

1. A patient has been hospitalized with complaints of headache, muscle pain during movement, pain during swallowing, chewing, and eye rotation, weakness, increased body temperature, edema of the eyelids and face. According to the patient's history, he was eating pork, bought from a private seller. What type of helminthiasis is most likely in this patient?

- A. Trichinellosis
- B. Ascariasis
- C. Trichuriasis
- D. Enterobiasis
- E. Ancylostomiasis

2. What organelles in muscle tissue take part in the intensive aerobic process of energy accumulation in the form of macroergic bonds of ATP?

- A. Mitochondria
- B. Smooth endoplasmic reticulum
- C. Lysosomes
- D. Granular endoplasmic reticulum
- E. Centrosome

3. Aging epithelial cells normally die off. What organelles maintain the process of their digestion and excretion of the remains?

- A. Lysosomes
- B. Ribosomes
- C. Mitochondria
- D. Centrosome
- E. Golgi complex

4. In certain cells of an adult person, mitosis is not observed throughout the life and the quantitative content of DNA remains constant. Name these cells.

- A. Neurons
- B. Endothelium
- C. Muscle (smooth)
- D. Epidermis
- E. Hematopoietic

5. After an injury, the patient cannot abduct his shoulder. What muscle is likely to be dysfunctional in this case, causing this medical condition?

- A. *Musculus deltoideus*
- B. *Musculus infraspinatus*
- C. *Musculus levator scapulae*
- D. *Musculus teres major*
- E. *Musculus subscapularis*

6. As a result of an injury to the anterior surface of the shoulder, a man cannot flex his arm in the elbow joint. What muscle is likely to be damaged in this case?

- A. *M. biceps brachii*
- B. *M. deltoideus*
- C. *M. pectoralis major*
- D. *M. triceps brachii*
- E. *M. anconeus*

7. A large cell with mildly basophilic cytoplasm and a bean-shaped nucleus was detected in the smear of peripheral blood. The cell is the largest among those in sight. What type of cell is it?

- A. Monocyte
- B. Macrophage
- C. Plasma cell
- D. Medium sized lymphocyte
- E. Small lymphocyte

8. In an experiment, one of the populations of blood cells was selectively stimulated. As a result, the permeability of blood vessels increased significantly, causing edema of the perivascular tissue and slowing down the blood coagulation process. What blood cells were stimulated in the experiment?

- A. Basophils
- B. Erythrocytes
- C. Platelets
- D. Eosinophils
- E. Lymphocytes

9. During puberty, the cells of the male gonads begin to produce the male sex hormone testosterone that causes the development of secondary sexual characteristics. What cells of male gonads produce this hormone?

- A. Leydig cells
- B. Sustentacular cells
- C. Sertoli cells
- D. Supporting cells
- E. Spermatozoa

10. A histological section of a human embryo demonstrates a vesicle connected to the gut tube. This vesicle is a provisional organ. Primary germ cells and primary erythrocytes (megaloblasts) are located in its wall. What provisional organ is observed in this case?

- A. Yolk sac
- B. Allantois
- C. Placenta
- D. Umbilical cord
- E. Amnion

11. A patient has been diagnosed with megaloblastic anemia. This disease can be caused by the insufficient amount of a certain compound in the body. Name this

compound.

- A. Cyanocobalamin
- B. Glycine
- C. Copper
- D. Cholecalciferol
- E. Magnesium

12. What glycosaminoglycan is the most typical in bone tissue and plays a leading role in the formation of cartilage and bone tissue?

- A. Chondroitin sulfate
- B. Hyaluronic acid
- C. Dermatan sulfate
- D. Keratan sulfate
- E. Heparin

13. What adrenal hormone is synthesized with the participation of tyrosine?

- A. Adrenaline
- B. Glucagon
- C. Thyroxine
- D. Aldosterone
- E. Cortisol

14. A 38-year-old man with a history of hepatitis, who continues to drink alcohol, developed signs of liver cirrhosis with ascites and leg edema. What changes in his blood composition became decisive in the development of edema?

- A. Hypoalbuminemia
- B. Hypoglobulinemia
- C. Hypocholesterolemia
- D. Hypokalemia
- E. Hypoglycemia

15. When modelling inflammation of a lower limb in a test animal, the animal's body temperature and levels of antibodies and leukocytes in the blood increased. What substances have caused the development of this general response in the body in the course of the inflammation process?

- A. Interleukins
- B. Glucocorticoids
- C. Mineralocorticoids
- D. Leukotrienes
- E. Somatomedins

16. A patient with a mitral valve defect has developed cough with rusty-colored sputum. What pigment causes this color of sputum?

- A. Hemosiderin
- B. Melanin
- C. Hemoglobin
- D. Hemomelanin
- E. Iron(II) sulfide

17. Due to severe course of hepatitis B, a patient was referred for tests to identify a possible companion agent that complicates the course of the main disease. Specify this agent.

- A. Hepatitis delta virus
- B. Hepatitis C virus
- C. Hepatitis G virus
- D. Hepatitis E virus
- E. HBs antigen

18. A case of diphtheria made it necessary to carry out preventive vaccination in the group of students. What should be used in this case to induce artificial active immunity in the students?

- A. Diphtheria anatoxin
- B. Anti-diphtheria serum
- C. Specific immunoglobulin
- D. DPT vaccine
- E. Killed bacterial vaccine

19. A patient with acute leukemia was prescribed an anti-tumor agent with an antimetabolite effect — a folic acid antagonist. What drug was prescribed in this case?

- A. Methotrexate
- B. Fluorouracil
- C. Myelosan (Busulfan)
- D. Mercaptopurine
- E. Synoestrol (Hexestrol)

20. A patient with syphilis, while undergoing treatment with bismuth-based drugs, developed gray spots on the oral mucosa and symptoms of nephropathy. What drug is used as an antidote in cases of poisoning caused by bismuth-based drugs?

- A. Unithiol
- B. Nalorphine
- C. Bemegrade
- D. Naloxone
- E. Methylene blue

21. Bacterioscopy of a swab from the patient's urethra detected gonorrhea. Since fluoroquinolones are the drugs of choice for the treatment of gonorrhea, this patient must be prescribed:

- A. Ciprofloxacin
- B. Furazolidone
- C. Fluorouracil
- D. Urosulfan (Sulfacarbamide)
- E. Cefazolin

22. A patient suffering from bronchial asthma was diagnosed with ciliary arrhythmia. What antiarrhythmic drug is contraindicated in this case?

