1. A child underwent a tuberculin skin test (Mantoux test). 48 hours later the child developed a papule reaching 10 mm in diameter at the injection site. These changes are caused by the following mechanism of hypersensitivity:

a. Cellular cytotoxicity
b. Anaphylaxis
c. Antibody-dependent cytotoxicity
d. Granulomatosis
e. Immune complex cytotoxicity

2. A family has two children. The younger child is under a year. The child has developed spastic cough attacks. Similar clinical presentation was observed in the elder preschool child one month ago. The doctor suspects pertussis infection. What method enables retrospective diagnostics of this disease?

a. Microscopy
b. Molecular biological
c. Bacteriological
d. Serological
e. Biological

3. A patient with signs of mitral valve insufficiency has a history of rheumatism attacks, accompanied by the inflammation processes in the joints. Which pathological phenomenon in this case can be classified as a pathological condition?

a. Arthritis
b. Joint inflammation
c. Rheumatism
d. Rheumocarditis
e. Mitral valve insufficiency

4. During examination a man was diagnosed with acute radiation sickness. Laboratory tests detected an acute decrease in his platelet serotonin levels. It is likely to be caused by disturbed metabolism of a certain substance. Name this substance:

a. Phenylalanine
b. Tyrosine
c. Serine
d. Histidine
e. 5-Hydroxytryptophan

5. A 65-year-old woman with insulin-independent diabetes mellitus was prescribed glibenclamide to be taken orally. What is the mechanism of its hypoglycemic action?

a. Intensifies peripheral glucose utilization
b. Inhibits glucose absorption in the intestine
c. Stimulates secretion of endogenous insulin by beta cells
d. Inhibits alpha-glucosidase and breakdown of polysaccharides
e. Inhibits gluconeogenesis in the liver

6. ECG of a woman with ischemic heart disease shows the following: heart rate - 230/min., deformed P wave, ventricular complexes remain unchanged. What heart rhythm disorder is it?

a. Atrial flutter
b. Ciliary arrhythmia
c. Ventricular fibrillation
d. Ventricular extrasystole
e. Atrial paroxysmal tachycardia

7. A biopsy material obtained from the bronchial mucosa of a 50-year-old patient with a 20-year-long history of chronic bronchitis revealed thinning of the mucosa, cyst-like transformation of the mucous glands, and foci, where prismatic epithelium was replaced with stratified squamous epithelium. What pathological process is most likely in this case?

a. Metaplasia
b. Dysplasia

c. Heterotopia
d. Hyperplasia
e. Heteroplasia

8. After a prolonged fasting therapy, the patient presents with decreased ratio of albumins and globulins in blood plasma. What will be the result of this changed ratio?
a. Increased ESR
b. Hypercoagulability
c. Decreased ESR
d. Decreased hematocrit
e. Increased hematocrit

9. During a surgery, the patient received a blood transfusion. In such cases, the donor blood must be tested for antigens of the following causative agent:
a. Hepatitis A virus
b. Adenoviruses
c. Enteroviruses
d. Hepatitis B virus
e. Hepatitis E virus

10. When determining the blood group according to the ABO system, standard sera were used and the following results were obtained: agglutination occurred in the sera of groups I and II and did not occur in the serum of group III. What blood group is it?
a. I (O)
b. II (A)
c. Cannot be determined
d. III (B)
e. IV (AB)

11. A patient with chronic heart failure developed hepatic cirrhosis with ascites and edema of the lower limbs. What changes in the blood composition cause ascites in this patient?
a. Hypoprothrombinemia
b. Hypoalbuminemia
c. Hypergammaglobulinemia
d. Hypocholesterolemia
e. Macroglobulinemia

12. Histology of a skin tumor detects adipose tissue particles of varying size, separated by irregular layers of connective tissue. What disease can be characterized by such pathological changes?
a. Fibroma
b. Papilloma
c. Hemangioma
d. Hygroma
e. Lipoma

13. Residents of areas with a cold climate have increased blood levels of a certain hormone that has an adaptive thermoregulatory value. What hormone is it?
a. Insulin
b. Glucagon
c. Cortisol
d. Somatotropin
e. Thyroxine

14. Examination revealed that patient has problems with seeing color green. What cells are absent in the patient's retinas, causing the vision impairment?
a. Ganglionic neurons
b. Neurosensory cells - rods
c. Bipolar neurons
d. Retinal pigment epithelium

e. Neurosensory cells - cones

15. During immediate allergic reactions, degranulation of basophilic granulocytes that secrete bioactive substances occurs. Select from the list one such substance.

a. Serotonin
b. Lymphokines
c. Hageman factor
d. Thromboxane
e. Acetylcholine

16. When a foreign agent enters the body, the synthesis of two certain classes of immunoglobulins begins almost in parallel. However, the concentration of one of them increases and decreases faster. What are these two classes of immunoglobulins?

a. IgA and IgG
b. IgM and IgG
c. IgA and IgD
d. IgG and IgD
e. IgM and IgD

17. What will be caused by stimulation of the carotid sinus baroreceptors in an experiment on a dog?

a. Increased parasympathetic tone
b. Decreased cardiac output
c. Increased heart rate
d. Increased cardiac output
e. Increased sympathetic tone

18. Several months after giving birth, a woman became inert, her teeth and hair started falling out and she started losing weight. Her blood pressure, body temperature, and blood glucose are low. Examination shows low blood levels of growth hormone and adrenocorticotropic hormone. What functional disturbance of pituitary gland is observed in the patient?

a. Acromegalia
b. Panhypopituitarism
c. Diabetes insipidus
d. Hypophyseal nanism
e. Cushing disease

19. A patient with obliterating endarteritis underwent ganglionic sympathectomy. What type of arterial hyperemia developed as a result of the surgery in this patient?

a. Neurotonic
b. Working
c. Metabolic
d. Reactive
e. Neuroparalytic

20. Examination of the patient's facial expressions detected his inability to pucker his lips or whistle. His oral fissure stretches to the sides (transverse smile). What muscle is atrophied in this case, as indicated by these symptoms?

a. Risorius muscle
b. Masseter muscle
c. Buccinator muscle
d. Zygomaticus major muscle
e. Orbicularis oris muscle

21. A 30-year-old man with an incised wound on the plantar surface of the left foot was brought to the traumatology department. Lifting of the lateral side of the foot is limited. What muscle is likely to be functionally disturbed?

a. Anterior tibial muscle
b. Triceps muscle of calf
c. Soleus muscle

d. Peroneus longus muscle
e. Flexor hallucis longus muscle

22. A woman gave birth to a child with toxoplasmosis. She believes she has contracted toxoplasmosis from a friend who also recently gave birth to a sick child. What route of toxoplasmosis transmission to a human is impossible?
a. Contact with a cat
b. Contact with a sick person
c. Eating semi-raw meat of an infected animal
d. Eating unwashed vegetables
e. Drinking water contaminated with oocytes

23. After eating canned mushrooms, a person developed signs of bulbar paralysis: ptosis, diplopia, aphonia, difficulty swallowing. Provisionally, this person was diagnosed with botulism. What reaction can be used in this case to determine the type of toxin?
a. Complement fixation
b. Neutralization
c. Immunofluorescence
d. Agglutination
e. Precipitation

24. Autopsy of the body of a 61-year-old man with rheumatoid arthritis shows enlarged and dense yellow-white kidneys with a waxy sheen and areas of cicatricial depressions on their surface. Congo red staining reveals deposition of homogeneous pink masses in the capillary loops of the glomeruli, in the walls of the arterioles and arteries, in the basement membrane of the tubules, and in the stroma. In this case, rheumatoid arthritis was complicated by the development of the following proces:
a. Secondary renal amyloidosis
b. Rapidly progressive glomerulonephritis
c. Acute necrotizing nephrosis
d. Postinfectious glomerulonephritis
e. Fibroplastic glomerulonephritis

25. What type of ventilatory failure is characteristic of pneumothorax?
a. Mixed
b. Pathologic
c. Restrictive
d. Obstructive
e. Disregulatory

