such appearance?
Stomach
Esophagus
Duodenum
Small intestine
Appendix

A 2-year-old child with delayed physical and mental development was brought to the hospital. The child's parents are the most concerned by frequent profuse vomiting that occurs in their child after eating. Laboratory testing detected phenylpyruvic acid in the child's urine. What type of metabolism is disturbed, causing this patology?
Amino acid metabolism
Water and electrolyte metabolism
Phosphorus and calcium metabolism
Lipid metabolism
Carbohydrate metabolism

The heart is a muscular organ that pumps blood through the body. This function is carried out by valves, muscles, and vessels. What valve is located between the left ventricle and left atrium?
Bicuspid
Tricuspid
Non-return
Pulmonary
E. Aortic

A 27-year-old woman complains of insomnia, irritability, hand tremor, acute weight loss despite high appetite, and constant fever with body temperature of 37,2-37,5°C. What endocrine gland is likely to be functionally impaired in this case?
Thyroid gland
Pancreas
Adrenal glands
Parathyroid gland
Neurohypophysis

General practitioner performs physical examination of the patient. In the course of the examination it is necessary to measure the palpable regular expansion of a superficial artery caused by the ejection of blood into the vessels through heart contractions. What sign does the doctor measure?
Pulse
Heartbeat
Blood pressure
Heart electricity
Saturaion

A 50-year-old woman complains of constant thist. She drinks large amounts of liquid and has increased diuresis. Her blood glucose is 12 mmol/L. Her urine contains glucose. What endocrine organ is likely to be functionally impaired in this patient?
Pancreas
Neurohypophysis
Thyroid gland
Parathyroid gland
Adrenal glands

An unidentified surgical specimen is received fot histopathologic analysis. A portion of the specimen is cut and stained with hematoxylin and eosin. Under the microscope, you see an organ encapaulated by dense connective tissue that extends to the deeper areas by way of the trabecular extensions. The organ can be subdivided into two regions: a cortex with lymphoid nodules and medulla with medullary cords populated by plasma cells, B cells, and Tcells. What anatomical structure is the most likely origin of this surgical specimen?
Lymph node
Spleen
Thymus
Tonsils
Bone marrow

A 54-year-old woman had a total thyroidectomy lor papillary thyroid carcinoma. 11 hours after operation she complained of tingling around her mouth. On physical examination, the Trousseau's sign and Chvostek's sign are present. Her condition rapidly deteriorates with laryngospasm and focal seizures. The surgeon suspects

surgical destruction of the parathyroid glands. What is the most likely cause of this patient's neurological condition?
Hypocalcemia
Hypophosphatemia
Hyponatremia
Hyperkalemia
Hyperchloremia

A specimen shows an organ covered with the connective tissue capsule with trabeculae radiating inward the organ. There is also cortex containing some lymph nodules, and medullary cords made of lymphoid cells. What organ is under study?
Lymph node
Red bone marrow
Spleen
Tonsils
Thymus

The resuscitation unit has admitted a patient in grave condition. It is known that he had mistakenly taken sodium fluoride which blocks cytochrome oxidase. What type of hypoxia developed in the patient?
Tissue
Hemic
Hypoxic
Respiratory
Cardiovascular
Histologic specimen of a kidney demonstrates cells closely adjoined to the renal corpuscle in the distal convoluted tubule. Their basement membrane is extremely thin and has no folds. These cells sense the changes in sodium content of urine and influence renin secretion occurring in juxtaglomerular cells. Name these cells:
Macula densa cells
Glomerular capillary endothelial cells
Mesangial cells
Podocytes
Juxtaglomerular cells

Work in a mine is known to cause inhalation of large amounts of coal dust. Inhaled coal dust can be detected in the following pulmonary cells:
Alveolar macrophages
Secretory epithelial cells
Pericapillary cells
Respiratory epithelial cells
Capillary endothelial cells

Inherited diseases, such as mucopolysaccharidoses, are manifested in metabolic disorders of connective tissue, bone and joint pathologies. The sign of this disease is the excessive urinary excretion of the following substance:
Glycosaminoglycans
Glucose
Urea
Lipids
Amino acids

A patient consulted a physician about chest pain, cough, fever. Roentgenography of lungs revealed eosinophilic infiltrates that were found to contain larvae What kind of helminthiasis are these presentations typical of?
Ascariasts
Echinococcosis
Trichinosis
Cysticercosis
Fascioliasis

Due to the use of poor-quality measles vaccine for preventive vaccination, ej 1-year-old child developed an autoimmune renal injury. The urine was found to contain macromolecular proteins. What process of urine formation was disturbed?
Filtration
Secretion and filtration
Reabsorption
Reabsorption and secretion
Secretion

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Secretion and filtration
Reabsorption
Reabsorption and secretion
Secretion

Prolonged treatment of hypothyroidism has caused general dystrophy, dental caries, tachycardia, tremor of extremities. What drug is the cause of these side effects?
L-thyroxin
Thyrocalcitonin
Humulin (Human insulin)
Parathyreoidinum
Prednisolone

During pathomorphological kidney investigation of a patient, who for a long time had been suffering from osteomyelitis and died from progressing renal failure, the following was revealed: deposits of homogeneous eosinophilic masses in glomerular mesangium, arterial and arteriolar walls, and stroma, which became red when stained with Congo red. What pathological process is this?
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Carbohydrate degeneration
Hyalinosis
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Stomach
Esophagus
Small intestine
Appendix
Duodenum

The heart is a muscular organ that pumps blood through the body. This function is carried out by valves, muscles, and vessels. What valve is located between the left ventricle and left atrium?
Bicuspid

Tricuspid
Pulmonary
Aortic
Non-return

During your physiology class, the professor asks you to explain the effect of various hormones and neurotransmitters on the metabolism of glucose in the human body. You open your report with the statement that the use of glucose by the cells is preceded by its transport from the intercellular substance into the cell. What hormone is most likely responsible for the glucose uptake by the cell?
Insulin
Glucagon
Adrenaline
Thyroxine
E. Aldosterone

The main functions of neural tissue can be described as communication and integration. What is the basic unit of neural tissue that ensures its functioning?
Neuron
Axon
Myelin sheath
Nucleus
Dendrite

There is a system that maintains the balanced state of multicellular organisms. Its main functions are to ensure an adequate physiological response and to defend the body against infectious agents and other unintended invasions. What system has such functions?
Immune system
Nervous system
Endocrine system
Lymphatic system
Homeostatic system

A 46-year-old man complains of tiredness and pain in the joints of his fingers and wrists. These signs are observed for the last 2 months. The pain is present in both hands and the wrists are swollen. Furthermore, he describes morning stiffness in his joints, lasting about 2 hours, which improves with use. His past medical history reveals that he was successfully treated for H. pylori - related ulcer last year. He denies smoking and stopped drinking when his GI symptoms started. What drug is the best choice for his joint pain management?
Celecoxib
Aspirin
Prednisolone
Morphine

Patacelanol

A 27-year-old woman complains of insomnia, irritability, hand tremor, acute weight loss despite high appetite, and constant fever with body temperature of 37,2-37,5 Co. What endocrine gland is likely to be functionally impaired in this case?
Thyroid gland
Neurohypophysis
Pancreas
Adrenal glands
Parathyroid gland

General practitioner performs physical examination of the patient. In the course of the examination it is necessary to measure the palpable regular expansion of a superficial artery caused by the ejection of blood into the vessels through heart contractions. What sign does the doctor measure?
Pulse
Blood pressure
Saturaion
Heartbeat
Heart electricity