- A. Anaprilin (Propranolol)
- B. Ajmaline
- C. Verapamil
- D. Nifedipine
- E. Novocainamide (Procainamide)

23. What cells in the epidermis of the skin together with the terminals of afferent fibers form tactile receptors?

- A. Merkel cells
- B. Melanocytes
- C. Basal epidermal cells
- D. Spinous cells
- E. Langerhans cells

24. A doctor diagnosed a patient with meningococcal nasopharyngitis. What method of laboratory diagnostics would be a rational choice for confirmation of the diagnosis?

- A. Bacteriology
- B. Biological method
- C. Serology
- D. Microscopy
- E. Allergy testing

25. During absolute starvation, the process of oxidation of organic compounds is the only source of water in the body. What substance under these conditions becomes the main source of endogenous water?

- A. Fats
- B. Proteins
- C. Carbohydrates
- D. Glycoproteins
- E. Lipoproteins

26. A 50-year-old patient has been diagnosed with gout. In this case, disturbed metabolism of certain substances will be observed. Name these substances.

- A. Purines
- B. Fats
- C. Amino acids
- D. Carbohydrates
- E. Pyrimidine

27. An 18-year-old boy has been diagnosed with muscular dystrophy. What substance increases in the blood serum in

this pathology?

- A. Creatine
- B. Myoglobin
- C. Myosin
- D. Lactate
- E. Alanine

28. One of the important clinical blood test is the determination of the leukocyte formula. What does this indicator show?

- A. Percentage ratio of different forms of leukocytes
- B. The total amount of leukocytes
- C. Percentage ratio of granulocytes and agranulocytes
- D. The percentage of lymphocytes in relation to the total number of white blood cells
- E. Percentage ratio of granulocytes

29. During prolonged starvation, glucocorticoid secretion increases. In the liver, glucocorticoids increase the synthesis of gluconeogenesis enzymes. What is the terminal enzyme of this process?

- A. Glucose-6-phosphatase
- B. Glucose-1-phosphatase
- C. Fructose-2,6-bisphosphatase
- D. Fructose-6-phosphatase
- E. Fructose-1,6-bisphosphatase

30. A patient has undergone appendectomy. During the postoperative period, the patient was receiving an antibiotic. After a short while, the patient developed complaints of hearing impairment. What group of antibiotics has characteristic side effects that manifest as hearing impairment and damage to the vestibular apparatus?

- A. Aminoglycosides
- B. Penicillins
- C. Tetracyclines
- D. Macrolides
- E. Polymyxins

31. A histological section of an unknown organ has been prepared. The resulting microslide demonstrates its cortical and medullary substances. The medullary substance is represented by ribbon-like strands of B-lymphocytes. What organ is it?

- A. Lymph node
- B. Thymus
- C. Kidney
- D. Cerebellum
- E. Cerebral cortex

32. A patient diagnosed with essential hypertension and bronchitis as a concomitant diagnosis needs to be prescribed

treatment. What group of drugs can be prescribed in this case?

- A. Selective  $\beta_1$ -blockers
- B. Non-selective  $\beta$ -blockers
- C. Nicotinic antagonists
- D. Nicotinic agonists
- E. Muscarinic agonists

33. Vidal's reaction is used for serological diagnostics of typhoid fever. What mechanism of interaction between the antigens and antibodies is it based on?

- A. Agglutination
- B. Precipitation
- C. Bacteriolysis
- D. Hemolysis
- E. Immobilization of bacteria

34. A patient with peptic ulcer disease of the stomach was prescribed a drug that blocks histamine H<sub>2</sub> receptors. What drug is it?

- A. Famotidine
- B. Bisacodyl
- C. Omeprazole
- D. Atropine sulfate
- E. Dithylin (Suxamethonium)

35. After an injury, the patient presents with the loss of skin sensitivity on the posterior surfaces of the shoulder and forearm. In this case, damage will be observed in the branches of which nerve?

- A. *N. radialis*
- B. *N. ulnaris*
- C. *N. medianus*
- D. *N. axillaris*
- E. *N. musculocutaneus*

36. A man was hospitalized after a bee sting with signs of anaphylactic shock. What medicine must be administered to this patient?

- A. Adrenaline hydrochloride
- B. Morphine hydrochloride
- C. Clotrimazole
- D. Atracurium besylate
- E. Ibuprofen

37. A woman complains of itching and burning in the area of her external genitalia and purulent foamy discharge from them. Study of the discharge detected unicellular pear-shaped organisms with 4 flagella, an undulating membrane, and a spike at the end of the body. What pathogen was detected in this case?

- A. *Trichomonas vaginalis*
- B. *Lambliia intestinalis*
- C. *Trichomonas hominis*
- D. *Toxoplasma gondii*
- E. *Entamoeba gingivalis*

38. A patient complains of constant thirst and fatigability. The patient's 24-hour diuresis is 3–4 liters. Glucose levels in the blood are within the normal range. What hormone is deficient in this case, causing these changes in the body?

- A. Vasopressin
- B. Glucagon
- C. Insulin
- D. Aldosterone
- E. Natriuretic hormone

39. A patient has a mitral valve disorder. Where will the pathological noise be heard during auscultation?

- A. Apex of the heart
- B. Second intercostal space to the right of the sternum
- C. Second intercostal space to the left of the sternum
- D. Area of the xiphoid process
- E. Third intercostal space to the right of the sternum

40. A 17-year-old boy complains of sleep disturbances, weight loss, and palpitations. After examination, he was diagnosed with thyroid hyperplasia, II degree. What hormone level imbalance would be most characteristic of this disease?

- A. Increased thyroxine levels
- B. Reduced thyroxine levels
- C. Increased somatotropin levels
- D. Reduced somatotropin levels
- E. Reduced triiodothyroxine levels

41. Examination of a child detected a patent foramen ovale. Where is this foramen located?

- A. Between the left and right atria
- B. Between the right atrium and right ventricle
- C. Between the left atrium and left ventricle
- D. Between the left and right ventricles
- E. In the region of the mitral valve

42. A patient was informed that serological testing for AIDS would consist of two stages. What reaction is used to test the blood serum for the presence of antibodies to the virus at the first stage of the diagnostics?