26. A sample of the discharge from the affected pharyngeal mucosa was obtained from a sick child, provisionally diagnosed with diphtheria. A smear was prepared and stained. Microscopy detected there yellow bacilli with dark-blue thickened ends. What structural element of a microbial cell was detected in the obtained microorganisms?
a. Flagella
b. Volutin granules
c. Plasmids
d. Spores
e. Capsule

27. A patient has been diagnosed with psychosis. After two weeks of receiving pharmacotherapy, the patient's condition improved. However, the patient soon developed rigidity, tremors, and hypokinesia. What drug causes these complications?
a. Sydnocarb (Mesocarb)
b. Aminazine (Chlorpromazine)
c. Chlordiazepoxide
d. Diphenin (Phenytoin)
e. Imizin (Imipramine)

28. Because of a common bile duct obstruction detected on the X-ray, the bile stopped flowing into

the duodenum. What process is expected to become disturbed in this case?
a. Protein absorption
b. Emulsification of lipids
c. Inhibition of salivation
d. Carbohydrate hydrolysis
e. Hydrochloric acid secretion in the stomach

29. A young person developed a painless neoplasm without clear boundaries in the soft tissues of the left thigh. A biopsy material of the tissues shows that the neoplasm consists of immature fibroblasts. Make the diagnosis.
a. Cancer
b. Fibrosarcoma
c. Myosarcoma
d. Fibroma
e. Myoma

30. Decarboxylase activity leads to formation of biogenic amines. What biogenic amine triggers the multistage mechanism that regulates the HCl secretion in the stomach?
a. Histamine
b. GABA
c. Dopamine
d. Serotonin
e. Glutamine

31. Total energy metabolism of a person can be calculated, if the following value is known:
a. O_2 intake
b. CO_2 release
c. Protein intake
d. Carbohydrate intake
e. Lipid intake

32. During childbirth, the woman developed secondary weakness of labor activity. What drug must be administered in this case to restore the contractile activity of the myometrium?
a. Dimedrol (Diphenhydramine)
b. Oxytocin
c. Chlorpromazine
d. Suxamethonium
e. Unithiol

33. During a surgery, curare-like drugs are used to induce myorelaxation in the patient. What is the mechanism of their action?
a. Blockade of acetylcholine release from the presynaptic compartment
b. Blockade of muscarinic cholinergic receptors in smooth muscles
c. Blockade of nicotinic cholinergic receptors in skeletal muscles
d. Blockade of excitation conduction through nerve fibers
e. Blockade of noradrenaline release from the presynaptic compartment

34. Energy is necessary for the work of cardiac muscle. What substrate is the main source of energy in the working muscle?
a. Lactic acid
b. Amino acids
c. Pyruvic acid
d. Ketoglutaric acid
e. Fatty acids

35. Examination detected the following changes in the patient's peripheral blood: erythrocytes - 3.0·10^{12/L, Hb - 80 g/L, leukocytes - 21·10^9/L . The following is observed in the leukogram: basophils - 0%, eosinophils - 0%, myeloblasts - 54%, promyelocytes - 1%, myelocytes - 0%, metamyelocytes - 0%, band neutrophils - 1%, segmented neutrophils - 28%, lymphocytes - 13%,

monocytes - 3%. What pathology corresponds with these findings?

a. Erythromyelosis
b. Leukemoid reaction
c. Chronic myeloid leukemia
d. Undifferentiated leukemia
e. Acute myeloblastic leukemia

36. A patient is being prepared for a cardiac surgery. Pressure in the heart chambers was measured. In one of these chambers throughout the cardiac cycle this pressure changes from 0 to 120 mm Hg. What heart chamber is it?

a. -
b. Left ventricle
c. Right atrium
d. Right ventricle
e. Left atrium

37. A patient has gradually developed a skin plaque on his face. In the center of this plaque there are necrotic patch and an ulcer. Histopathological analysis of the biopsy material reveals proliferation of atypical epithelial cells with large number of pathologic mitoses. What is the most likely diagnosis?

a. Papilloma
b. Fibroma
c. Trophic ulcer
d. Sarcoma
e. Skin cancer

38. 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?

a. Adrenal glands
b. Parathyroid gland
c. Pituitary gland
d. Thyroid gland
e. Gonads

39. Postmortem examination of the body of a man, who died of heart failure, shows the following: mitral valve cusps are deformed, thickened, and fused together at the edges; myocardial connective tissue contains diffusely scattered nodules with patches of fibrinoid necrosis surrounded by accumulations of macrophages that resemble multinucleated giant cells. These nodules are surrounded by lymphocytes and single plasma cells. What type of granuloma is it?

a. Rheumatic granuloma
b. Syphilitic granuloma
c. Tuberculous granuloma
d. Actinomycotic granuloma
e. Leprous granuloma

40. A 40-year-old person developed elevated blood pressure after an emotional excitement. What is the likely cause of this effect?

a. Arteriolar dilation
b. Decreased cardiac contraction frequency
c. Hyperpolarization of cardiomyocytes
d. Increased sympathetic nervous system tone
e. Increased parasympathetic nervous system tone

41. In an experiment, calcium ions were pumped from the synaptic cleft. What effect will it have on the neuromuscular transmission?

a. Action potential of the end-plate will be generated
b. The release of the mediator into the synaptic cleft will increase
c. Hyperpolarization of the end plate will occur
d. The release of the mediator into the synaptic cleft will decrease

e. Depolarization of the end-plate will occur

42. When pressure in the aorta sharply increases, the force and rate of cardiac contractions decrease. What nerve contains sensitive fibers from baroreceptors of the aortic arch?

a. Recurrent laryngeal nerve

b. Vagus nerve

c. Inferior cervical cardiac nerve (Pavlov's nerve)

d. Carotid sinus nerve (Hering's nerve)

e. Glossopharyngeal nerve

43. Electronic microscopy of the pancreatic cells shows the structures that separate the cell into a large number of sections, canals, and cisterns and are connected to plasmalemma. Name these organelles:

a. Endoplasmic reticulum

b. Mitochondria

c. Golgi complex

d. Centrosomes

e. Ribosomes

44. A 63-year-old man, who has been suffering from chronic diffuse obstructive pulmonary emphysema for 15 years, died of progressive heart failure. Autopsy shows nutmeg liver cirrhosis, cyanotic induration of kidneys and spleen, ascites, and edemas of the lower limbs. What type of heart failure can be characterized by such changes in the internal organs?

a. Acute left ventricular failure

b. Chronic atrial failure

c. Chronic heart failure

d. Acute right ventricular failure

e. Acute global heart failure

45. A 48-year-old man died with signs of heart failure. Macroscopy of the heart shows that the mitral valve cusps are dense, thickened, and moderately deformed. Microscopically, the bundles of collagen fibrils are homogenized, eosinophilic, and surrounded with slight macrophage infiltration; no metachromasia. Picro-fuchsin staining reveals yellow foci. Diagnose the type of connective tissue damage:

a. Mucoid swelling

b. Hyalinosis

c. Sclerosis

d. Fibrinoid swelling

e. Amyloidosis

46. A patient with an infectious disease is sensitized to benzylpenicillin. What antibiotic will be the safest for this patient?

a. Amoxicillin

b. Bicillin

c. Azithromycin

d. Oxacillin

e. Ampicillin

47. A 45-year-old woman has breast cancer. Metastases can spread in this case to the following regional lymph nodes:

a. Parasternal, bronchomediastinal

b. Aortic, bronchomediastinal

c. Cervical, parasternal

d. Axillary, parasternal

e. Abdominal, cervical

48. A 50-year-old patient complaining of weight loss and weakness presents with hypoglycemia and hyperinsulinemia in the blood. An additional examination detected a tumor of the islets of Langerhans. What cell atypism causes increased insulin synthesis in this case?

a. Immunological
b. Physical and chemical
c. Biochemical
d. Morphological
e. Functional

49. Serological diagnostics of infectious diseases is based on the specific interaction between antibodies and antigens. Name the serological reaction, where highly dispersed antigens are adsorbed on erythrocytes.
a. Complement fixation reaction
b. Indirect (passive) hemagglutination reaction
c. Precipitation reaction
d. Hemadsorption reaction
e. Neutralization reaction