A 50-year-old woman complains of constant thist. She drinks large amounts of liquid and has increased diuresis. Her blood glucose is 12 mmol/L. Her urine contains glucose. What endocrine organ is likely to be functionally impaired in this patient?
Pancreas
Thyroid gland
Neurohypophysis
Adrenal glands
Parathyroid gland

An unidentified surgical specimen is received fot histopathologic analysis. A portion of the specimen is cut and stained with hematoxylin and eosin. Under the microscope, you see an organ encapaulated by dense connective tissue that extends to the deeper areas by way of the trabecular extensions. The organ can be subdivided into two regions: a cortex with lymphoid nodules and medulla with medullary cords populated by plasma cells, B cells, and Tcells. What anatomical structure is the most likely origin of this surgical specimen?
Lymph node
Spleen
Bone marrow
Tonsils
Thymus

A 24-year-old man undergoes a surgery and during the operation, an organ is excised and sent for histological evaluation. A light microscopic examination reveals the

organ encased by thin connective tissue capsule that enters the substance of the lobes to further subdivide the organ into irregular lobular units. Each lobule contains a cluster of follicles filled with colloid. Follicular epithelium consists of low columnar, cuboidal or squamous cells, depending on the level of activity of the follicle. Which of the following organs does this tissue most likely belong to?
Thyroid gland
Pancreas
Parotid gland
Parathyroid gland
Thymus

A biology graduate student is performing an experiment in the immunology laboratory. He studies a blood cell count from a patient with acute appendicitis, which shows an increase in the number of cells having a multilobed nucleus and multiple cytoplasmic granules. These cells engulf pathogens or necrotic tissue and help in the degradation of foreign products. Which of the following procescsses is seen in the cell desbribed above?
Phagocytosis
Parietal digestion
Osmosis
Passive diffusion
Pinocytosis

A patient suffers from a condition which, is characterized by a restriction in blood supply to tissues which leads to inadequate oxygen delivery to cells and contravention of cell metabolism. It is often caused by partial or total blockage of arteries. Which of the following is developed in this patient?
Ischemia
Embolism
Inflammation
Hypoxia
Spasm

With total starvation the only source of water for the body is the oxidation process of organic compounds. Which of the following substances under these conditions is the main source of endogenic water?
Lipids
Carbohydrates
Lipoproteins
Glycoproteins
Proteins

This action is an involuntary and nearly instantaneous movement in response to a stimulus. It is made possible by neural pathways which can act on an impulse before

that impulse reaches the brain and does not require conscious thought. Which of the following actions is described above?
Reflex
Defense
Initiation
Neuralgia
Tetanus

A pathologist studies a specimen of the small bean-shaped structure which is the part of human immune system. In a cross section it consists of an outer layer (cortex) and inner layer (medulla), and is surrounded by a fibrous capsule and subscapular sinus and is about 1.8 cm long. Which of the following is being studied by the pathologist?
Lymph node
Spleen
Parathyroid gland
Thymus
Salivary gland

A 27-year-old female presents with a severe sore throat, hoarseness, painful swallowing and low-grade fever. On intraoral examination, a large grey membrane is noticed on the oropharynx. Removal of the membrane reveals a bleeding oedematous mucosa. Which of the following is the most likely diagnosis?
Diphtheria
Scarlet fever
Meningococcal disease
Streptococcal pharyngitis
Measles

The main function of the human glands are to produce and release substances that perform a specificfunction in the body. According to the classification there are endocrine and exocrine glands. But also there are glands that may be classified as both. Which of the following glands can be endo-and exocrine simultaneously?
Gastrointestinal
Lacrimal
Sebaceous
Salivary
Parathyroid

A 60-year-old man with a history of hypertension, diabetes and hyperlipidemia had a sudden onset of right-sided weakness. By the time the ambulance arrived, he had difficulty speaking. Unfortunately, the patient died within the next 2 hours and an autopsy was performed immediately. The gross examination of the cerebral left hemisphere showed brain swelling, widened gyri and poorly demarcated gray-white junction. Which of the following is the most likely cause of this patient’s death?
Ischemic stroke

Intracerebral hemorrhage
Tumor
Abscess
Cyst

An unidentified surgical specimen is received for histopathologic analysis. A portion of the specimen is cut and stained with hematoxylin and eosin. Under the microscope, you see an organ encapsulated by dense connective tissue that extends to the deeper areas by way of the trabecular extensions. The organ can be subdivided into two regions: a cortex with lymphoid nodules and medulla with medullary cords populated by plasma cells, B-cells and T-cells. Which of the following structures is most likely the origin of this surgical specimen?
Bone marrow
Lymph node
Tonsils
Thymus
Spleen

The parents with normal hearing have two daughters and a son, who are congenitally deaf. Their other 5 children are healthy. What is the pattern of deafness inheritance in this case?
X-linked dominant
Autosomal recessive
X-linked recessive
Y-linked
Autosomal dominant

In the body of a 37-year-old woman, who died with signs of pulmonary edema, there was detected an acute deformation of the aortic valve: it is shortened, thickened, ulcerated, has areas of stone-like density. On its external surface there are large, up to 2 cm in diameter, thrombotic plaques. The left ventricle wall is 2.2 cm thick. The cardiac muscle is dull, matt, and flaccid. What type of endocarditis corresponds with the described changes in the aortic valve?
Ulcerative polypoid endocarditis
Fibroplastic endocarditis
Acute verrucous endocarditis
Diffuse endocarditis
Recurrent verrucous endocarditis

A 43-year-old man seeks evaluation at an emergency department with complaints of fever with chills, malaise, diffuse abdominal pain for over a week, diarrhea and loss of appetite. He says that his symptoms are progressively getting worse. He recalls that the fever began slowly and climbed its way up stepwise to the current 39.8°C. His blood pressure is 110/70 mm Hg. A physical exam reveals a coated tongue, enlarged spleen and rose spots on the abdomen. Serologic study shows the agglutinin

O titre of 1:200 by the Widal test. Which of the following is the most likely causative organism for this patient's condition?
Enterohemorrhagic E. coli
Mycobacterium tuberculosis
Leptospira interrogans
Vibrio cholerae
Salmonella typhi

A person with vitamin A deficiency develops twilight vision disturbance. Name the cells that fulfill this photoreceptor function:
Ganglionic nerve cells
Rod cells
Bipolar neurons
Cone cells
Horizontal cells of retina

An oncology patient is to undergo a surgery on the descending colon. Name the main source of blood supply to this organ:
Celiac trunk
Superior mesenteric artery
Middle colic artery
Inferior mesenteric artery
Splenic artery

In a young man during exercise, the minute oxygen uptake and carbon dioxide emission
equalled to 1000 ml. What substrates are oxidized in the cells of his body?
Carbohydrates
Proteins
Fats
Carbohydrates and fats
Carbohydrates and proteins

An athlete before a sports contest presents with elevated blood pressure and heart rate. What part of the CNS induces these changes?
Cerebral cortex
Medulla oblongata
Diencephalon
Mesencephalon
Hypothalamus

A patient complains that even small traumas lead to persistent hemorrhages. Laboratory analysis shows disturbed blood composition, namely a low count of the following blood corpuscles:
Platelets

Erythrocytes
Lymphocytes
Monocytes
Neutrophils

A 19-year-old young man has been examined in a nephrological hospital. Increased potassium content was detected in secondary urine of the patient. Such changes are the most likely to be caused by increased secretion of the following hormone:
Aldosterone
Glucagon
Testosterone
Oxytocin
Adrenaline

In an experiment a peripheral segment of the sympathetic nerve that innervates the sublingual gland is being stimulated. In this case this gland will produce:
A small amount of viscous saliva
A small amount of non-viscous saliva
No saliva
A large amount of non-viscous saliva
A large amount of viscous saliva