- A. Enzyme-linked immunosorbent assay
- B. Immunoblotting
- C. Radioimmunoassay
- D. Immunofluorescence
- E. Indirect hemagglutination assay

43. Several cases of tonsillitis are observed among the students at a boarding school. Microscopy of the smears prepared from the material obtained via a tonsil swab revealed thin yellow rod-shaped microorganisms with dark blue granules at their ends, arranged in the form of the Roman numeral five. The microorganisms were detected using the Neisser stain. What disease can be caused by the detected pathogen?

- A. Diphtheria
- B. Infectious mononucleosis
- C. Listeriosis
- D. Tonsillitis
- E. Scarlet fever

44. A 49-year-old man presents with facial edema, significant proteinuria, hypoproteinemia, dysproteinemia, and hyperlipidemia. What pathology developed in this patient?

- A. Nephrotic syndrome
- B. Urolithiasis
- C. Prostatitis
- D. Pyelonephritis
- E. Cystitis

45. Microscopy reveals a parenchymal organ with epithelial strands that form zona glomerulosa, zona fasciculata, and zona reticularis. The central part of the organ is represented by clusters of chromaffin cells. What organ is it?

- A. Adrenal gland
- B. Thyroid gland
- C. Pineal gland
- D. Liver
- E. Pituitary gland

46. A doctor describes a specimen that demonstrates the wall of a tubular organ that is a component of the gastrointestinal tract. The doctor noted the presence of lymph node clusters in the lamina propria of the mucosa and in the submucosal base, above which the crypts are almost absent. What part of the gastrointestinal tract has such structural features?

- A. Vermiform process
- B. Jejunum
- C. Large intestine
- D. Ileum
- E. Stomach

47. A patient has bile duct inflammation. Mobile, pear-shaped, binucleate protozoa with a supporting rod (axostyle) were detected in the portions of bile. What disease is indicated by their presence?

- A. Giardiasis
- B. Leishmaniasis
- C. Intestinal amebiasis
- D. Intestinal balantidiasis
- E. Trichomoniasis

48. Examination of a fetus shows cleft upper lip. What congenital facial malformation is it?

- A. Cheiloschisis
- B. Palatoschisis
- C. Micrognathia
- D. Hypertelorism
- E. Macrostomia

49. Tooth section demonstrates a structure with alternating light and dark stripes, located perpendicular to its surface, and thin parallel lines of growth. What dental tissue is it?

- A. Enamel
- B. Dentin
- C. Cellular cementum
- D. Acellular cementum
- E. Pulp

50. A patient has been diagnosed with cheilosis, angular stomatitis, glossitis. What pathological condition is observed in the patient?

- A. Hypovitaminosis  $B_2$
- B. Hypovitaminosis  $C$
- C. Antioxidant deficiency
- D. Hypovitaminosis  $A$
- E. Infectious stomatitis

51. A tooth specimen shows a structure that contains elongated polygonal cells. The cells are located within lacunae, while their cell processes are located in tubules and anastomose with each other. What structure was detected in the tooth specimen?

- A. Cellular cementum
- B. Acellular cementum
- C. Dentin
- D. Enamel
- E. Pulp

52. A patient presents with impaired pain and thermal sensitivity of the tongue. What papillae are affected in this case?

- A. Filiform, cone-shaped
- B. Foliate, fungiform
- C. Circumvallate, filiform
- D. Cone-shaped, circumvallate
- E. Fungiform, filiform

53. Examination of a hematopoietic organ reveals lobules formed by a lymphoid tissue with stroma that consists of epithelioreticular cells. What organ is being studied?

- A. Thymus
- B. Spleen
- C. Red bone marrow
- D. Lymph node
- E. Palatine tonsil

54. A patient presents with restricted downward and lateral movements of the eyeball. What cranial nerve is damaged in this case?

- A. *N. trochlearis*
- B. *N. abducens*
- C. *N. oculomotorius*
- D. *N. ophthalmicus*
- E. *N. infraorbitalis*

55. A 14-year-old patient has been diagnosed with impaired twilight vision. What vitamin is deficient in this case?

- A. A
- B. B<sub>1</sub>
- C. B<sub>6</sub>
- D. C
- E. B<sub>12</sub>

56. Biogenic amines form under the effect of decarboxylase enzymes. What biogenic amine triggers the multistage regulation mechanism of *HCl* secretion in the stomach?

- A. Histamine
- B. Serotonin
- C. Dopamine
- D. GABA
- E. Glutamine

57. A patient came to a doctor complaining of infertility. Barr bodies were detected in the nuclei of the most cells of the patient's buccal mucosa. In this case, the patient's infertility is most likely associated with which disorder?

- A. Klinefelter syndrome
- B. Polysomy Y
- C. Down syndrome
- D. Trisomy X
- E. Tetrasomy X

58. A patient has sinus tachycardia. To

restore the rhythm, the doctor prescribed potassium supplements and recommended eating foods rich in potassium. What is the mechanism of action of potassium in the heart?

- A. Reduces the pacemaking activity of the sinus node
- B. Increases the pacemaking activity of the sinus node
- C. Activates the sympathetic division of the autonomic nervous system
- D. Activates the parasympathetic division of the autonomic nervous system
- E. Inhibits the sympathetic division of the autonomic nervous system

59. In a chemical synapse, excitation is transmitted via a neurotransmitter. What ions facilitate its release into the synaptic cleft?

- A. Calcium ions
- B. Potassium ions
- C. Sodium ions
- D. Chlorine ions
- E. Magnesium ions

60. Cyanide poisoning causes disturbed activity in a certain enzyme. Name this enzyme.

- A. Cytochrome oxidase
- B. Catalase
- C. Peroxidase
- D. ATP synthase
- E. NADPH dehydrogenase

61. A child with Von Gierke disease has hepatomegaly, seizures, and hypoglycemia, observed especially often on an empty stomach or during stress. What enzyme has a genetic defect in patients with Von Gierke disease?

- A. Glucose 6-phosphatase
- B. Glycogen phosphorylase
- C. Phosphoglucomutase
- D.  $\alpha$ -1,4-glycosidase
- E. Amylo-1,6-glycosidase

62. A certain drug with potent natriuretic effect is usually prescribed for dehydration therapy of cerebral and pulmonary edemas. What drug is it?

- A. Furosemide
- B. Spironolactone
- C. Etacrynic acid
- D. Mannitol
- E. Theophylline

63. A patient with chronic enteritis developed anemia. Blood tests revealed hypochromia of erythrocytes, microani-

socytosis, and poikilocytosis. What type of anemia is observed in the patient?