50. A woman underwent a surgery for a uterine tumor. A macropreparation shows a spongy variegated node that was located in the myometrium. Histology reveals large light-colored epithelial cells, among which there are many dark-colored polymorphic cells. There is no stroma. The vessels look like cavities lined with tumor cells. There are multiple hemorrhages. What tumor was detected in this case?
a. Destructive (malignant) hydatidiform mole
b. Chorioepithelioma
c. Medullary cancer
d. Adenocarcinoma
e. Cavernous hemangioma

51. A 45-year-old woman has an attack of cardiac fibrillation. She suffers from stage II essential hypertension. What is the drug of choice for stopping this attack?
a. Lidocaine
b. Potassium chloride
c. Sustac forte (Nitroglycerin)
d. Strophanthin
e. Anaprilin (Propranolol)

52. The patient's examination detected an inflammation of a certain anatomical structure that equalizes the pressure between the tympanic cavity and the pharynx. Name this structure:
a. Major mastoid air cell
b. Inner ear
c. Eustachian tube
d. Internal auditory meatus
e. External auditory meatus

53. A patient presents with a disturbed act of swallowing, hoarse voice, regurgitation of liquid foods, and drooping soft palate. What nerves innervate the muscles of the soft palate?
a. Glossopharyngeal nerve and hypoglossal nerve
b. Glossopharyngeal nerve and facial nerve
c. Cervical plexus
d. Vagus and mandibular nerve
e. Facial nerve and buccal nerve

54. 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?
a. Initiation
b. Termination
c. Repair
d. Transcription
e. Elongation

55. A 15-year-old patient is being treated for severe hyperbilirubinemia. Barbiturates are included in

the complex of drugs prescribed for treatment. They induce synthesis of the following substance in the liver:

a. Biliverdin
b. Hemoxygenase
c. UDP-glucuronyltransferase
d. Indirect hemoglobin
e. Verdoglobin

56. A 6-year-old child developed hyperergic inflammation of the upper respiratory tracts. The risk of developing a severe respiratory disorder arose, necessitating the use of anti-inflammatory hormones. What hormone has an anti-inflammatory effect?

a. Adrenaline
b. Cortisol
c. Insulin
d. Somatotropin
e. Testosterone

57. The process of collapse progression is associated with nervous system dysfunctions, disturbed pulmonary gas exchange, and disturbances in the systems of blood and hemostasis. These signs of collapse are caused by initial development of the following type of hypoxia:

a. Hemic hypoxia
b. Respiratory hypoxia
c. Tissue hypoxia
d. Circulatory hypoxia
e. Hypoxic hypoxia

58. Fever development can be characterized by increased levels of acute-phase proteins: ceruloplasmin, fibrinogen, C-reactive protein. Specify the most likely mechanism of this phenomenon:

a. Interleukin-2-induced proliferation of T lymphocytes
b. Interleukin-1-stimulation of hepatocytes
c. Heat-induced destruction of body cells
d. Basophil degranulation in tissues
e. -

59. 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 film on the 1% alkaline peptone water. Such properties are characteristic of the following microorganisms:

a. Spirochaetes
b. Spirilli
c. Clostridia
d. Vibrios
e. Bacilli

60. A 1.5-year-old boy constantly suffers from pyoderma and had three cases of pneumonia. In his blood, there are reduced levels of immunoglobulins G and A and no plasma cells. What type of immunodeficiency developed in the child?

a. Swiss-type immunodeficiency
b. Bruton's hypogammaglobulinemia
c. Louis-Bar syndrome
d. Wiskott-Aldrich syndrome
e. Thymic hypoplasia

61. At a kindergarten, the children and the staff were examined in order to detect meningococcal carriers among them. What microbiological test is optimal for this purpose?

a. Allergy testing
b. Bacterioscopy
c. Biological method

d. Serology
e. Bacteriology

62. The molecules of mature mRNA are the carriers of genetic information about the sequence, in which certain amino acids must attach to each other. What is coded in the mRNA molecules?
a. Primary structure of a protein
b. Primary structure of carbohydrates
c. Primary structure of polynucleotides
d. Primary structure of lipids
e. Secondary structure of carbohydrates

63. In a chemical synapse, excitation is transferred through a neurotransmitter. What ions facilitate the release of the mediator into the synaptic cleft?
a. Sodium
b. Magnesium
c. Calcium
d. Chlorine
e. Potassium

64. When a skeleton muscle cell was exposed to electric current, its membrane depolarized. What ions pass through the membrane, playing the main role in its depolarization?
a. HCO_3^{-
b. Cl^-
c. K^+
d. Na^+
e. Ca_2^{+

65. A patient developed a purulent inflammatory process in the periodontal tissues. The process was caused by activation of the microorganisms inherent in the body, which are a part of oral mucosal microflora. What type of infection is it?
a. Autoinfection
b. Exogenous infection
c. Relapse
d. Superinfection
e. Reinfection

66. A 16-year-old boy from the rural area entered the technical school. During a regular Mantoux test, it turned out that this boy had a negative reaction. What tactics should the doctor choose as the most rational in this case?
a. Serodiagnosis of tuberculosis
b. BCG vaccination
c. Express diagnostics of tuberculosis using the Price method
d. Urgent isolation of the boy from his groupmates
e. Repeat the test in a month

67. To treat the burns, a patient was prescribed a drug with antiseptic properties that are based on formation of atomic oxygen in the presence of organic substances. This drug has also an astringent (anti-inflammatory) effect due to formation of albuminates. Name this drug:
a. Ethyl alcohol
b. Sodium bicarbonate
c. Potassium permanganate
d. Hydrogen peroxide
e. Chlorhexidine digluconate

68. Regional lymph nodes surrounding an infected wound are enlarged. Histological examination shows increased number of macrophages, lymphocytes, and lymphatic follicles in the cortical layer of the lymph nodes, as well as a large amount of plasma cells. What process in the lymph nodes is indicated by these histological changes?
a. Transplant rejection

b. Acquired deficiency of lymphoid tissue
c. Congenital deficiency of lymphoid tissue
d. Antigen stimulation
e. Neoplastic aberration

69. To relax the skeletal muscles for repositioning of bone shards after a femoral fracture, the patient was given a muscle relaxant, which resulted in a respiratory arrest. After the patient was transfused with fresh citrated blood, his breathing restored. What muscle relaxant was he administered?
a. Tubocurarine chloride
b. Pancuronium bromide
c. Dithylin (Suxamethonium)
d. Pipecuronium bromide
e. Atracurium besilate

70. A patient with pulmonary fibrosis presents with decreased pulmonary ventilation. What parameter of the external respiration system will change in this patient?
a. Lung dead space will increase in volume
b. Inspiratory reserve volume will increase
c. Expiratory reserve volume will increase
d. Residual volume will increase
e. Vital capacity of the lungs will decrease

71. A patient with influenza has fever, dyspnea, and tachycardia. How will the oxygen affinity of Hb change under such conditions?
a. -
b. Decrease
c. Remain unchanged
d. Increase
e. First increases, then decreases

72. A patient was administered a certain drug for relief of cardiac rhythm disturbance. This drug can be used as a local anesthetic as well. Name this drug:
a. Dicain (Tetracaine)
b. Diphenine (Phenytoin)
c. Cocaine hydrochloride
d. Anaesthesin (Benzocaine)
e. Lidocaine hydrochloride

73. A child developed high fever, punctulated rash, and conjunctivitis. The child died of superimposed pneumonia. Pulmonary histology shows endo-, meso-, and panbronchitis with giant cell pneumonia. Such changes are characteristic of:
a. Croupous pneumonia
b. Measles
c. Chickenpox
d. Scarlet fever
e. Diphtheria

74. A certain drug was prescribed as a part of complex therapy of peptic ulcer disease of the stomach. This drug is a competitive antagonist of histamine receptors. Its effect on H_2-receptors of parietal cells reduces induction of hydrochloric acid. Name this drug.
a. Omeprazole
b. Famotidine
c. Misoprostol
d. Sucralfate
e. Pirenzepine