An athlete overexerted himself during a training and developed a muscle contracture. In such cases the muscle loses its flexibility and gradually becomes rigid due to its inability to relax. What is the likely cause of the contracture in this case?
ATP deficiency
Decreased blood levels of Ca++
Tropomyosin structural changes
Increased blood levels of K+
Increased blood levels of lactic acid

Condition of a patient with thoracic trauma deteriorates quickly: he develops increasing asphyxiation, facial pallor, tachycardia. What is the likely cause of these developments?
Pneumothorax
Thoracic contusion
Response to pain stimulus
Fright
Rib fracture

A man was submerged into the ice-cold water and soon died of abrupt exposure to cold. In such cases an organism loses heat most intensively by the way of:
Heat conduction
Radiation
Heat conduction and radiation

–
Convection

In hot weather the bus passengers asked to open the roof hatches. What way of heat transfer is activated in this situation?
Convection
Radiation
Conduction
Conduction and radiation
Sweat evaporation

People with diseases of internal organs often assume forced positions (e.g. with lower limbs flexed and pressed to the abdomen) due to the following reflex response:
Visceromotor
Dermatovisceral
Viscero-visceral
Viscerodermal
Motor-visceral

A 30-year-old woman has developed signs of virilism (body hair growth, balding temples, disturbed menstrual cycle). This condition can be caused by hyperproduction of the following hormone:
Testosterone
Relaxin
Prolactin
Oxytocin
Estriol

A dentist has to spend much of his time on his feet when working, which can result in a venous congestion in the legs and varicose veins. Leading mechanism of congestion in this case is the decrease of:
Skeletal muscle contraction in the lower limbs
Cardiac residual pumping force
Diaphragmatic piston effect on the abdominal organs
Blood pressure gradient in the veins
Thoracic pump effect

A car accident victim presents with a spinal hematoma accompanied by retrosternal pain, tachycardia, and elevated blood pressure. The patient's condition results from the damage to the following segments of the spinal cord:
Th1-Th5
L1- L3
–
S1-S3
C6-C8

In an experiment the vagus is being stimulated, which results in increased acetylcholine entry to the synaptic cleft, and that in turn results in the decreased heart rate due to the following mechanism:
Hyperpolarization of cardiomyocyte membrane
Increase in AV nodal conduction velocity
Decrease of action potential duration
Increase of action potential duration
Depolarization of cardiomyocyte membrane

During a brain surgery stimulation of the cerebral cortex resulted in tactile and thermal sensations in the patient. What gyrus was stimulated?
Postcentral gyrus
Cingulate convolution
Superior temporal gyrus
Precentral gyrus
Parahippocampal gyrus

Curariform drugs are used to immobilize the patient during a surgery. Their mechanism of action is based on the blockade of:
Nicotinic acetylcholine receptors of skeletal muscles
Noradrenaline release into the synaptic cleft
Acetylcholine release into the synaptic cleft
Conduction of excitation in the nerve fibers
Muscarinic acetylcholine receptors of smooth muscles

A man complains of varicose veins on his left leg. Venous nodes are located on the posterior surface of the shin and on the posterior and anterior surfaces of the thigh. What superficial leg veins are damaged in this patient?
Great saphenous vein, small saphenous vein
Popliteal vein, superficial saphenous vein
Small saphenous vein, deep femoral vein
Femoral vein, great saphenous vein, small saphenous vein
Posterior tibial vein, great saphenous vein

A patient presents with aspermia. What organ is functionally disturbed?
Testicle
Epididymis
Seminal vesicles
Prostate
–

Toxic damage to hepatic cells resulted in disruption of the patient’s liver function and the patient developed edemas. What changes of blood plasma are the main cause of edema development?

Decrease of albumin content
Decrease of fibrinogen content
Decrease of globulin content
Increase of albumin content
Increase of globulin content

An isolated heart was used to study excitation conduction velocity in different areas of the heart. What area had the lowest velocity of excitation conduction?
Atrioventricular node
Ventricular myocardium
Purkinje fibers
His bundle
Atrial myocardium

A 40-year-old person developed elevated blood pressure after an emotional excitement. What is the likely cause of this effect?
Increased sympathetic nervous system tone
Increased parasympathetic nervous system tone
Decreased cardiac contraction frequency
Arteriolar dilation
Hyperpolarization of cardiomyocytes

After a cold the patient developed impaired perception of pain and thermal stimuli in the front 2/3 of the tongue. What nerve was damaged in this case?
Trigeminal
Phrenic
Chorda tympani
Vagus
Hypoglossal

A 42-year-old man with an incised wound on the lower anterior surface of his shoulder came to the medical station. Objectively he presents with impaired forearm flexion. What muscles are likely to be damaged in this patient?
M. brachialis, m. biceps brachii
M. biceps brachii, m. anconeus
M. deltoideus, m. infraspinatus
M. deltoideus, m. biceps brachii
M. coracobrachialis, m. supraspinatus

During surgery on the stomach, the surgeon has cut the left gastric artery and ligated it. However the opposite end of the cut artery continued to bleed. What artery anastomoses with the left gastric artery?
Right gastric artery
Superior pancreaticoduodenal artery
Right gastroepiploic artery

Splenic artery
Left gastroepiploic artery

A woman has undergone a surgery for femoral hernia. In this case the hernial protrusion is projected into the:
Femoral triangle
Pubic region
Inguinal region
Gluteal region
–

A patient of tall stature with drooping lower lip, big nose, and large extremities has made an appointment with the doctor. What gland is likely to present with excessive secretion in this patient?
Anterior lobe of the pituitary gland
Thyroid gland
–
Parathyroid glands
Pineal gland

During a surgery on the right side of the neck, excursion of the right diaphragmatic dome was disturbed. This disturbance occurred because of the damage to the following nerve:
Right phrenic nerve
Left transverse cervical nerve
Supraclavicular nerve
Left phrenic nerve
Right transverse cervical nerve

A trauma patient has a wound in the temporal region, with trickle of bright red blood streaming from it. What blood vessel is damaged?
A. temporalis superficialis
A. occipitalis
A. maxillaris
A. auricularis posterior
A. facialis

On examination a woman was diagnosed with a retropharyngeal abscess. What cervical space should be accessed by the surgeon lancing this abscess?
Retrovisceral space
Suprasternal space
Previsceral space
Interscalene space
Prescalene space

Brain investigation by means of nuclear magnetic resonance revealed the patient to have a hematoma in the genu of the internal capsule. What pathway is damaged in this case?
Tr. cortico-nuclearis
Tr. cortico-thalamicus
Tr. thalamo-corticalis
Tr. cortico-spinalis
Tr. cortico-fronto-pontinus

A patient was diagnosed with a damaged intervertebral disk in the lumbar spine. What type of joint is it?
Synchondrosis
Symphisis
Syndesmosis
Synostosis
Diarthrosis

A patient complains of severe rhinitis and total loss of olfactory perception. Receptors of the olfactory analyzer are damaged in this patient. Where in the nasal cavity are these receptors located?
Superior nasal meatus
Inferior nasal meatus
Middle nasal meatus
Common nasal meatus
Choanae

A student uses percussion to determine the cardiac border that projects on the anterior thoracic wall at the level of the third costal cartilage. What cardiac border is being determined?
Upper
Left
Lower
Right
Apex

A trauma patient has a fracture in the petrous part of the temporal bone. The fracture line passes behind the internal auditory foramen. What canal of the temporal bone was damaged?
Facial canal
Carotid canal
Tympanic canal
Musculotubal canal
Canaliculus of the chorda tympani