- A. Iron deficiency anemia
- B.  $B_{12}$  deficiency anemia
- C. Aplastic anemia
- D. Hemolytic anemia
- E. Sideroblastic anemia

64. Microscopy of the patient's vaginal discharge detected Gram-negative bean-shaped diplococci. What is the provisional diagnosis in this case?

- A. Gonorrhea
- B. Syphilis
- C. Chlamydiosis
- D. Mycoplasmosis
- E. Toxoplasmosis

65. What hereditary disease combines hepatic cirrhosis, dystrophic processes in the brain, decreased ceruloplasmin levels in the blood plasma, and disturbed copper metabolism in the body?

- A. Wilson's disease
- B. Tay-Sachs disease
- C. Niemann-Pick disease
- D. Marfan syndrome
- E. Gilbert syndrome

66. In an experiment, despiralization of the DNA molecule was disrupted in an animal cell. What processes will stop occurring in this cell?

- A. Transcription
- B. Translation
- C. Repair
- D. Processing
- E. Termination

67. A 53-year-old man, a long time smoker, presents with a white patch 5x3 cm in size that looks like a plaque with blurry boundaries on the lateral surface of the tongue. Histology of the biopsy material obtained from the affected area allowed diagnosing significant keratinization and thickening of the mucosal epithelium and acanthosis. Under the epithelium, in the connective tissue, there is a mild infiltration consisting of lymphocytes, macrophages, and plasma cells. What type of damage to the oral mucosa is observed in this case?

- A. Leukoplakia
- B. Erythroplakia
- C. Hyperkeratosis
- D. Carcinoma in situ
- E. Keratinizing squamous cell carcinoma

68. A 20-year-old woman has made an appointment with a doctor. Objectively, she

is tall, with enlarged lips, nose, hands, and feet. In this case, increased secretion can be suspected in a certain gland. Name this gland.

- A. Anterior pituitary
- B. Parathyroid gland
- C. Pineal gland
- D. Thyroid gland
- E. Posterior pituitary

69. In an experiment, blood flow rate (mL/min) was measured in various organs and tissues. What organ has the highest blood flow rate per 100 g of its mass?

- A. Thyroid gland
- B. Skin
- C. Smooth muscles
- D. Skeletal muscles
- E. Stomach

70. A patient, who for a long time had been suffering from fibrocavitary tuberculosis accompanied by general emaciation, died of cardiopulmonary failure. Histology of the autopsy material detected accumulation of yellow-brown pigment in the liver, myocardium, and skeletal muscles, indicating disturbed metabolism of a certain pigment in the patient. Name this pigment.

- A. Lipofuscin
- B. Hemozoin
- C. Melanin
- D. Hemosiderin
- E. Porphyrin

71. Exposure to physical and chemical mutagens can cause DNA damage. Name the ability of cells to correct the damage in DNA molecules.

- A. Repair
- B. Replication
- C. Transcription
- D. Translation
- E. Regeneration

72. A 25-year-old patient suddenly developed a bronchospasm at the dental office. The doctor administered salbutamol in the form of an inhalation. What is the mechanism of action of this drug?

- A. Stimulation of  $\beta_2$ -adrenoceptors
- B. Stimulation of  $\beta_1$ -adrenoceptors
- C. Blockade of  $H_1$ -histamine receptors
- D. Blockade of phosphodiesterase
- E. Blockade of muscarinic acetylcholine receptors

73. To determine the functional state of the patient's liver, the analysis of animal indican excreted with urine was conducted.

Indican is produced during detoxification of putrefaction products of a certain amino acid, which takes place in the large intestine. Name this amino acid.

- A. Tryptophan
- B. Valine
- C. Glycine
- D. Serine
- E. Cysteine

74. A first-year school student received a facial injury in the gym, resulting in bleeding from the lower lip. In this case, damage will be observed in the branches of which artery.

- A. *A. facialis*
- B. *A. linguialis*
- C. *A. infraorbitalis*
- D. *A. alveolaris superior*
- E. *A. maxillaris*

75. What non-collagenous proteins belong to the organic part of periodontal bone tissue?

- A. Osteocalcin, osteonectin, osteopontin
- B. Albumins, globulins
- C. Fibrinogen, prothrombin
- D. Collagen, elastin
- E. Enamelin, amelogenin

76. During a surgery, a patient with acute appendicitis developed a cardiac arrest. What signs are characteristic of clinical death?

- A. No respiration, no cardiac activity
- B. No respiration, thready pulse
- C. Rapid respiration, weak heart sounds
- D. Apneustic respiration, no cardiac activity
- E. Kussmaul respiration, no cardiac activity

77. An 84-year-old patient suffers from parkinsonism. One of the pathogenetic elements of this disease is the deficiency of a certain mediator in some of the brain structures. What mediator is it?

- A. Dopamine
- B. Adrenaline
- C. Noradrenaline
- D. Histamine
- E. Acetylcholine

78. What compound forms in the blood in cases of carbon monoxide poisoning?

- A. Carboxyhemoglobin
- B. Methemoglobin
- C. Carbaminohemoglobin
- D. Deoxyhemoglobin
- E. Fetal hemoglobin

79. What compound is the end product of purine nucleotide catabolism in the human body?

- A. Uric acid
- B. Purine
- C. Xanthine
- D. Hypoxanthine
- E. Allantoin

80. Auscultation reveals that in the patient's II intercostal space along the parasternal line on the right the II heart sound can be better heard than the I heart sound. What valve produces the II heart sound when closing?

- A. Aortic semilunar valve
- B. Pulmonic semilunar valve
- C. Left bicuspid valve
- D. Right tricuspid valve
- E. Bicuspid and tricuspid valves

81. During auscultation, the second heart sound can be heard better than the first in the II intercostal space along the parasternal line on the left. What valve causes this phenomenon when it closes?

- A. Pulmonary semilunar valve
- B. Aortic semilunar valve
- C. Left bicuspid valve
- D. Right tricuspid valve
- E. Bicuspid and tricuspid valves

82. A woman was diagnosed with peptic ulcer of the stomach. She has a long history of rheumatoid arthritis. What drugs are the likely cause of this medical condition in the patient?