75. Due to gamma-radiation a segment of DNA chain rotated 180^oC) What mutation occurred in the DNA?
a. Duplication

b. Replication
c. Inversion
d. Deletion
e. Translocation

76. Mother of a 10-year-old boy with suppurative gingivitis brought her child to the dentist. She asks if her child can be given fluoroquinolones to treat his condition. The doctor's answer was negative due to the fact that fluoroquinolones:
a. Provoke gingival hemorrhages
b. Cauterize mucous membranes
c. Damage dentin
d. Facilitate calcium loss in teeth and bones
e. Damage cartilage tissue in children

77. During an invasive operation the surgeon needs to access the omental bursa of the peritoneal cavity via the omental foramen (foramen of Winslow). What anatomical structure makes up the anterior border of this foramen?
a. Hepatorenal ligament
b. Hepatoduodenal ligament
c. Visceral surface of liver
d. Superior part of duodenum
e. Greater omentum

78. A genetic defect of a Na^+-dependent transporter of monosaccharides of the enterocyte membrane causes the development of malabsorption syndrome in newborn babies as a result of impaired absorption. In this case, impaired absorption of the following substance would be observed:
a. Maltose
b. Galactose
c. Lactose
d. Sucrose
e. Ribose

79. A 45-year-old man was diagnosed with acute psychosis and underwent therapy for a month. The patient's condition improved, but he developed muscle rigidity, hand tremor, and hypokinesia. What medicine causes such side effects?
a. Diazepam
b. Aminazine (Chlorpromazine)
c. Sydnocarb (Mesocarb)
d. Diphenine (Phenytoin)
e. Chlordiazepoxide

80. One of the functions of central inhibition is the selection and reduction of the sensory information influx to the cerebral cortex. What type of inhibition performs this function?
a. Reciprocal inhibition
b. Pessimal inhibition
c. Inverse inhibition
d. Lateral inhibition
e. Presynaptic inhibition

81. The mother's karyotype has 45 chromosomes. It was determined that translocation of chromosome 21 to chromosome 14 had occurred. What disorder is likely to be observed in the child of this woman if the father's karyotype is normal?
a. Edwards syndrome
b. Down syndrome
c. Klinefelter syndrome
d. Morris syndrome (androgen insensitivity)
e. Patau syndrome

82. In case of inflammation, local anesthetic effect of novocaine decreases in strength. What process

in the inflammation focus leads to disturbed hydrolysis of novocaine salt and therefore disturbed release of active anesthetic base?

a. Local tissue alkalosis
b. Activation of succinate dehydrogenase
c. Inhibition of carbonic anhydrase
d. Inhibition of oxidative phosphorylation
e. Local tissue acidosis

83. ECG of the patient shows increased duration of the QRS complex. What is the most likely cause?

a. Increased atrial and ventricular excitability
b. Increased atrial excitability
c. Disturbed conduction in the atrioventricular node
d. Increased period of ventricular excitation
e. Increased period of atrial excitation

84. A patient, who lives in a specific geochemical territory, was diagnosed with endemic goiter. What type of post-translational modification of thyreoglobulin is disturbed in this patient?

a. Methylation
b. Phosphorilation
c. Iodination
d. Acetylation
e. Glycosylation

85. Preventive examination of a man detects thickened neck, exophthalmos, elevated body temperature, and the pulse of 110/min. What hormones should be measured in the patient's blood in this case?

a. Catecholamines
b. Insulin
c. Thyroxine
d. Cortisol
e. Sex hormones

86. A man had a bronchospasm attack. What membrane cytoreceptors of bronchial smooth muscles should be stimulated to improve the patient's condition?

a. beta-adrenergic receptors
b. H_2-histamine receptors
c. Muscarinic acetylcholine receptors
d. alpha-adrenergic receptors
e. Nicotinic acetylcholine receptors

87. During an appointment with a doctor, a patient says that at his own discretion he takes an antiallergic medicine that significantly diminishes the signs of allergy, but causes sleepiness instead. What H1 receptor blocker does the patient take?

a. Tavegyl (Clemastine)
b. Cromolyn sodium (Disodium cromoglycate)
c. Loratadine
d. Dimedrol (Diphenhydramine)
e. Ranitidine

88. A test animal received a concentrated solution of sodium chloride intravenously, which caused a decrease in its reabsorption in the kidney tubules. This phenomenon can be caused by a change in the secretion of a certain hormone. Name this change.

a. Increased secretion of aldosterone
b. Decreased secretion of aldosterone
c. Increased secretion of vasopressin
d. Decreased secretion of vasopressin
e. Decreased secretion of natriuretic factor

89. Antibiotics (streptomycin, erythromycin, chloramphenicol) are used to treat infectious bacterial

diseases. What stage of protein synthesis in the microbial cell do they inhibit?
a. Splicing
b. Processing
c. Translation
d. Transcription
e. Replication

90. A patient has hyperkalemia and hyponatremia. Such changes can be caused by decreased secretion of a certain hormone. Name this hormone.
a. Aldosterone
b. Natriuretic hormone
c. Parathyroid hormone
d. Cortisol
e. Vasopressin

91. 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?
a. Increased cardiac contraction force and frequency
b. Increased cardiac contraction frequency
c. Decreased cardiac contraction force
d. Diastolic cardiac arrest
e. Increased cardiac contraction force

92. Examination of a kidney shows that it is edematous and plethoric, its capsule can be easily removed. The cavities of the renal pelvis and calyces are expanded and filled with turbid urine, their mucosa is dull and has hemorrhagic foci. On section, the kidney tissue is variegated and has yellow-gray areas surrounded by a zone of plethora and hemorrhages. What disease corresponds with this macroscopic presentation of the kidneys?
a. Acute glomerulonephritis
b. Renal amyloidosis
c. Polycystic kidney disease
d. Acute pyelonephritis
e. Nephrolithiasis

93. One of the pathogenetic links in the development of radiation sickness is the intensification of the processes of free radical oxidation of substances. What substances are the main source of free radicals?
a. Carbohydrates
b. Water
c. Lipids
d. Hormones
e. Proteins

94. 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:
a. Round ligament of the liver
b. Ligamentum venosum
c. Hepatoduodenal ligament
d. Hepatogastric ligament
e. Hepatorenal ligament

95. Detailed examination of the karyotype of a person with Down syndrome detects two populations of somatic cells - normal cells and cells with trisomy 21. Name this genetic phenomenon:
a. Modification
b. Mosaicism
c. Phenocopy
d. Genocopy
e. Polyploidy

96. To reduce joint pain, a woman took simultaneously one tablet of paracetamol and one tablet of diclofenac sodium. What type of drug interaction did the woman use for self-medication?

a. Potentiated synergism
b. Synergoantagonism
c. Non-competitive antagonism
d. Competitive antagonism
e. Additive synergism

97. A doctor prescribed sodium valproate as an antiepileptic agent to a patient with grand mal seizures. What is the mechanism of action of this drug?

a. Increases the activity of hippocampal neurons
b. Changes the activity of serotonin receptors
c. Blocks sodium channels and increases GABA levels in the brain
d. Blocks calcium channels and increases dopamine levels in the brain
e. Activates the cholesterol catabolism

98. After 10 days of antibiotic treatment, the patient developed signs of dysbiosis: dyspeptic phenomena, candidomycosis, jaundice, and photosensitization. It means that the patient was taking an antibiotic of the following group:

a. Rifampicin group
b. Tetracycline group
c. Cephalosporin group
d. Aminoglycoside group
e. Penicillin group

99. A man was taking large doses of sulfonamides for a long time. Recently, he has developed significant dyspnea at rest, weakness, loss of appetite, and disturbed sleep. Laboratory blood test detects methemoglobin in his blood. What mechanism of hemoglobin inactivation in erythrocytes is observed in this patient?

a. Blockade of reducing enzyme systems
b. Oxidation of iron in hemoglobin
c. Combination of hemoglobin with  sulfonamides
d. Damage of protein in hemoglobin
e. Blockade of oxidative enzyme systems

100. A woman periodically has arterial hypertension attacks, accompanied by headaches, palpitations, markedly excessive sweating, sharp pain in the epigastric region, and elevated glucose levels in blood plasma. High levels of metanephrines were detected in blood plasma and urine. What neoplastic disorder can be most likely characterized by these symptoms?

a. Parathyroid adenoma
b. Pheochromocytoma
c. Stomach cancer
d. Ovarian tumor
e. Thyroid adenoma