A patient suffers from disturbed blood supply of the superior lateral surface of the

cerebral hemispheres. What blood vessel is damaged?
Medial cerebral artery
Anterior communicating artery
Posterior communicating artery
Anterior cerebral artery
Posterior cerebral artery

ABO blood group is being determined. Erythrocyte agglutination occurred when standard sera of group I and group II were introduced into the blood being analyzed, while group III serum caused no agglutination. What agglutinogens do these erythrocytes have?
B
A
C
D and C
A and B

What changes can be expected to occur in the isolated heart of a toad, if excessive amount of calcium chloride is introduced into its perfusate?
Increased cardiac contraction force and frequency
Diastolic cardiac arrest
Increased cardiac contraction frequency
Decreased cardiac contraction force
Increased cardiac contraction force

After hyperventilation an athlete developed a brief respiratory arrest. It occurred due to the following changes in the blood:
Decrease of CO_2 pressure
Decrease of O_2 pressure
Increase of CO_2 and O_2 pressure
Decrease of pH
Increase of CO_2 pressure

A man cannot lift his drooping lower jaw. What muscles of the head DO NOT function properly in this case?
Masseters
Buccinators
Superior auricular
Zygomaticus major
Zygomaticus minor

According to the data collected by WHO researchers, every year approximately 250 million malaria cases occur in the world. This disease can be encountered predominantly in tropical and subtropical areas. The spread of this disease matches the natural habitat of the following genus of mosquitoes:

Anopheles
Culex
Mansonia
Culiseta
Aedes

A child was hospitalized with diagnosis of diphtheria. What should be given to this child for specific therapy?
Diphtheria antitoxin serum, antibiotics
Diphtheria anatoxin, antibiotics
Diphtheria vaccines: DPT, DT, diphtheria vaccine
Diphtheria bacteriophage
Codivac vaccine, sulfanilamides

A man complaining of nausea, liquid stool with mucus and blood streaks, high temperature, and weakness was hospitalized into the infectious diseases department. The doctor suspects dysentery. What method of laboratory diagnostics would be the most effective for confirmation of this diagnosis?
Bacteriological analysis
Protozoan analysis
Mycological analysis
Serological analysis
Microscopy

A person bitten by a stray dog came to the surgeon's office. Wide lacerated wounds are localized on the patient's face. What rabies prevention aid should be provided to this person?
Begin immunization with antirabic vaccine
Prescribe combined vitamin therapy
Hospitalize the patient and continue to monitor his condition
Immediately administer normal gamma globulin
Immediately administer DPT vaccine

A bacteriological laboratory conducts the analysis of potable water quality. Microbial number of the water sample is approximately 100. What microorganisms were accounted for in this case?
All bacteria that have grown on a nutrient medium
Enteropathogenic bacteria and viruses
Human and animal pathogenic bacteria
Colibacilli
Opportunistic pathogenic bacteria

Often the cause of secondary immunodeficiency is organism exposure to an infection, agents of which reproduce directly in the cells of immune system and destroy them. Specify the diseases, during which the described above occurs:

Infectious mononucleosis, AIDS
Q fever, typhus
Poliomyelitis, viral hepatitis type A
Tuberculosis, mycobacteriosis
Dysentery, cholera

A sick child is suspected to have tuberculosis and is referred for Mantoux test. 24 hours later the place of allergen injection became swollen, hyperemic, and tender. What main components determine the development of this reaction?
Mononuclear cells, T-lymphocytes, and lymphokines
B-lymphocytes and IgM
Macrophages, B lymphocytes, and monocytes
Granulocytes, T-lymphocytes, and IgG
Plasma cells, T-lymphocytes, and lymphokines

A 3-year-old girl has rubella. Her 10- year-old sister was not infected, despite both girls constantly remaining in contact. The pediatrician determined that the elder girl had rubella 5 years ago. What type of immunity does the elder sister have?
Natural active
Artificial active
Innate
Artificial passive
Natural passive

During identification of pure culture of microorganisms the most important part is a serological identification that is conducted by means of agglutination reaction. What components are necessary to conduct this reaction?
Unknown bacterial culture, specific antibodies
Unknown antibodies, nonspecific antigen
Thermoextract, specific serum
Specific antigen, known antibody, bacteria
Specific antigen, serum sample obtained from the patient

During laboratory diagnostics of hepatitis C, it is necessary to detect the presence of antibodies to hepatitis C virus in the patient's blood serum. What test should be conducted in this case?
Enzyme-linked immune-sorbent assay (ELISA)
Nucleic acid hybridization with signal amplification
Nucleic acid hybridization
Ligase chain reaction
DNA probe method

In the skin biopsy material in the epidermis there are cells with processes and dark brown granules in their cytoplasm. Name these cells:
Melanocytes

Intraepidermal macrophages
Merkel cells
Lymphocytes
Keratinocytes

A smear specimen of human red bone marrow shows, among myeloid cells and adipocytes, certain stellate cells with oxyphilic cytoplasm that are connected with their cellular processes. Name these cells:
Reticular cells
Dendritic cells
Osteocytes
Fibroblasts
Macrophages

A microslide shows a section of a beanshaped organ with cortical and medullary substances. Its cortical substance contains separate spheric nodules 0.5-1 mm in diameter; its medullary substance consists of medullary cords. This histological section demonstrates the following organ:
Lymph node
Spleen
Thymus
Kidney
Adrenal gland

A woman presents with edemas. In her urine there is a large amount of protein excreted. What nephron segment is functionally disturbed in this case?
Renal corpuscle
Distal convoluted tubule
Proximal convoluted tubule
Descending limb of loop of Henle
Ascending limb of loop of Henle

The urine sample was taken via a catheter from the urinary bladder of a 17-year-old young man. Microscopy of the urine precipitate in this case can detect cells of the epithelium that lines the urinary bladder. What epithelium is it?
Transitional epithelium
Non-keratinized stratified epithelium
Non-stratified cuboidal epithelium
Keratinized stratified epithelium
Non-stratified columnar epithelium

A connective tissue specimen stained with hematoxylineosin shows isogenous cell groups surrounded with basophilic intercellular substance. No fibrous structures are detected. What type of connective tissue is it?
Hyaline cartilage tissue

Splenial bone tissue
Dense fibrous tissue
Elastic cartilage tissue
Loose fibrous tissue

A sample obtained from the patient's thyroid gland was processed with silver salts, which revealed large argyrophilic cells in the follicular walls. What hormone is being secreted by these cells?
Calcitonin
Parathyrin
Adrenaline
Aldosterone
Thyroxine

A 50-year-old patient was diagnosed with myxedema. The development of this pathology is caused by disturbed production of certain hormones. Name these hormones.
Thyroxine and triiodothyronine
Insulin and glucagon
Cortisol and aldosterone
ACTH and growth hormone
Oxytocin and vasopressin

The physiological properties of human cardiac muscle include all of the listed below except:
Elasticity
Conductivity
Automaticity
Excitability
Contractility

Indirect calorimetry shows that the basal metabolic rate of a person is 40% lower than the norm. What endocrine gland does not function properly in this person, causing this condition?
Thyroid gland
Pineal gland
Pancreas
Adrenal gland
Thymus

A 30-year-old woman complains of intense thirst and dry mouth after a severe emotional shock. Laboratory testing shows elevated blood sugar levels of 10 mmol/L. What endocrine gland is affected in the patient, causing her condition?
Pancreas
Pineal gland

Gonads
Thyroid gland
Adrenal glands

A man complains of weight loss, rapid physical and mental fatigability, decreased appetite, arterial hypotension, and hyperpigmentation of the skin. Examination allowed diagnosing him with Addison's disease. What endocrine gland is hypofunctional in this case, causing this condition in the patient?
Adrenal glands
Thyroid gland
Pituitary gland
Gonads
Parathyroid gland