- A. Glucocorticoids
- B. Antibiotics
- C. H<sub>2</sub> blockers
- D. Antihistamines
- E. Antihypertensive drugs

83. A woman with pheochromocytoma developed tachycardia, increased blood pressure, and sharp pain in the epigastric region after mental stress. What has caused the deterioration of the patient's condition?

- A. Massive release of catecholamines by the adrenal glands
- B. Noradrenaline release by sympathetic nerves
- C. Activation of vegetative nuclei of the hypothalamus
- D. Increased secretion of thyroid hormones
- E. Increased synthesis of corticotropin

84. In cases of acidification of saliva and uncompensated carious process, the acti-



vity of a certain enzyme decreases. Name this enzyme.

- A. Alkaline phosphatase
- B. Elastase
- C. Proteinase
- D. Hyaluronidase
- E. Collagenase

85. A 68-year-old woman with pulmonary tuberculosis has been prescribed an antibiotic that can cause red coloring of urine and tear fluid. What drug is it?

- A. Rifampicin
- B. Ethambutol
- C. Ethionamide
- D. Tetracycline
- E. Co-amoxiclav

86. To study the blood flow, a doctor has placed a sensor in the area of sulcus bicipitalis medialis. What vessel does the doctor examine in this case?

- A. *A. brachialis*
- B. *A. profunda brahii*
- C. *A. radialis*
- D. *A. ulnaris*
- E. *A. axillaris*

87. A boy presents with abnormalities in the facial part of the skull. He has maxillary hypoplasia, a high-arched palate, and incorrect development of teeth. Using the cytogenetic method, the karyotype of 47, XY, 21+ was determined. What pathological syndrome is observed in the patient?

- A. Down syndrome
- B. Patau syndrome
- C. Edwards syndrome
- D. Klinefelter syndrome
- E. Turner syndrome

88. The process of tissue respiration is accompanied by the oxidation of organic compounds and the synthesis of macroergic molecules. In what organelles does this process take place?

- A. Mitochondria
- B. Lysosomes
- C. Ribosomes
- D. Peroxisomes
- E. Golgi complex

89. In some diseases, a certain enzyme required for lipid hydrolysis is deficient in lysosomes. What hereditary disease is caused by insufficient activity of lysosomal enzymes?

- A. Tay-Sachs disease
- B. Hemophilia
- C. Hereditary immunodeficiency
- D. Down syndrome
- E. Marfan syndrome

90. A drug that activates the potassium permeability of cardiomyocyte membranes was administered into the blood of a test animal. What parameter of cardiac activity can be expected to decrease as a result?

- A. Duration of the plateau phase of cardiomyocyte action potential
- B. P wave amplitude
- C. R wave amplitude
- D. Amplitude of the QRS complex waves
- E. Duration of heart sounds

91. A mandibular fracture caused the bleeding from *a. alveolaris inferior*. In this case, damage will be observed in a branch of which artery.

- A. *A. maxillaris*
- B. *A. carotis externa*
- C. *A. carotis interna*
- D. *A. mentalis*
- E. *A. facialis*

92. A patient has a skull injury. X-ray shows that the fracture line is located at the base of the skull and passes between the foramen ovale and foramen rotundum. What cranial bone is damaged in this case?

- A. Sphenoid bone
- B. Occipital bone
- C. Ethmoid bone
- D. Temporal bone
- E. Zygomatic bone

93. An injured person has a fracture of the zygomatic arch. The lower jaw is shifted forwards and the patient complains of inability to move it backwards. What muscle is dysfunctional in this case?

- A. *M. temporalis*
- B. *M. pterigoideus medialis*
- C. *M. pterigoideus lateralis*
- D. *M. zygomaticus major*
- E. *M. zygomaticus minor*

94. Biochemical testing of the patient's blood and urine revealed hypercalcemia, hypophosphatemia, and hyperphosphaturia. What hormone is being overproduced in this case, causing this condition in the patient?

- A. Parathormone
- B. Thyroxine
- C. Vasopressin
- D. Oxytocin
- E. Corticotropin

95. At the dental office, a patient was diagnosed with caries. What is the main cause of this pathology?

- A. *Streptococcus mutans*
- B. Avitaminosis
- C. Masticatory load
- D. Malnutrition
- E. Gastric disease

96. A 45-year-old patient, who was prescribed complex therapy by a dentist due to recurrent aphthous stomatitis, developed an imbalance of the oral cavity microbiota with an increased amount of yeast fungi. What drug should be prescribed to this patient?

- A. Fluconazole
- B. Acyclovir
- C. Rifampicin
- D. Nifuroxazide
- E. Gentamicin

97. A 30-year-old woman has a distinct tumor-like formation in the area of her right lower premolars. This formation causes jaw deformity and is associated with destruction of a large part of the bone. On section, the tumor is red with whitish spots and cysts. Microscopy shows that the parenchyma of the tumor contains small mononuclear cells (osteoblasts) with giant multinucleated cells (osteoclasts) located among them. In some places, small bone trabeculae are visible. What is the most likely diagnosis in this case?

- A. Giant-cell tumor of bone
- B. Ameloblastoma
- C. Osteoid osteoma
- D. Osteosarcoma
- E. Osteoma

98. A 60-year-old patient presents with high risk of pulmonary embolism due to a severe case of varicose veins in the legs. For prevention, the patient was prescribed an indirect anticoagulant that is a coumarin derivative and a vitamin K antagonist. Name this drug.

- A. Warfarin
- B. Phenyline (Phenindione)
- C. Nadroparin
- D. Ticlopidine
- E. Streptokinase

99. What changes in the ECG indicate tachycardia?

- A. Shortening of the RR interval
- B. Lengthening of the RR interval
- C. Lengthening of the QT segment
- D. Lengthening of the QRS complex
- E. Shortening of the PQ interval

100. Benzodiazepine anxiolytics (diazepam, lorazepam) achieve their sedative effect by binding to certain receptors of the nervous system cells. Name these receptors.

- A. GABA receptors
- B. Dopamine receptors
- C. Serotonin receptors
- D. Glutamate receptors
- E. Acetylcholine receptors

101. An infectious agent was isolated from a patient with pneumonia of unknown etiology. This agent cannot reproduce on nutrient media and does not have a formed nucleus, but contains two types of nucleic acids (DNA and RNA). In this case, to which group of microorganisms does the causative agent of the disease belong?