101. A patient has been hospitalized into the infectious diseases department with signs of fever that occurred again for a second time with the interval of two days between the two episodes. Blue-violet twisted cells were detected in the blood drop stained according to the Romanowsky-Giemza technique. What microorganism has caused the disease in this patient?

a. Plasmodium vivax
b. Leptospira interrogans
c. Treponema pallidum
d. Rickettsia typhi
e. Borrelia recurrentis

102. A patient has an injury of the radiocarpal joint. What bones of the proximal row of the wrist (except the pisiform bone) form this joint?

a. Trapezoid, hamate, lunate

b. Scaphoid, lunate, triquetral
c. Scaphoid, trapezoid, lunate
d. Scaphoid, trapezoid, hamate
e. -

103. A man was hospitalized with a hemorrhage from a knife wound in the carotid triangle. The blood flowing out of the wound is dark. What vessel is damaged?
a. Internal jugular vein
b. Internal carotid artery
c. Facial vein
d. External jugular vein
e. Facial artery

104. On the second day after the development of a transmural myocardial infarction, the patient developed a sharp drop in systolic blood pressure to 60 mm Hg, tachycardia of 140/min., dyspnea, and loss of consciousness. What mechanism is the leading one in the pathogenesis of the developed shock?
a. Decreased volume of the circulating blood
b. Decreased stroke volume of the heart
c. Intoxication with necrotic decay products
d. Paroxysmal tachycardia
e. Anaphylactic reaction to myocardial proteins

105. Anticoagulant therapy is indicated in cases of acute thrombosis. What direct-acting anticoagulant is used if there is a risk of thrombosis?
a. Dipyridamole
b. Pentoxifylline
c. Warfarin
d. Heparin
e. Fraxiparine (Nadroparin)

106. Examination of a patient, who came to the neurology department, detected smoothing-out of the frontal folds, inability to squint, lowered corner of the mouth, and the "sail" sign (the cheek passively puffs during breathing). What nerve is damaged in this case?
a. Trigeminal
b. Vagus
c. Facial
d. Oculomotor
e. Accessory

107. The breakdown of glycogen in the liver is stimulated by glucagon. What secondary messenger (intermediary) forms in the cell in this case?
a. Carbon monoxide
b. cAMP
c. Diacylglycerol
d. Nitrous oxide
e. cGMP

108. Measuring the transaminase activity is widely used to diagnose the damage to internal organs. The active form of a certain vitamin is a cofactor of these enzymes. Name this vitamin.
a. PP
b. B_12
c. B_2
d. B_1
e. B_6

109. In molecular biology, a method is used that allows determining the sequence of nucleotides in a DNA molecule based on the amino acid composition of the polypeptide. This method uses the following property of the genetic code:

a. Universality
b. Non-overlapping
c. Collinearity
d. Specificity
e. Degeneracy

110. After a compression bandage was applied to a hand injury, the patient developed edema of the fingers, cyanosis, and a decrease in the skin temperature. What type of peripheral circulatory disorder has caused these phenomena?
a. Thrombosis
b. Ischemic stasis
c. Venous hyperemia
d. Ischemia
e. Postischemic arterial hyperemia

111. The doctor advised the patient who was undergoing doxycycline treatment to avoid dairy products in the diet. Why did the doctor give such a recommendation to the patient?
a. Dairy products will not be digested
b. It increases the risk of dysbacteriosis
c. It slows down absorption of the  antibiotic
d. It increases the toxicity of the antibiotic
e. It disturbs the digestive processes

112. The infectious diseases department received a patient with acute respiratory viral disease and body temperature of 39.5^oC) What antipyretic drug should be prescribed in this case?
a. Paracetamol
b. Ambroxol
c. Adrenaline hydrochloride
d. Retabolil (Nandrolone)
e. Salbutamol

113. Examination of a boy revealed that he was unable to pucker his lips into a tube. He cannot blow out a candle, the corners of his mouth do not lift during laughing, and his oral fissure stretches to the sides (transverse smile). What muscle is likely to be atrophied in this case, as indicated by these symptoms?
a. Orbicularis oris
b. Buccinator
c. Masseter
d. Zygomaticus major muscle
e. Risorius

114. A man is being treated for chronic pneumonia for a long time. Microscopy of sputum smears stained using the Ziehl-Nielsen method reveals red bacilli 0.25x4 microns in size, located separately or sometimes in small clusters. What disease can be suspected?
a. Pneumococcal pneumonia
b. Pulmonary tuberculosis
c. Pulmonary actinomycosis
d. Pulmonary candidiasis
e. Influenza pneumonia

115. Abdominal cavity revision detected a venous bleeding from the hepatoduodenal ligament. What vein is damaged?
a. Hepatic portal vein
b. Inferior vena cava
c. Splenic vein
d. Superior mesenteric vein
e. Inferior mesenteric vein

116. In a patient with hyperthyroidism, the intensity of energy metabolism is increased. However, the

patient complains of decreased physical strength and low working ability. Why are these signs observed?

a. Accumulation of end products of metabolism in muscles
b. Heart failure
c. Separation of biological oxidation and oxidative phosphorylation
d. Increas AMP levels in muscles
e. Increased levels of ADP and H_3PO_4

117. Autopsy of the body of a 62-year-old man shows a supravalvular aortic rupture with cardiac tamponade. Histology of the ascending aorta detected infiltrations of lymphoid, plasma, and epithelioid cells in its tunica externa and tunica media, while there are necrotic foci in the tunica media, and proliferation of adventitial cells, endotheliocytes, and vessels in the tunica externa. Such changes in the aorta are characteristic of:

a. Rheumatic aortitis
b. Essential hypertension
c. Septic aortitis
d. Syphilitic aortitis
e. Atherosclerosis

118. Pathological examination of the spinal cord of a deceased 70-year-old man shows destruction and a decrease in the number of cells in the nuclei of the cervical and thoracic anterior horns. What functions were impaired in this man during his life?

a. Motor functions of the upper limbs
b. Sensitivity of the lower limbs
c. Sensitivity and motor functions of the upper limbs
d. Motor functions of the lower limbs
e. Sensitivity of the upper limbs

119. After ligation of one of the branches of the coronary arteries in a dog, the dog developed a myocardial infarction, accompanied by the phenomena of resorption-necrotic syndrome. What is the most characteristic sign of the development of this syndrome?

a. Retrosternal pain
b. Increased blood levels of catecholamines
c. Ventricular fibrillation
d. Decreased minute blood volume
e. Increased blood levels of creatine kinase

120. What internal organ plays the largest role in humoral regulation of erythropoiesis?

a. Pancreas
b. Liver
c. Lungs
d. Gastrointestinal tract
e. Kidneys

121. With age, a person develops presbyopia (farsightedness). Why does it happen?

a. Decreased elasticity of the lens
b. Clouding of the lens
c. Elongation of the eyeball
d. Retinal atrophy
e. Shortening of the eyeball

122. A patient presents with an inner ear inflammation. On examination the doctor states that the 1st neurons of the auditory analyzer are affected. Where are these neurons located?

a. G. spirale
b. G. trigeminale
c. G. ciliare
d. G. geniculi
e. G. vestibulare

123. Chest X-ray of a newborn child with convulsive syndrome and a defect of the interventricular septum revealed thymus hypoplasia. What type of immunodeficiency can be suspected in the child?

a. Wiskott-Aldrich syndrome
b. Good syndrome
c. Louis-Bar syndrome (ataxia-  telangiectasia)
d. DiGeorge syndrome
e. Bruton syndrome

124. A man was admitted to the surgical department with a diagnosis of acute pancreatitis. Conservative treatment was started. What medicine is pathogenetically justified in this case?

a. Pancreatin
b. Chymotrypsin
c. Contrykal (Aprotinin)
d. Trypsin
e. Fibrinolysin

125. In a vertical position, the patient loses his balance and almost falls down, when his eyes are closed. What part of his brain is likely to be damaged?

a. Basal ganglia
b. Precentral gyrus of the cerebral cortex
c. Thalamus
d. Limbic system
e. Cerebellum