In an experiment, a dog was trained to develop a conditioned reflex in response to a flash of light. For this reflex to occur, a certain part of the cerebral cortex must be intact. What part of the cerebral cortex is it?
Occipital lobe
Frontal lobe
Postcentral gyrus
Temporal lobe
Precentral gyrus

A newborn failed to take his first breath. Autopsy revealed that despite unobstructed airways the lungs of the newborn were unable to stretch. What is the most likely cause of this condition?
Absence of surfactant
Pleural thickening
Bronchial rupture
Alveolar enlargement
Bronchial narrowing

Premature excitation that occurs in the ventricular myocardium
Reduces the speed of excitation conduction through working cardiomyocytes
Increases the speed of excitation
Has no effect on the automaticity of the sinoatrial node
Reduces the automaticity of the sinoatrial node
Increases the automaticity of the sinoatrial node

What receptors respond to changes in gas composition of the blood that enters the brain?
All of the listed
Carotid sinus receptors
Aortic receptors
Bulbar receptors

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A patient has high body temperature, increased basal metabolic rate, and tachycardia at rest, which can be caused by hyperfunction of the:
Thyroid gland
Pancreas
Neurohypophysis
Adrenal cortex
Gonads

A woman has edemas and high levels of urine protein. What nephron segment is dysfunctional in this case, as indicated by these signs?
Renal corpuscle
Distal convoluted tubule
Ascending limb of the loop of Henle
Proximal convoluted tubule
Descending limb of the loop of Henle

In an experiment, a test animal had a part of its brain destroyed, which caused the animal to change from a homeothermic to a poikilothermic state. What part of the brain was destroyed in this case?
Hypothalamus
Medulla oblongata
Mesencephalon
Pineal gland
Pituitary

In an experiment, the processes of food and water hydrolysis products absorption were studied. It was determined that these processes mainly occur in the following gastrointestinal segment:
Small intestine
Oral cavity
Rectum
Large intestine
Stomach

A patient has high levels of vasopressin (antidiuretic hormone) in the blood. What changes in the patient's diuresis will occur in this case?
Oliguria
Anuria
Glycosuria
Natriuria
Polyuria

A 40-year-old woman on examination presents with intensified basal metabolic rate.

What hormone present in excess leads to such condition?
Triiodothyronine
Thyrocalcitonin
Aldosterone
Somatostatin
Glucagon

During local anaesthetization novocaine solution is usually compounded with solution of adrenaline hydrochloride. What is the purpose of this action?
Vasoconstriction
Vasodilatation
Decrease in smooth muscle tone
Algesthesia reduction
Increase in smooth muscle tone

A patient got an injection of 0.25% novocaine solution for the purpose of anaesthetization. Suddenly the patient has presented with red spots, intense sweating, tachycardia, bronchospasme, edema of nasal mucous membrane. What is the cause of this complication?
Immediate allergy
Abstinence syndrome
Tachyphylaxis
Delayed allergy
Local irritation

For research of internal bottom it is necessary to extend a pupil. What preparation is used for this purpose clinically?
Atropine sulfate
Pillokarpine hydrochloride
Pirensepine
Proserin
Anaprilin

At poisoning by phosphoorganic compound an atropine sulfate was used. What phenomenon underlay in antidotal action?
Antagonism
Synergism
Adaptation
Chemical incompatibility
Potentiation

A patient who has renal colics was prescribed a spasmolytic from M-cholinergic antagonists.What medicine is it?
atropine
proserin

galanthamine
dithylin
benzogecson

When copying of instruction to clinic use of atropine sulfate in section «Side effects» student noted: tachycardia, increase of blood ocular pressure, temperature rice, reddening. What typical side effect was missed?
dry mouth
drowse
nausea
vomiting
excessive sweat

Name the most typical symptom of poisoning by atropine:
Dilation of pupils, which are irresponsible on light
Narrowing of pupils which are irresponsive on light
Perspiration enhances
Bradycardia
Decline of ophthalmotonus

A child has accidentlly drunk a solution that was used by his grandmother for glaucoma treatment. The solution turned out to be pilocarpine hydrochloride. What drug can be used as an antidote?
Atropinum
Carbacholinum
Pentaminum
Aceclidinum
Benzohexonium

A 40-year-old patient suffers from bronchial asthma and cardiac rhythm disturbance in form of bradyarrhythmia. Drug of which pharmacological group should be administered for bronchospasm suppression?
M-cholinergic antagonists (M-anticholinergics)
M-cholinomimetics
Beta-blockers
Cholinesterase inhibitors
Muscle relaxant

During an operation a dentist needs to reduce salivation in a patient. The dentist has to use a drug of the following pharmacological group:
Muscarinic receptors blockers
Muscarinic cholinomimetics
Muscarinic and nicotinic cholinomimetics
Adrenoceptor blocker
Adrenomimetics

A 40-year-old patient suffers from bronchial asthma and cardiac rhythm disturbance in form of bradyarrhythmia. Drug of which pharmacological group should be administered for bronchospasm suppression?
Muscarinic receptor blockers (M-cholinergic antagonist)
Muscarinic cholinomimetics
Beta-adrenoceptor blockers
Anticholinesterase drugs
Muscle relaxants

A patient has been administered a spasmolytic from the group of muscarinic receptor antagonists as a part of complex treatment for renal colics. Specify this drug:
Atropine
Benzohexonium
Neostigmine
Galantamine
Dithylinum

A 40-year-old patient has a history of bronchial asthma and bradyarrhythmia. In order to eliminate bronchospasm, the drugs of the following pharmacological group should be administered:
M-anticholinergics
в-adrenergic blocking agents
M-cholinergic agents
Anticholinesterase agents
Muscle relaxants

The patient with hepatic colic has been prescribed spasmolytic of muscarinic receptor antagonists group as a part of his complex therapy. What drug is it?
Atropine
Proserin
Galantamine
Dithylin
Benzohexonium

A patient takes blocker of muscarinic cholinoreceptors of parasympathetic nerve organ synapses. What changes of heart activity will be observed?
Heart rate rise
Heart rate and heart force fall
Heart rate fall
Heart force fall
Prolongation of atrioventricular delay

A patient with renal colic has been administered a spasmolytic from the group of M-cholinergic antagonists as a part of the complex therapy. Specify this drug:

Atropine
Proserin
Galantamine
Dithylinum
Benzohexonium

Recommend a patient with glaucoma a preparation from a group of M-cholinomimetics.
Pilocarpine hydrochloride
Ephedrine hydrochloride C
Sulfacilum Sodium
Atropine sulfate
Levomycetin

For treatment of glaucoma a doctor decided to prescribe cholinomimetic agent of direct action.What preparation is it?
Pilocarpine hydrochloride
Zinc sulfate
Sodium sulfacyl
Platyphyllin
Atropine sulfate

Patient with glaucoma was prescribed pilocarpine hydrochloride to decrease pressure. What pharmacological group does the medicine belong to?
M-cholinomimetics
Beta-adrenoceptor antagonists
Sympatholytics
Ganglionic blockers
Alfa- adrenoceptor antagonists

Pilocarpine was prescribed. What mechanism of action does this medicine have?
M – cholinergic receptor stimulation
M – cholinergic receptor blockade
α – adrenoreceptors stimulation
β – adrenoreceptors blockade
H2 – histamine receptor blockade

What medicine from cholinotropic group is used for glaucoma treatment, because it reduces intraocular pressure?
pilocarpine
atropine
platyphyllin
scopolamine
methacin