- A. Chlamydia
- B. Mycoplasmas
- C. Protozoa
- D. Viruses
- E. Prions

102. As a result of a stab wound to the neck, a patient developed bleeding from the common carotid artery that passes through the carotid triangle as a part of the neurovascular bundle. What components form this bundle beside the artery?

- A. *N. vagus, v. jugularis interna*
- B. *N. hypoglossus, v. jugularis interna*
- C. *N. vagus, v. jugularis anterior*
- D. *N. hypoglossus, v. jugularis externa*
- E. *N. phrenicus, v. jugularis externa*

103. 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?

- A. Occipital lobe
- B. Temporal lobe
- C. Frontal lobe
- D. Precentral gyrus
- E. Postcentral gyrus

104. What receptors trigger the protective reflex of sneezing, when stimulated?

- A. Irritant receptors
- B. Pulmonary stretch receptors
- C. Proprioceptors
- D. Nociceptors
- E. J-receptors

**105.** A patient with acute myocarditis developed clinical signs of cardiogenic shock. What pathogenetic mechanism is leading in the development of shock?

- A. Impaired pumping function of the heart
- B. Decreased vascular tone
- C. Decreased diastolic blood inflow to the heart
- D. Increased vascular tone
- E. Blood deposition in the veins

**106.** During a visit to a doctor, examination of the patient's larynx detected incomplete closure of the vocal folds during phonation, with the vocal folds becoming oval-shaped in the process. What laryngeal muscle is dysfunctional in the patient?

- A. *M. vocalis*
- B. *M. cricoarytenoideus lateralis*
- C. *M. cricoarytenoideus posterior*
- D. *M. thyroarytenoideus*
- E. *M. arytenoideus transversus*

**107.** In a patient with essential hypertension, a doctor observes the inability to pronounce words clearly due to a hemorrhage in the area of the left inferior frontal gyrus. In this case, the hemorrhage has occurred in the basin of which cerebral artery?

- A. *A. cerebri media*
- B. *A. cerebri anterior*
- C. *A. cerebri posterior*
- D. *A. communicans posterior*
- E. *A. ophthalmica*

**108.** A patient came to a doctor with complaints of suppuration in the soft tissues of the orbit. Through what anatomical formation can the purulent process spread into the middle cranial fossa?

- A. Superior orbital fissure
- B. Zygomatico-orbital foramen
- C. Posterior ethmoidal foramen
- D. Inferior orbital fissure
- E. Anterior ethmoidal foramen

**109.** A 36-year-old woman came to a dentist with complaints of facial edema localized under her right eye. After examination, the dentist diagnosed her with phlegmon of the infraorbital region. What teeth often become the source of infection that spreads into this region?

- A. Upper canine and first premolar
- B. Upper lateral and central incisors
- C. Second premolar and first molar
- D. Upper central incisor
- E. Upper first and second molars

**110.** Excretion of a certain marker amino acid with urine reflects the rate of catabolism of collagen structures of connective tissue. What marker amino acid must be measured in biological substrates to assess the collagen metabolism?

- A. Oxyproline
- B. Histidine
- C. Phenylalanine
- D. Threonine
- E. Methionine

**111.** A patient diagnosed with systemic lupus erythematosus has kidney damage with nephrotic syndrome. What is the cause of this condition?

- A. Autoimmune damage to nephron glomeruli
- B. Mechanical damage to the urinary tract
- C. Ischemic kidney damage
- D. Hyperproteinemia
- E. Glomerulosclerosis

**112.** A child developed hemolytic jaundice. In this case, an increase in a certain blood value would be the most significant and decisive in making the diagnosis. What blood value is it?

- A. Indirect bilirubin
- B. Direct bilirubin
- C. Urobilinogen
- D. Stercobilinogen
- E. Mesobilinogen

**113.** A 7-year-old boy, who lived for 5 years in one of the African countries, has developed mandibular enlargement. Trepine biopsy detects the following in the biopsy material: diffuse infiltration with medium-sized lymphoid cells that have round or oval nuclei and numerous mitotic figures, among which there are large light-colored macrophages that contain apoptotic bodies. Sternal puncture and peripheral blood tests detect no significant changes. What is the most likely diagnosis in this case?

- A. Burkitt lymphoma
- B. Chronic lymphocytic leukemia
- C. Solitary plasmacytoma
- D. Diffuse large B-cell lymphoma
- E. Acute osteomyelitis

**114.** A 40-year-old woman came to a dental

surgeon with complaints of a neoplasm on the skin of her face. The neoplasm has been rapidly increasing in size over the course of the last 5 months. Objectively, the neoplasm is 0.7 cm in diameter, without clear boundaries, with uneven edges, surface, and pigmentation. Microscopy after the surgery detected the following: in the epidermis, the papillary dermis contains large cells with the nuclei of varying shape, a moderate number of mitoses, including the pathological ones, pronounced nucleoli, and a varying amount of brown pigment in the cytoplasm (negative Perls' reaction). What is the most likely diagnosis in this case?

- A. Melanoma
- B. Melanocytic nevus
- C. Seborrheic keratosis
- D. Actinic lentigo
- E. Fibrous histiocytoma

**115.** For the diagnostics of generalized herpetic infection, blood serum was studied to detect specific antibodies of a certain class. What class of antibodies indicates the acute stage of a viral infection?

- A. *IgM*
- B. *IgA*
- C. *IgG*
- D. *IgE*
- E. *IgD*

**116.** Histology of a biopsy material obtained from the cervix of a 27-year-old woman detected the following: inflammatory infiltration with involvement of the walls of small vessels (veins and arteries), the presence of lymphocytes, plasma cells, epithelioid cells, and an area of tissue sclerosis and hyalinosis in the infiltrate. What disease corresponds with this histological presentation?

- A. Syphilis
- B. Leukoplakia
- C. Dysplasia
- D. Cervical erosion
- E. Papilloma

**117.** The parents complain of deformation of their child's face (a 5-year-old girl) caused by bilateral enlargement of her gonial angles observed during the last 6 months. Biopsy of mandibular bone tissue detects its replacement with fibrous connective tissue that contains a large number of vessels. Primitive bone trabeculae are present. What medical condition is it?