126. Chemically, thyroid hormones (thyroxine and triiodothyronine) are amino acid derivatives. Name this amino acid.

a. Proline
b. Tyrosine
c. Threonine
d. Methionine
e. Tryptophan

127. A laboratory rat with chronic kidney failure has osteoporosis, pathologic calcification of the internal organs, and arterial hypertension. These disturbances are associated with the increased activity of the following hormone:

a. Adrenaline
b. Triiodothyronine
c. Parathyroid hormone
d. Calcitonin
e. Thyroxine

128. For a short surgical procedure, the patient was given droperidol and fentanyl. What effect results in a loss of pain sensitivity, if they are taken together?

a. Potentiation
b. Chemical interaction
c. Cumulation
d. Summation
e. Antagonism

129. A patient underwent a study of the secretory activity of the stomach to clarify the diagnosis of achilia. What pathological component of gastric juice can be detected in this case?

a. Pepsin
b. Renin
c. Gastrixin
d. Pyruvate
e. Lactate

130. Toxic damage of hepatocytes and disturbed protein syntesis has caused a sharp drop in the patient's plasma albumin levels and markedly low oncotic pressure. What phenomenon will develop

as a result of these changes?
a. Decreased diuresis
b. Decreased blood density
c. Increased rate of diuresis
d. Decreased ESR
e. Edema development

131. Myocardial histology shows a large area, where there are no nuclei in cardiomyocytes and their cytoplasm is pink and homogeneous. On the periphery of the lesion there are dilated, acutely plethoric vessels and marked infiltration with segmented leukocytes. This histological presentation indicates:
a. Infarction encapsulation
b. Demarcation inflammation around the infarction
c. Aseptic autolysis of the infarction
d. Septic disintegration of the infarction
e. Impending infarction

132. A 47-year-old woman complains of protracted vomiting. She has lost a large amount of gastric juice. What acid-base imbalance can be suspected in this case?
a. Non-gaseous acidosis
b. Non-gaseous alkalosis
c. Metabolic acidosis
d. Gaseous acidosis
e. Gaseous alkalosis

133. A patient with forearm trauma was given Dithylin (Suxamethonium) for muscle relaxation during bone reduction. Full restoration of the muscle tone and function occurred only after over an hour had passed. What may be the cause of the significant prolongation of curariform effect of the drug?
a. Formation of active metabolite
b. Genetic deficiency of hydroxylases
c. Genetic deficiency of monoamine oxidase
d. Genetic deficiency of butyrylcholinesterase
e. Inhibition of microsomal oxidation

134. Bacteriology of purulent secretions from the patient's urethra reveals bacteria that stain negatively, when the Gram technique is used, resemble coffee beans, and break down glucose to acid. The bacteria are located in leukocytes. What disease can be caused by these pathogens?
a. Melioidosis
b. Lymphogranuloma venereum
c. Gonorrhea
d. Candidiasis
e. Syphilis

135. After a certain CNS structure had been destroyed in a test animal, this animal lost its orienting reflexes. What structure had been destroyed?
a. Medial reticular nuclei
b. Lateral vestibular nuclei
c. Substantia nigra
d. Corpora quadrigemina
e. Red nuclei

136. An oligomycin antibiotic inhibits ATP synthase. In what process does this enzyme take part?
a. Oxidative phosphorylation
b. Tricarbonic acid cycle
c. Protein synthesis
d. Nucleic acid synthesis
e. Substrate-level phosphorylation

137. As proposed by the World Health Organization, diabetes mellitus is divided into type 1 and type

2. What is the etiological factor of type 1 diabetes mellitus?
a. High insulinase activity
b. Absence of insulin receptors
c. Damage to beta-cells
d. Strong bond between insulin and protein
e. Damage to the pituitary gland

138. A woman with Rh-negative blood of the II group gave birth to a baby with the blood group IV. The baby has been diagnosed with hemolytic disease caused by the Rh incompatibility. What blood group is possible in the child's father?
a. III (B), Rh-positive
b. III (B), Rh-negative
c. II (A), Rh-positive
d. I (O), Rh-positive
e. IV (AB), Rh-negative

139. A 50-year-old patient has been diagnosed with gout. Blood testing revealed hyperuricemia. What metabolism is disturbed in this case?
a. Metabolism of carbohydrates
b. Metabolism of purines
c. Metabolism of pyrimidines
d. Metabolism of amino acids
e. Metabolism of fats

140. A patient diagnosed with downward displacement of the right kidney (nephroptosis) was brought into the nephrology department. Where is the right kidney located normally in relation to the 12th rib?
a. -
b. The 12th rib bisects the kidney in the middle
c. The 12th rib intersects the kidney in the upper third
d. The 12th rib intersects the kidney in the lower third
e. The 12th rib can be projected on the lower renal pole

141. A 28-year-old woman has seropurulent conjunctivitis and complains of painful urination. A conjunctival scrape was obtained for analysis. Microscopy shows inclusions in the cytoplasm of the epithelial cells. Inoculation of the pathologic material onto nutrient media produced no growth. However, inoculation of chicken embryos by the yolk sac route allowed obtaining the culture of the causative agent. What microorganism is the most likely causative agent?
a. Mycoplasma
b. Diphtheroid
c. Chlamydia
d. Hemolytic streptococcus
e. Adenovirus

142. Insufficient secretion of a certain enzyme causes incomplete digestion of fats in the gastrointestinal tract and a large amount of neutral fats in feces. Name this enzyme.
a. Enterokinase
b. Amylase
c. Pancreatic lipase
d. Phospholipase
e. Pepsin

143. Autopsy of a 60-year-old woman, who for a long time had been suffering from essential hypertension, shows significantly diminished kidneys (weight of both kidneys is 80 g) with finely granular surface. Uniform renal cortical thinning can be observed on section. Name the described changes in the kidneys:
a. Secondary contracted kidney
b. Amyloid contracted kidney

c. Pyelonephritic contracted kidney
d. Diabetic nephrosclerosis
e. Primary contracted kidney

144. A person took a blocker drug, which resulted in an increased heart rate. When this person's eyballs were pressed, the expected reflex-induced decrease in the heart rate did not occur. What exactly was blocked by this drug in the pacemaker cells?
a. alpha_1 adrenergic receptors
b. beta_1 adrenergic receptors
c. L-type Ca_2^+ channels
d. Fast Na^+ channels
e. Muscarinic acetylcholine receptors

145. A 60-year-old man came to the doctor complaining of chest pain. In his blood serum there is a significant increase of enzyme activity, namely of aspartate aminotransferase, creatine phosphokinase, and its CPK-MB isoenzyme. These changes indicate a pathological process that occurs in the:
a. Pulmonary tissues
b. Skeletal muscles
c. Smooth muscles
d. Hepatic tissues
e. Cardiac muscle

146. A broad-spectrum antimicrobial agent needs to be prescribed for a 4-year-old child. What drug cannot be prescribed to children because of its harmful effect on the development of bone tissue?
a. Doxycycline
b. Amoxicillin
c. Co-trimoxazole (Biseptol)
d. Ampicillin
e. Chloramphenicol (Levomycetin)

147. An infectious diseases laboratory has received feces of a patient diagnosed with cholera for testing. What method of microbiological diagnostics must be used to confirm or refute this diagnosis?
a. Allergy testing
b. Bacteriology
c. Bacterioscopy
d. Virology
e. Biological method

148. 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:
a. Adrenal medulla hyperfunction
b. Ovarian failure
c. Hyperthyroidism
d. Hypothyroidism
e. Pancreatic islet failure

149. A patient with bronchial asthma developed acute respiratory insufficiency. What type of respiratory insufficiency develops in such cases?
a. Diffuse insufficiency
b. Perfusion insufficiency
c. Dysregulatory disturbance of alveolar ventilation
d. Obstructive disturbance of alveolar ventilation
e. Restrictive disturbance of alveolar ventilation

150. After a prolonged protein-free diet a student developed edema. Her condition indicates a decrease in the following blood protein fractions:
a. Plasminogen

b. Transferrin
c. Globulins
d. Fibrinogen
e. Albumins

151. A man presents with atrophy of the posterior group of calf muscles. What nerve is affected in this case?
a. Tibial nerve
b. Superficial peroneal nerve
c. Femoral nerve
d. Sural nerve
e. Deep peroneal nerve