Name the drug that causes miosis and lowers intraocular pressure:
Pilocarpine hydrochloride
Fenofibrate
Nitrazepam
Atropine sulphate
Suxamethonium chloride

Specify the drug that constricts pupils and reduces intraocular pressure:
Pilocarpine hydrochloride
Fenofibrate
Nitrazepamum
Atropine sulfate
Dithylinum

For the patient of 53 years old glaucoma is diagnosed. For treatment a doctor prescribed anticholinesterase medicine as eye drops. Name this drug.
Proserin
Carbacholin
Pilocarpine hydrochlorid
Atropine sulfate
Aceclidin

A patient who has glaucoma was prescribed proserin as eye drops. To what pharmacological group does this medicine belong?
Anticholinesterase reversible acting agent
M – anticholinergic drug
N – cholinomimetic
Adrenergic blocker e)
Adrenoceptor agonist

What should one prefer to suppress intestinal atony in a postoperative period?
proserin
atropine
platyphyllin
pirelin
ethacin

Old patient had postoperative atony of the intestine. What anticholinesterase medicine should be prescribed?
Prozerin B
Dithylinum
Pilocarpin hydrochloride
Atropine sulfate
Metoprolol

A child was hospitalized with the symptoms of poisoning by the alkaloids of belladonna. What preparation should be used as an antidote?
Prozerin
Magnesium sulfate
Caffeine-sodium benzoate
Paracetamol
Sodium volpro

Find in your pharmacy reversible-acting anticholinesterase drug for treatment of atony of infestine. Prozerin B
Phosphacol
Benzohecsonium
Atropine sulfate
Dithylin

A hospital admitted a child with signs of poisoning with belladonna alkaloids. What drug should be applied as an antidote?
Proserin
Magnesium sulfate
Sodium valproate
Sodium caffeine benzoate
Paracetamol

During a surgical operation the muscle relaxant tubocurarine chloride was used. What antagonist should be injected in order to allow the patient to breathe independently?
Neostigmine (Proserinum)
Cytitonum
Dithylinum
Aethimizolum
Benzohexonium

A patient with dry mouth, photophobia and blurred vision has been delivered to the emergency department. Objectively: the skin is hyperemic, dry, mydriatic pupils and tachycardia are present. He has been diagnosed with belladonna alkaloids intoxication. Which of the drugs should be given as an antidote?
Neostigmine
Pylocarpine
Armin
Aceclidine
Dipiroxim

From the pharmaceutical stock select an anticholinesterase drug to be administered to the patients with atony of the intestine and urinary bladder in the postoperative period:

Dithylinum
Phosphacolum
Atropine sulfate
Benzohexonium
Proserin

A patient has been administered a competitive inhibitor of cholinesterase. Name it:
Proserin
Aspirin
Sodium diclophenac
Indometacin
Allopurinol

To the interhospital pharmacy an order from a surgical department on the medicine of the neuromuscular relaxant group with depolarizing type of action for the leadthrough of surgical interferences was made. What medicine was ordered?
Dithylin
Famotidine
Atropine sulfate
Methacine
Hygronium.

An interhospital pharmacy got an order from a surgical department for a depolarizing muscle relaxant for surgical interventions. What drug was ordered?
Dithylinum
Hydronium
Nicotine
Methacine
Atropine sulfate

A man got an injection of curarelike substance causing the relaxation of all skeletal muscles. What is its mechanism of action?
Block of cholinergic receptors of postsynaptic
membrane
Disturbance of acetylcholine synthesis
Block of Ca2+-channels of presynaptic membrane
Disturbance of cholinesterase synthesis
Disturbance of acetylcholine secretion

A patient with hypertensive crisis received an injection of ganglionic blocker benzohexonium. What side effect might be expected after the drug injection?
Orthostatic hypotension
Diarrhea
Central nervous system depression effect
Withdrawal (abstinence) syndrom

Taste violation

A patient after bee's stings has angioedema (Quincke's edema). Which drug should be immed'ately inject to eliminate this condition?
Epinephrine hydrochloride
Sodium chloride
Platyphyllin hydrotartrat
Atropine sulfate
Anaprilin

For an extension and strengthening of local anesthetic activity of lidocaine also for diminishing of bleeding probability during the extraction of a tooth, a dentist used preparation from the group of adrenergic agonist. Name this preparation.
Adrenaline hydrochloride
Salbutamolum
Isadrinum
Prozerin
Anaprilin

A patient has anaphylactic shock developed after a vaccination. Name the preparation of choice in such a case.
Adrenaline hydrochloride
Anaprilin
Naphthizin
Salbutamol
Dithylin

Help student from medical university to choose adrenergic drug for treatment of anaphylactic shock.
Adrenaline hydrochloride
Clofelin
Galasoline
Fenoterol
Isadrin

During the reaction of sensibilisation to benzylpenicillin anaphylactic shock appeared. What medicine should be injected in the place of the antibiotic injection?
adrenalin hydrochloride
norepinephrine hydrotartrate
atropine sulfate
mesaton
cephtriaxon

During the sensitifity test for benzylpenicillin a patient developed anaphylactic shock. The following preparation must be injected around the spot of antibiotic injection:
Adrenaline hydrochloride
Atropine sulfase
Propranolol
Noradrenaline hydrotartrate
Ceftriaxon

During local anaesthetization novocaine solution is usually compounded with solution of adrenaline hydrochloride. What is the purpose of this action?
Vasoconstriction
Vasodilatation
Decrease in smooth muscle tone
Algesthesia reduction
Increase in smooth muscle tone

Epinephrine is used to prolong the effect of novocaine during infiltration anesthesia. What epinephrine action is this effect caused by?
Vasoconstriction
Potentiation of novocaine action at CNS level
Suppression of nerve endings and conductors functioning
Vasodilatation
Suppression of tissue esterases

A patient after bee's stings has angioedema (Quincke's edema). Which drug should be immediately injected to eliminate this condition?
Epinephrine hydrochloride
Atropine sulfate
Sodium chloride
Platyphyllini hydrotartras
Anaprilinum

A patient suffering from allergic rhinitis was prescribed ephedrine in form of nasal drops. The patient has significantly benefited from nasal instillation, and this stimulated him to use the drug every 2 hours. But under these conditions the drug appeared to be ineffective. What is the most likely cause of this phenomenon?
Tachyphylaxis
Allergy
Idiosyncrasy
Cumulation
Drug depence

Antimicrobial, antiviral, and antiparasitic agents. Antihelminthal and antifungal preparations.

A female patient has been treated with antibiotics for a long time. Thereafter examination of smears form vaginal secretion revealed oval cells with well-defined nucleus, some cells gemmate. What preparations can help to confirm the diagnosis "candidosis"?
Antifungal
Antibacterial
Antichlamydial
Antiviral
Antiprotozoal

A patient complains about gingival haemorrhage, petechial haemorrhages. What vitamin preparation should be recommended?
Ascorutinum
Thiamine hydrochloride
Cyanocobalamin
Nicotinic acid
Pyridoxine hydrochloride

A patient underwent an operation. After it he was prescribed glycosaminoglycan that has coagulating action. Specify this substance:
Heparin
Keratan sulfate
Hyaluronic acid
Chondroitin-6-sulfate
Chondroitin-4-sulfate

Epidemic of influenza was announced in a town. Which drug can be recommended for the nonspecific prophylaxis of influenza?
Leukocytic interferon
Anti-influenza vaccine
Antibiotics
Anti-influenza immunoglobulin
Anti-influenza serum

Anti-inflammatory effect of a number of drugs is caused by the inhibition of arachidonic acid release. This acid is the precursor of:
Prostaglandins
Uric acid
Urea
Haem
Cholesterol