- A. Cherubism
- B. Cementoma
- C. Eosinophilic granuloma
- D. Fibrous osteodysplasia
- E. Osteosarcoma

**118.** The thyroid gland of a 39-year-old woman is diffusely and symmetrically enlarged. Histology revealed mononuclear inflammatory infiltrations in the parenchyma of the gland. These infiltrations contain small lymphocytes, plasma cells, and well-developed germinal centers. Thyroid follicles are atrophied and lined with epithelial cells that can be characterized by a large amount of eosinophilic and granular cytoplasm — Hurthle cells or oxyphil cells. What is the most likely diagnosis in this case?

- A. Autoimmune (Hashimoto) thyroiditis
- B. De Quervain (subacute) thyroiditis
- C. Follicular adenoma
- D. Riedel (chronic fibrosing) thyroiditis
- E. Graves disease

**119.** A 42-year-old patient has hepatosplenomegaly and asymmetric enlargement of lymph nodes in the neck area (painless, medium density). Histology of a lymph node revealed giant cells with a large multilobed nucleus, textured nucleoli, and wide eosinophilic cytoplasm (Reed-Sternberg cells), as well as cells with two "mirrored" nuclei, each of which contains an acidophilic nucleolus surrounded by a clear zone ("owl's eye"). What is the most likely diagnosis in this case?

- A. Lymphogranulomatosis
- B. Acute lymphoblastic leukemia
- C. Chronic lymphocytic leukemia
- D. Burkitt lymphoma
- E. Non-Hodgkin lymphoma

**120.** Which one of the listed drugs is a monoamine reuptake inhibitor?

- A. Amitriptyline
- B. Diazepam
- C. Droperidol
- D. Amiodarone
- E. Furosemide

**121.** A doctor prescribed a drug that inhibits the proton pump function ( $H^+/K^+$ -ATPase) to a patient with peptic ulcer disease of the stomach. What drug has such mechanism of action?

- A. Omeprazole
- B. De-nol (bismuth subcitrate)
- C. Pirenzepine
- D. Pancreatin
- E. Famotidine

**122.** Ossification of the annular stapedial ligament occurred in a patient with hearing impairment. What is this type of connection called?

- A. Syndesmosis
- B. Synchronosis
- C. Synostosis
- D. Hemiarthrosis
- E. Gomphosis

**123.** A dentist administers anesthesia in the area of the upper second molar. What nerves does the doctor anesthetize?

- A. *Rr. alveolares superiores posteriores*
- B. *Rr. alveolares superiores anteriores*
- C. *Rr. alveolares superiores medii*
- D. *Rr. alveolares inferiores posteriores*
- E. *Rr. alveolares inferiores anteriores*

**124.** What effect will decreased levels of  $Ca^{2+}$  in blood plasma have on the duration of coagulation hemostasis?

- A. The duration of hemostasis will increase
- B. The duration of hemostasis will decrease
- C. The duration of hemostasis will remain unchanged
- D.  $Ca^{2+}$  ions have no effect on the duration of hemostasis
- E. —

**125.** What hormone increases sodium reabsorption?

- A. Aldosterone
- B. Adrenaline
- C. Antidiuretic hormone
- D. Natriuretic hormone
- E. Parathormone

**126.** What main changes in the peripheral blood are characteristic of the second stage of acute radiation sickness?

- A. Lymphopenia
- B. Leukocytosis
- C. Lymphocytosis
- D. Monocytosis
- E. Erythrocytosis

**127.** A 49-year-old man, who had been a heavy drinker for a long time, has been hospitalized with complaints of fatigability, pain in the right hypochondrium, loss of appetite, and itching. Examination detected the following: reduced levels of total blood protein, hypoalbuminemia,

increased levels of alkaline phosphatase, an enlarged liver, and generalized edema. What is the cause of the edema development in this patient?

- A. Reduced oncotic blood pressure
- B. Increased hydrostatic blood pressure
- C. Increased permeability of the capillary wall
- D. Disturbed neuroregulation of the water exchange
- E. Disturbed lymphatic efflux

**128.** Local anesthetic lidocaine is widely used in dental practice. Lidocaine has an analgesic effect because it:

- A. Blocks voltage-gated sodium channels
- B. Blocks ligand-gated sodium channels
- C. Blocks voltage-gated calcium channels
- D. Activates voltage-gated potassium channels
- E. Blocks voltage-gated potassium channels

**129.** In an experiment, a test animal lost its orienting reflexes after certain structures of its central nervous system had been destroyed. At what level did the damage occur?

- A. Corpora quadrigemina
- B. Lateral vestibular nuclei
- C. Red nuclei
- D. Cerebellum
- E. Diencephalon

**130.** Examination of a patient with a traumatic brain injury revealed a loss of tactile sensitivity. What part of the cerebral cortex is damaged in this case?

- A. Postcentral gyrus
- B. Occipital lobe of the cerebral cortex
- C. Parietal lobe of the cerebral cortex
- D. Precentral gyrus
- E. Frontal lobe of the cerebral cortex

**131.** Chest X-ray of a 26-year-old woman allowed diagnosis of her with bilateral lymphadenopathy and changes characteristic of a "honeycomb lung". In the respiratory part of the lungs, histology of the biopsy material detected numerous epithelioid cell granulomas with isolated Langhans giant cells and lymphocytes and without signs of caseous necrosis. What is the most likely disease in this case?

- A. Sarcoidosis
- B. Tuberculosis
- C. Aspergillosis
- D. Histoplasmosis
- E. Coccidiosis

**132.** A 42-year-old man fell ill one week

after he had been preparing a fox pelt. The disease manifested as nervous excitement, hydrophobia, and convulsions. Autopsy of the man's body detected encephalitis with damage to the brain stem, walls of the third ventricle, and hippocampus. Signs of encephalitis included accumulation of lymphocytes and microglial cells around dead neurons and blood vessels. Eosinophilic inclusions (Babesh-Negri bodies) were found in the hippocampal neurons. What disease was diagnosed in the deceased man?

- A. Rabies
- B. Plague
- C. Anthrax
- D. Tularemia
- E. Brucellosis

**133.** A patient has been undergoing treatment for gastroesophageal reflux disease for a long time. A biopsy material was obtained from the esophageal mucosa above the gastroesophageal junction. Histology of the material revealed that stratified squamous epithelium of the mucosa had areas lined with cylindrical (columnar) epithelium that contained numerous goblet cells. What pathological condition is observed in the patient?