152. Histology of the thyroid gland that was removed in the course of a surgery reveals destruction and atrophy of the follicles and a diffuse lymphocytic infiltration with formation of lymphoid follicles in the stroma. This type of thyroiditis belongs to the following group of diseases:
a. Bacterial
b. Infectious-allergic
c. Viral
d. Caused by physical factors
e. Autoimmune

153. A person with a heatstroke was brought into an admission room. What defensive and compensatory mechanism develops in this condition?
a. Peripheral vessel constriction
b. Increased heart rate
c. Stable hyperglycemia
d. Peripheral vessel dilation
e. Coronary spasm

154. A patient has crystalline lens dislocation and spidery fingers. What syndrome can be diagnosed, considering that the patient also has disturbed development of connective tissue and deformed hands and feet?
a. Marfan syndrome
b. Trisomy X
c. Klinefelter syndrome
d. Turner syndrome
e. Down syndrome

155. A 47-year-old woman has interphalangeal and metacarpophalangeal joints that can be easily dislocated or subluxated and a characteristic deviation of the fingers that resembles "walrus flippers". Microscopy reveals proliferation of synovial villi, cartilage destruction, and pannus formation. What disease causes these pathological changes?
a. Ankylosing spondylitis (Bekhterev's disease)
b. Systemic lupus erythematosus
c. Rheumatic arthritis
d. Rheumatoid arthritis
e. Osteoarthrosis

156. A person can raise an arm to a given height relative to the torso with the eyes closed. What receptors enable this action?
a. Proprioceptors
b. Chemoreceptors
c. Exteroreceptors
d. Baroreceptors
e. Visceroreceptors

157. A patient suffers from peptic ulcer disease with ulcer localization in the duodenum. He complains of heartburn, nausea, and periodic vomiting. What H2-blocker should be prescribed in this case?

a. Diphenhydramine
b. Famotidine
c. Perphenazine
d. Isovaleric acid
e. Atropine sulfate

158. A medical student was hospitalized into the infectious diseases unit on the 2nd day after the disease onset. The patient is suspected to have infectious mononucleosis. What results of laboratory analysis can confirm this diagnosis immediately on the day of the hospitalization?
a. Herpesvirus was isolated
b. IgM antibodies to herpes simplex virus were detected
c. Cytomegalovirus antibodies were detected
d. Fourfold increase in number of antibodies to Epstein-Barr virus was detected
e. IgM antibodies to Epstein-Barr virus were detected

159. A 10-year-old child, due to the detected tumor, underwent a removal of the posterior pituitary lobe. As a result, the following state will occur:
a. Delayed mental development
b. Increased diuresis
c. Decreased diuresis
d. Hyperglycemia
e. Delayed growth

160. Dystrophic changes in the cardiac muscle are accompanied by dilation of the heart chambers, decreased force of cardiac contractions, increased volume of the blood that remains in the heart chambers during systole, and venous overflow. What medical condition can be characterized by these phenomena?
a. Cardiac tamponade
b. Stage of cardiosclerosis
c. Developing stage of myocardial hypertrophy
d. Myogenic dilatation
e. Tonogenic dilatation

161. After a long course of treatment of sluggish schizophrenia, a man developed signs of parkinsonism. Which of the following drugs could have caused this complication?
a. Sibazon (Diazepam)
b. Lithium carbonate
c. Piracetam
d. Haloperidol
e. Aminazine (Chlorpromazine)

162. A 36-year-old woman has a moon-shaped face, upper body obesity, stretch marks on the anterior abdominal wall, hirsutism, hyperglycemia, and glycosuria. These symptoms are characteristic of the following disease:
a. Secondary hyperaldosteronism
b. Primary hyperaldosteronism
c. Conn syndrome
d. Cushing syndrome
e. Pheochromocytoma

163. A patient, who underwent a long-tem glucocorticoid treatment, presents with gastric ulcers. What mechanism is the main one in their development?
a. Increased production of prostaglandins E1 and E2
b. Decreased tone of the parasympathetic nervous system
c. Decreased levels of histamine in the gastric mucosa
d. Increased secretion and acidity of gastric juice
e. Increased tone of the sympathetic nervous system

164. A patient has a head injury, accompanied by arterial bleeding in the area of the parietal bone.

What branch of the external carotid artery supplies this area with blood?

a. A) facialis
b. A) maxillaris
c. A) occipitalis
d. A) auricularis posterior
e. A) temporalis superficialis

165. A patient was hospitalized into the surgical department with signs of acute appendicitis. The following changes are observed in the patient's leukogram: total leukocyte count - 16·10^9/L, basophils - 0%, eosinophils - 2%, myelocytes - 0%, band neutrophils - 8%, segmental neutrophils - 59%, lymphocytes - 25% , monocytes - 4%. How can such changes be characterized?

a. Neutrophilia with right shift
b. Neutrophilia with degenerative left shift
c. Neutrophilia with regenerative left shift
d. Neutrophilia with hyperregenerative left shift
e. Neutrophilic leukemoid reaction

166. Bacteriological analysis of the feces of a 4-month-old child with signs of acute enteric infection was conducted. Inoculation in Endo medium resulted in the growth of a large number of red colonies. What microorganisms are the most likely in this case?

a. Escherichia
b. Streptococci
c. Staphylococci
d. Salmonellae
e. Shigellae

167. During a surgery, a Meckel's diverticulum was detected in the patient. Where in the gastrointestinal tract is it located?

a. Jejunum
b. Sigmoid colon
c. Ileum
d. Duodenum
e. Cecum

168. A 1.5-year-old child was diagnosed with immunodeficiency. B lymphocyte count is normal, but they are functionally inactive. What immune defense factor is absent in the child's oral cavity?

a. Lactoperoxidase system
b. Secretory immunoglobulin A
c. Interferon
d. Lysozyme
e. Fibronectin

169. The sequence of triplets in DNA determines the order of amino acids in the protein molecule. Name this characteristic of the genetic code:

a. Collinearity
b. Triplet nature
c. Degeneracy
d. Universality
e. Non-overlapping

170. Clinical course of urolithiasis was complicated by the passage of a renal calculus. Where in the ureter is it most likely to stop?

a. 5 cm above the pelvic segment
b. 2 cm above the entrance to the urinary bladder
c. In the middle of the abdominal segment
d. In the renal pelvis
e. At the border between the abdominal and pelvic segments

171. After a recovery from meningoencephalitis, the patient presents with some residual signs, such

as facial nerve damage on the right. What group of muscles will be affected because of this pathology?

a. Masticatory muscles
b. Suprahyoid muscles
c. Deep muscles of the neck
d. Strap muscles
e. Mimic muscles

172. A child was diagnosed with helminths. What changes in the peripheral blood will be observed with this pathology?

a. Leukocytosis
b. Monocytosis
c. Basophilia
d. Eosinophilia
e. Neutrophilia

173. A 49-year-old patient presents with increased levels of uric acid in the blood. The doctor prescribed the patient allopurinol to reduce the levels of uric acid. Allopurinol is a competitive inhibitor of a certain enzyme. Name this enzyme.

a. Xanthine oxidase
b. Adenine phosphoribosyltransferase
c. Hypoxanthine phoribosyltransferase
d. Adenosine deaminase
e. Guanine deaminase

174. 24 hours after an appendectomy the patient's blood test shows neutrophilic leukocytosis with a regenerative shift. What is the most likely mechanism of absolute leukocytosis development in the patient's peripheral blood?

a. Intensification of leukopoiesis
b. Leukocyte redistribution
c. Immunity activation
d. Decreased leukocyte disintegration
e. Deceleration of leukocyte migration to the tissues

175. A 12-year-old child has a relatively short stature with disproportionate built and mental retardation. What hormone or hormones can cause this condition, if underproduced?

a. Mineralocorticoids
b. Insulin
c. Glucocorticoids
d. Thyroid hormones
e. Growth hormone

176. In an experiment, the threshold stimulation force for the cells of various tissues was studied. Where was it the smallest?

a. Skeletal muscle cells
b. Glandular cells
c. Motor neurons of the spinal cord
d. Smooth muscle cells
e. Cardiomyocytes