Colloidal protection is used while manufacturing drug preparations. Name the preparation of colloidal silver protected by proteins:
Protargol

Festal
Enzymtal
Argentum
Collagen

A patient suffers from Down's disease that manifests as mental retardation, shortness of stature, pathologically short fingers and toes, and eyes with mongoloid slant. Karyotype analysis revealed trisomy 21. What group of diseases does this pathology belong to?
Chromosomal disorders
Molecular genetic disease
Gametopathy
Fetopathy
Blastopathy

Hormones regulate numerous metabolic processes. What hormone activates glycogen synthesis?
Insulin
Adrenaline
Vasopressin
Thyroxine
Oxytocin

A patient has developed anuria. Blood pressure is 50/20 mm Hg. What process of uropoiesis was disturbed resulting in acute decrease of urine output?
Glomerular filtration
Obligate reabsorption
Facultative reabsorption
Tubular secretion
–

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?
Somatotropin
Insulin
Oxytocin
Vasopressin
Adrenaline

A 10-year-old child has height of 178 cm and body mass of 67 kg. These presentations are caused by the functional disturbance of the:
Pituitary gland
Thyroid gland
Gonads

Adrenal glands
Parathyroid glands

Any damage to the patient's vessels results in persistent hemorrhage. Blood clotting factor VIII is deficient in the patient's blood. What disease does this patient suffer from?
Hemophilia
Acute vascular purpura
Thrombocytopenic purpura
Anemia
Radiation sickness

To induce diabetes mellitus in a rabbit, β-cells of pancreatic islets (islets of Langerhans) were selectively damaged with alloxan. What method of diabetes induction was used in this experiment?
Shutdown
Irritation
Introduction of enzymes, hormones
Isolated organs
Stimulation

A patient presents with persistent tachycardia, exophthalmos, high excitability, increased basal metabolic rate. What disorder can lead to the development of this syndrome?
Hyperthyroidism
Hypoparathyroidism
Hypothyroidism
Hyperparathyroidism
Adrenal hypofunction

A patient, who lives in the area with specific geochemical conditions, was diagnosed with endemic goiter. What microelement deficiency results in development of this pathology?
I
Cl
Br
F
Na

On examination the patient's sclera and oral mucosa are icteric. What biochemical blood value can be expected to be increased?
Bilirubin
Amylase
Glucose
Albumin

Cholesterol

A 25-year-old man has an appointment with the dentist. Several minutes after his oral cavity was lavaged with furacilin (nitrofurazone) the patient developed significant labial edema. What type of allergic reaction is observed in this case?
Anaphylactic
Delayed-type hypersensitivity
Cytolytic
Stimulated
Immune complex

A patient with gastric carcinoma has undergone several courses of radiation therapy. What system is the first to become functionally disturbed after the body was exposed to ionizing radiation?
Blood
Nervous
Digestive
Urinary
Respiratory

During regular check-up a patient presents with enlarged thyroid gland, exophthalmos, increased body temperature, heart rate up to 110/min. What hormone should be measured in the patient's blood in this case?
Thyroxin
Testosterone
Glucagon
Insulin
Cortisol

Insulin production in β-cells involves many substances. What substance gives the main signal for insulin synthesis when its concentration changes?
Glucose
Carbon dioxide
Heparin
Hemoglobin
Urea

An ophthalmologist has detected increased time of dark adaptation in a patient. What vitamin deficiency can result in such symptom?
A
C
K
B1
B6

When working in the garden, a man accidentally cut his hand. The wound remained untreated. Shortly after that the wounded area developed inflammation with accumulation of exudate that contained numerous viable and degenerate neutrophils. What type of exudate is it?
Purulent
Serous
Fibrinous
Hemorrhagic
Catarrhal

A patient presents with persistent fever, with the difference between evening and morning temperature not exceeding 1oC. What type of fever curve is present in this patient?
Continuous
Remittent
Hectic
Recurrent
Intermittent

Ultraviolet irradiation is used in medicine in various physiotherapeutic procedures. What mechanism of medicinal action is characteristic of ultraviolet rays?
Activation of vitamin D synthesis
Activation of drug action
Decrease of melanin synthesis in the skin
Intensification of cell division
Activation of lipid peroxidation

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?
Fat digestion
Protein absorption
Carbohydrate digestion
Carbohydrate absorption
Protein digestion

A 46-year-old patient presents with hyperactivity of creatine kinase in his blood serum. What pathology can be suspected?
Myocardial infarction
Acute pancreatitis
Chronic hepatitis
Hemolytic anemia
Renal failure

A patient is pale, has goose bumps and chills. What stage of fever is it characteristic of?

Temperature increase
Temperature decrease
Continuous fever5
Compensation
Latent stage

Ascarids were detected in a sick child. What changes in leukogram will be the most characteristic of helminthiasis?
Eosinophilia
Basophilia
Neutrophilia
Lymphocytosis
Monocytosis

A man received a radiation dose of 30 Gy. He presents with necrotic angina and disorders of the gastrointestinal tract. Blood tests revealed anemia, leukopenia and thrombocytopenia. What stage of acute radiation sickness is observed in the patient?
Manifest illness stage
Prodromal stage
Latent stage
Recover
–

A patient suffers from hyperchromic B12-deficiency anemia. What vitamin preparation should be prescribed in this case?
Cyanocobalamin
Riboflavin
Vicasol (Menadione)
Thiamine chloride
Retinol acetate

After a traffic accident the driver presents with increased blood glucose. What mechanism leads to hyperglycemia in this case?
Sympathoadrenal system activation
Increased production of somatotropic hormone
Decreased production of insulin
Decreased production of glucagon
Decreased tone of parasympathetic nervous system

Examination of a 45-year-old man, who for a long time kept to a vegetarian plant based diet, revealed him to have negative nitrogen balance. What peculiarity of his diet has caused such developments?
Insufficient protein content
Insufficient fat content
Insufficient vitamin content

Excessive water content
Excessive carbohydrate content

After severe emotional strain a 53-year-old man suddenly developed acute pain in the heart area, which irradiates to the left hand, to the neck, and under the left scapula. He noted numbness of his left hand. His face is pale and covered in cold sweat. Nitroglycerine administration stopped the pain attack after 10 minutes had passed. What is the most likely disease in this case?
Angina pectoris
Stroke
Myocardial infarction
Pulmonary embolism
Somatoform autonomic dysfunction

During ultrasound investigation a patient was diagnosed with bilateral renal artery stenosis of atherosclerotic genesis. Specify the bioactive substance that due to its excessive secretion is the key component of arterial hypertension pathogenesis in the given case:
Renin
Cortisol
Vasopressin
Thyroxin
Noradrenaline

At the end of his shift a worker of the steel foundry felt dizziness, his body temperature increased to 38.50C. What condition does he present with?
Hyperthermia
Decompression
Fever
Hypothermia
Hypertension

A patient in the state of ketoacidotic coma presents with loud rapid respiration: labored expiration with tension of expiratory muscles occurs after deep inspiration. Name this type of pathologic respiration
Kussmaul's
Cheyne-Stokes'
Gasping
Stenotic
Biot's

A woman complains of itching lips; they are reddened and covered in scabs and scales after she had been using new lipstick for two weeks. What allergic reactions result in this kind of disorders?
Delayed

Cytotoxic
Immune complex
Anaphylactic
Stimulating

What ion increases osmotic pressure in the focus of inflammation?
Potassium
Calcium
Fluorine
Magnesium
Chlorine

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?
Uric acid
Urea
Lactate
Bilirubin
Ketone bodies