- A. Barrett esophagus
- B. Herpes esophagitis
- C. Esophageal adenocarcinoma
- D. Esophageal achalasia
- E. Esophageal squamous cell carcinoma

**134.** A 22-year-old woman came to a gynecologist with complaints of irregular menstrual cycles, hemorrhagic discharge from the vagina, and pain in the lower abdomen. After a complex of laboratory and instrumental studies, the woman underwent uterine curettage. Histology of the obtained material detected acutely enlarged, cystically changed, edematous chorionic villi with proliferation of trophoblast cells and fragments of decidual tissue. What pathological process is observed in the patient?

- A. Hydatidiform mole
- B. Endometrial polyp
- C. Chorioepithelioma
- D. Endometrial carcinoma
- E. Endometrial hyperplasia

**135.** A patient came to a dentist with complaints of chronic local inflammatory processes observed in the oral mucosa. Examination detected a sharp decrease in secretory immunoglobulin levels in the patient's saliva. What cells are dysfunc-

onal in this case?

- A. Plasma cells
- B. Mucosal epithelial cells
- C. Macrophages
- D. Serocytes
- E. Mucocytes

**136.** What mucolytic expectorant has an antioxidant, pneumoprotective, cardioprotective, and detoxifying effect and is used in cases of paracetamol poisoning?

- A. Acetylcysteine
- B. Bromhexine
- C. Ambroxol
- D. Codeine
- E. Glaucine

**137.** What drug can be used in treatment of ciliary arrhythmia, is a potassium channel blocker, alpha and beta dual receptor blocker, and can cumulate in the body?

- A. Amiodarone
- B. Nicotinamide
- C. Verapamil
- D. Metoprolol
- E. Asparcam

**138.** A doctor has diagnosed the patient with damage to the hypoglossal nucleus. What part of the brain is affected by the pathological process in this case?

- A. Medulla oblongata
- B. Pons
- C. Cerebellum
- D. Mesencephalon
- E. Diencephalon

**139.** A patient complains of headache and difficulty breathing. X-ray allowed diagnosing the patient with frontitis (inflammation of the frontal sinus). Into what nasal meatus will purulent discharge spread in this case?

- A. Middle nasal meatus
- B. Inferior nasal meatus
- C. Superior nasal meatus
- D. Common nasal meatus
- E. Above the superior nasal concha

**140.** Electron microscopy of a specimen revealed a round vesicle formed by a biological membrane and filled with enzymes (matrix). A dense core can be detected in the center of the matrix. Name this organelle.

- A. Peroxisome
- B. Proteasome
- C. Ribosome
- D. Centrosome
- E. Microtubule

**141.** A 7-year-old boy developed pain and edema in the throat and a low-grade fever observed for two weeks. Examination revealed hepatosplenomegaly and enlarged lymph nodes. A virus of the *Herpesviridae* family that causes proliferation of B-lymphocytes was isolated from the patient's oropharynx. What virus has most likely caused the disease in this case?

- A. Epstein-Barr virus
- B. HIV
- C. Herpes simplex virus type 2
- D. Measles virus
- E. Coxsackievirus A

**142.** After a head injury, the patient developed paralysis of the mimic muscles on the right. Examination detected damage to the facial nerve in the area after its exit from the facial canal. What anatomical structure is located at the end of the facial nerve canal?

- A. Stylomastoid foramen
- B. Jugular foramen
- C. External acoustic pore
- D. Internal acoustic pore
- E. Mastoid canaliculus

**143.** The following changes were observed in the ECG of a 30-year-old man: an area of abnormal contraction with missing P wave, deformed QRS complex, and negative T wave inverse to the QRS complex. What type of arrhythmia is observed in this case?

- A. Ventricular extrasystole
- B. Sinus arrhythmia
- C. Atrioventricular extrasystole
- D. Atrial extrasystole
- E. Paroxysmal tachycardia

**144.** What type of respiratory ventilatory insufficiency is characteristic of patients with pneumothorax?

- A. Restrictive
- B. Obstructive
- C. Mixed
- D. Disregulatory
- E. Pathological

**145.** Autopsy of the body of a 46-year-old woman with chronic heart failure revealed enlarged left ventricular chamber with thinned walls. Revision of the mitral valve area detected significant narrowing of the

left atrioventricular orifice due to cicatricial changes at the level of the *annulus fibrosus cordis*. What heart defect is most likely observed in this case?

- A. Mitral valve stenosis
- B. Mitral valve insufficiency
- C. Mitral valve prolapse
- D. Coarctation of the ascending aorta
- E. Myogenic dilatation of the left ventricle

**146.** Examination of a patient detects skin calcification, Raynaud syndrome, esophageal motility disorder, sclerodactyly, and telangiectasia. These changes are called CREST syndrome. What disease can be characterized by the described changes?

- A. Systemic scleroderma
- B. Dermatomyositis
- C. Systemic lupus erythematosus
- D. Rheumatoid arthritis
- E. Gouty arthritis

**147.** Autopsy of the body of a person, who died of secondary bacterial pneumonia, revealed pale yellow muscles with numerous calcinosis foci. Microscopy revealed dystrophic changes in the muscles, absence of striations, and reduced glycogen levels. Edema and inflammation are observed in the stroma. The cellular infiltrate is represented by lymphocytes, macrophages, and plasma cells. Sclerotic changes were detected in the heart, lungs, and liver. What is the most likely diagnosis in this case?

- A. Dermatomyositis (Wagner-Hepp-Unverricht disease)
- B. Myopathy
- C. Zenker's degeneration of muscles in typhoid fever
- D. Myositis
- E. Systemic scleroderma

**148.** In the body of a female *Anopheles* mosquito, the malaria *Plasmodium* reproduces via copulation (a type of sexual process). What type of host is this insect for malaria *Plasmodium*?

- A. Definitive
- B. Intermediate
- C. Reservoir
- D. Additional
- E. Optional

**149.** Furosemide was prescribed to a patient with chronic heart failure as a part of complex treatment. What group of drugs does it belong to?

- A.** Diuretics
- B.** Calcium channel blockers
- C.**  $\beta$ -blockers
- D.**  $\alpha$ -blockers
- E.** Potassium channel blockers

**150.** In a patient with chronic hepatitis, tooth extraction was complicated by

prolonged bleeding. What is the cause of the hemorrhagic syndrome in this case?

- A.** Decreased thrombin formation
- B.** Increased thromboplastin formation
- C.** Decreased fibrin formation
- D.** Increased fibrinogen synthesis
- E.** Intensified fibrinolysis