177. Husband and wife are homozygous for one gene. But the husband has dominant alleles of this gene, while the wife - recessive. What pattern of heredity will be observed in their children?

a. Phenomenon of genetic linkage
b. Law of segregation of genes
c. Law of uniformity of the first hybrid  generation
d. Law of independent assortment
e. Phenomenon of sex-linked inheritance

178. After the blood supply to the brain was impaired, a person has lost the ability to write letters and

digits. In what part of the brain did the pathology occur?
a. Lobus occipitalis
b. Lobus frontalis
c. Lobus parietalis
d. Lobus temporalis
e. Insula

179. A patient has acute heart failure with myocardial unresponsiveness to cardiac glycosides. What drug should be prescribed for the treatment of acute heart failure in this case?
a. Strophanthin
b. Reserpine
c. Dobutamine
d. Atropine sulfate
e. Corglycon

180. During a surgery, the surgeon must find the site, where the portal hepatic vein begins. Name this site:
a. Behind the body of the pancreas
b. In the hepatogastric ligament
c. Behind the stomach
d. Behind the head of the pancreas
e. On the posterior wall of the bursa  hepatica

181. The substances are excreted from the cell, when membrane structure of the Golgi apparatus connects to the cell membrane. The content of this structure is then expelled from the cell. This process is called:
a. Osmosis
b. Endocytosis
c. Facilitated diffusion
d. Pinocytosis
e. Exocytosis

182. Examination detected disturbed circulation in the patient's pancreas. What artery is likely to be damaged in this case?
a. A. gastrica dextra
b. A. gastroepiploica dextra
c. A. hepatica propria
d. A. lienalis
e. A. dastrica sinistra

183. In the human body, reserves of hydrocarbons are localized mainly in the liver and skeletal muscles. Which reserve becomes mobilized to maintain blood glucose levels during fasting?
a. Muscle glycogen
b. Amylopectin
c. Starch
d. Cellulose
e. Hepatic glycogen

184. During cytostatic chemotherapy, blood test of a patient with bladder cancer shows the following: leukocytes - 0.8·10^9/L, granulocytes - 0.6·10^9/L. What is observed in the patient's white blood cells?
a. Leukemoid reaction
b. Leukemia
c. Leucopenia
d. Leukocytosis
e. Agranulocytosis

185. A man presents with disturbed circulation in the myocardium of the right atrium. The disturbances occurred in the system of the following artery:

a. Anterior interventricular branch of the left coronary artery
b. Right coronary artery
c. Left coronary artery
d. Right and left coronary arteries
e. Circumflex branch of the left coronary artery

186. Autopsy shows that the lung tissue has an appearance resembling that of a honeycomb because of bag-like and cylindrical expansions of the bronchi. Microscopically, leukocyte infiltration with a predominance of neutrophils is observed in the wall of the affected bronchi. Elastic muscle fibers and cartilaginous plates are partially destroyed and replaced with connective tissue. Adjacent lung tissue has inflammation foci, areas of fibrosis and sclerosis of vessels, and signs of emphysema. Hypertrophy of the right ventricle is observed in the heart. What disease can be characterized by these pathological changes?
a. Pneumofibrosis
b. Pulmonary emphysema
c. Chronic bronchitis
d. Interstitial pneumonia
e. Multiple bronchiectasis

187. During a surgery on the posterior mediastinum there is a risk of damaging the nerves located near the esophagus. Name these nerves:
a. Accessory nerves
b. Phrenic nerves
c. Vagus nerves
d. Intercostal nerves
e. Glossopharyngeal nerves

188. A patient with heart failure was taking intermediate-acting cardiac glycoside digoxin in tablets for a long time. It resulted in a loss of vision acuity and occasional bouts of nausea. What characteristic of this drug can cause such complications?
a. Cumulation
b. Tolerance
c. Dependence
d. Sensitization
e. Potentiation

189. Hereditary disorders of methionine metabolism manifest in children as neurological disorders, delayed psychomotor development, visual impairment, and scoliotic posture. Elevated levels of a certain amino acid that is a toxic intermediate metabolite of methionine can be detected in urine and blood in such cases. Name this amino acid.
a. Taurine
b. Serine
c. Cystine
d. Homocysteine
e. Cysteine

190. An electronic microphotograph of the myocardium shows appendaged cells with few organelles. These cells have secretory granules and well-developed endoplasmic reticulum. Name these cells:
a. Secretory cardiomyocytes
b. Ventricular cardiomyocytes
c. Transitional atypical cells
d. Pacemaker cells
e. His bundle cells

191. A 2-year-old child drank eyedrops from the first-aid kit. The child's condition is severe: there are excessive sweating and salivation, asthmatic breathing, cough, pinpoint pupils, dull heart sounds, and bradycardia. The child has diarrhea, the intestinal peristalsis is intensified, the blood pressure is low. What drug has caused the poisoning?

a. Atropine
b. Sulfacyl-sodium (Sulfacetamide)
c. Anaprilin (Propranolol)
d. Platyphylline hydrotartrate
e. Pilocarpine hydrochloride

192. A patient presents with signs of exudative pleurisy. The liquid will accumulate predominantly in the following anatomical structure:
a. Recessus costomediastinalis pleure
b. Sinus obliquus pericardii
c. Recessus costodiaphragmaticus pleure
d. Recessus frenicomediastinalis pleure
e. Sinus trasnsversus pericardii

193. Mucous tunics of the human body often produce an enzyme that causes lysis of bacteria. This enzyme is present in tears, saliva, and gastrointestinal mucus. Name this enzyme:
a. Hyaluronidase
b. Opsonin
c. Complement
d. Fibrinolysin
e. Lysozyme

194. The biopsy material obtained from the enlarged lymph node of a patient with a subfebrile temperature contains numerous granulomas with caseous necrosis in the center. The areas of necrosis are surrounded by epithelioid cells, Langhans giant multinucleated cells, and lymphocytes. What disease can be characterized by these pathohistological changes?
a. Lymphocytic leukemia
b. Tuberculosis
c. Lymphogranulomatosis
d. -
e. Lymphosarcoma

195. Five-eight days after administering a significant amount of therapeutic serum, the patient developed a skin rash, itching, edemas, joint pain, and an increase in body temperature. Protein appeared in the urine. The patient was diagnosed with serum sickness. What is an important factor in the pathogenesis of this condition?
a. Accumulation of circulating immune complexes in the blood
b. Activation of T-killers
c. Degranulation of tissue basophils
d. Cytolysis of blood cells
e. Activation of macrophages

196. Surfactant synthesis is impaired in premature newborns. What is its function in the lungs?
a. Increases the surface tension of the alveolar walls
b. Increases the airway resistance
c. Facilitates diaphragmatic excursion
d. Reduces the surface tension of the alveolar walls
e. Impairs the O_2 diffusion through the aerogematic barrier

197. A person's diet contains a large amount of carbohydrates. What structures can be detected in the cytoplasm of hepatocytes in this case?
a. Glycogen granules
b. Lipofuscin inclusions
c. One big drop of fat
d. Increased number of free ribosomes
e. Drops of fat

198. In the process of human aging, the synthesis and secretion of pancreatic juice decreases and its trypsin levels become lower. It results in disturbed breakdown of:

a. Lipids
b. Polysaccharides
c. Phospholipids
d. Nucleic acids
e. Proteins

199. A 27-year-old patient complains of lethargy, rapid mental and physical fatigability, and dyspeptic disorders. Examination revealed positive results of tuberculin tests, hypoglycemia, the blood pressure of 90/60 mm Hg, hyponatremia, and skin hyperpigmentation. What pathology of the adrenal glands is associated with such phenomena?
a. Cushing syndrome
b. Acute adrenocortical insufficiency
c. Addison's disease
d. Hypofunction of the adrenal medulla
e. Conn's syndrome

200. A person in a state of rest forsibly makes his own respirations deep and frequent for 3-4 minutes. How does it affect the acid-base balance of this person?
a. Metabolic alkalosis develops
b. Mixed acidosis develops
c. Respiratory acidosis develops
d. Metabolic acidosis develops
e. Respiratory alkalosis develops