Upon examination the ophthalmologist diagnosed a 21-year-old woman with visual impairment - hemeralopia ("night blindness"). What drug should this patient take to restore her vision?
Retinol acetate
Ergocalciferol
Suprastin (Chloropyramine)
Cholecalciferol
Sustac forte (Nitroglycerin)

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-yearold. What hormone causes such changes in physical development, if its secretion is disturbed?
Somatotropic hormone
Adrenocorticotropic hormone
Thyroxin
Testosterone
Insulin

An injured person exhibits the following signs at the site of trauma: skin redness, throbbing small arteries, elevated local temperature, increased tissue turgor. What local blood circulation disorder are these presentations typical of?
Arterial hyperemia
Venous hyperemia8

Thrombosis
Embolism
Ischemia

A person has been stung by a bee. The stung area developed redness and edema. What is the main mechanism of edema development?
Increased permeability of the capillaries
Decreased oncotic blood pressure
Increased hydrostatic blood pressure
Decreased osmotic blood pressure
Disturbed lymphatic efflux

Nicotinic acid amide fulfills important metabolic function. What disorder develops, when it is deficient in the organism?
Pellagra
Rickets
Anemia
Xerophthalmia
Beriberi

A patient was delivered into a resuscitation unit with signs of alcohol poisoning. The patient developed hypoxia of the following pathogenesis:
Tissue
Hypoxic
Hemic
Circulatory
Mixed

Prolonged taking of cytostatic agents resulted in development of necrotic tonsillitis in the patient. It can be associated with the following changes in the leukocyte content:
Agranulocytosis
Neutrophilic leukocytosis
Lymphopenia
Eosinopenia
Lymphocytosis

A patient with type I diabetes mellitus developed hyperketonemic coma. What acid-base imbalance will be observed in the patient?
Nongaseous acidosis
Gaseous acidosis
Nongaseous alkalosis
Gaseous alkalosis
There will be no acid-base imbalances9

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?
Alimentary hyperlipemia
Transport hyperlipemia
Hyperplastic obesity
Retention hyperlipemia
Hypertrophic obesity

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?
Obstructive jaundice
Hemolytic jaundice
Hepatocellular jaundice
Jaundice of the newborn
Atherosclerosis

The patient presents with rapid growth of a tumor node and its progressing malignization. What stage of tumor growth can be characterized by these presentations?
Progression
Promotion (activation)
Transformation
Exudation
Inactivation

A 55-year-old man, who had been suffering from mitral insufficiency for many years, developed acute heart failure. What pathophysiological type of heart failure can be observed in this case?
Due to cardiac overload
Due to hypoxic damage to the heart
Due to coronarogenic damage to the heart
Due to neurogenic damage to the heart
Due to acute cardiac tamponade

Cataract (lenticular opacity) has developed in a 52-year-old woman with diabetes mellitus. Lenticular opacity was caused by intensification of the following processes:
Protein glycosylation
Lipolysis
Ketogenesis
Protein proteolysis
Gluconeogenesis

A patient suffers from hyperchromic B12-deficiency anemia. What vitamin preparation should be prescribed in this case?
Cyanocobalamin
Riboflavin
Vicasol (Menadione)
Thiamine chloride
Retinol acetate

A 54-year-old man requested a pharmacist's advice on drug prescription. The patient has 4-year-long history of chronic glomerulonephritis and 2-yearlong history of persistent hypertension. What substance synthesized in the kidneys has important role in development of arterial hypertension?
Renin
Nitric oxide
Aldosterone
Histamine
Catecholamines

A patient complains of general weakness, muscle weakness in the extremities (if the patient is asked to make a fist several times in a row, for example, the patient is capable of doing it only once), facial muscles are weak, swallowing is disturbed. Administration of acetylcholinesterase drugs removes these disturbances to a certain degree. Determine the pathology:
Myasthenia
Paralysis
Paresis
Hemiplegia
Monoplegia

A 71-year-old woman developed mechanical jaundice due to obstruction of the bile duct with a chololith. Decrease of blood pressure and bradycardia are detected. These changes in functioning of the patient's cardiovascular system are caused by increased blood content of the following substance:
Bile acids
Direct bilirubin
Indirect bilirubin
Urobilin
Stercobilin

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:
Lactose
Glucose
Maltose

Saccharose
Fructose

During routine preventive examination the local pediatrician noticed a boy of short stature. Mental development of the child corresponds with his age. What endocrine disorder is it?
Pituitary nanism
Cretinism
Acromegalia
Gigantism
Rickets

A 25-year-old-patient with the II degree thermal burns came to a doctor. Objectively: there are large blisters on the upper limbs; the blisters are filled with clear exudate containing mostly water and albumines with isolated leukocytes. Name the type of the exudate:
Serous
Catarrhal (mucous)
Fibrinous
Purulent
Hemorrhagic

A patient with brain edema presents with respiration that is characterized by periods of several respiratory movements of equal amplitude alternating with periods of apnea. What pathologic respiration is it characteristic of?
Biot's respiration
Gasping respiration
Apneustic respiration
Cheyne-Stokes' respiration
Kussmaul's respiration

A patient in the state of ketoacidotic coma presents with loud rapid respiration: labored expiration with tension of expiratory muscles occurs after deep inspiration. Name the type of pathologic respiration:
Kussmaul's
Cheyne-Stokes'
Gasping
Stenotic
Biot's

In 9 days after administration of a therapeutic serum the patient developed urticaria, itching, edemas, and lymph nodes enlargement. What type of allergic reaction has occurred in the patient?
Immune complex
Cytotoxic

Anaphylactic
Stimulating
Cellular

Exudation is characteristic of inflammation. What factors cause exudation and local edema of the inflamed area?
Increased permeability of vessel wall
Hyperglycemia
Ischemia
Leukocyte adhesion to endothelial cells
Decreased permeability of vessel wall

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?
Uric acid
Urea
Lactate
Bilirubin
Ketone bodies

The patient's large-focal myocardial infarction is complicated with pulmonary edema. What disturbance of cardiohemodynamics contributed to the pulmonary edema development?
Acute left ventricular failure
Acute right ventricular failure
Autoimmune myocarditis
Cardiogenic shock
Reperfusion syndrome

A patient has developed anuria. Blood pressure is 50/20 mm Hg. What process of uropoiesis caused acute decrease of urination?
Glomerular filtration
Obligate reabsorption
Facultative reabsorption
–
Tubular secretion

In an emergency situation a scuba diver has quickly risen from the depth to the surface in violation of safety regulations. He is unconscious, presents with respiratory failure and cardiac activity disorder as the result of decompression sickness. What complication can develop in the scuba diver?
Gas embolism
Fat embolism
Air embolism

Cellular embolism
Thromboembolism

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?
Hyperthyroidism
Hypothyroidism
Hyperparathyroidism
Hypoparathyroidism
Adrenomedullary hyperfunction

A patient has been hospitalised with pneumonia. What kind of respiratory failure does the patient have?
Restrictive
Obstructive
Central
Peripheral
Thoracic diaphragm

In the state of fright the following signs can be observed: acute pallor of face, tremor of extremities. What kind of ischemia can be observed in such a condition?
Angiospastic
Compression
Obstructive (thrombus)
Metabolic
Obstructive (vascular wall thickening)

At the sixth month of pregnancy a woman has been diagnosed with severe iron-deficiency anemia. Appearance of the following elements in her blood became the diagnostic character:
Hypochromic erythrocytes
Macrocytes
Megalocytes
Reticulocytes
Erythroblasts

An ophthalmologist has detected increased time of dark adaptation in a patient. What vitamin deficiency can result in such symptom?
A
C
K
B1
B6

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:
Low-density lipoproteins
Very low-density lipoproteins
Intermediate density lipoproteins
High-density lipoproteins
Chylomicrons