

1. A 65-year-old patient underwent surgical removal of a patch of mucosa on the lower surface of the tongue that had a large gray-white plaque with clear contours and a rough surface that could not be scraped off. The patient's history states that he is a heavy smoker. Microscopically, the following is observed: hyperplasia, hyperkeratosis, parakeratosis, acanthosis of the stratified epithelium, lymphoplasmacytic infiltration, and fibrosis of the mucosal lamina propria. What pathology of the tongue is it?

- A. Leukoplakia
- B. Lichen ruber planus
- C. Chronic candidiasis
- D. Lupus erythematosus
- E. Keratoacanthoma

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. What organelles carry out the process of digestion and excretion of the remains?

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

4. The majority of epithelial cells in the patient's oral mucosa contain one X chromatin body. It is characteristic of:

- A. Klinefelter syndrome
- B. Turner syndrome
- C. Triple X syndrome
- D. Down syndrome
- E. Triple Y syndrome

5. 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

6. A patient with a trauma has an epidural

hematoma in the temporal region. What artery was damaged in this case?

- A. Middle meningeal artery
- B. Middle cerebral artery
- C. Posterior communicating artery
- D. Anterior meningeal artery
- E. Anterior cerebral artery

7. A patient presents with destruction of the tympanic cavity wall, with pus spreading into the posterior cranial fossa. Which wall has been destroyed in this case?

- A. *Paries mastoideus*
- B. *Paries membranaceus*
- C. *Paries labyrinthicus*
- D. *Paries tegmentalis*
- E. *Paries jugularis*

8. A hospitalized person needs catheterization of the subclavian vein. In what topographical anatomical region must the puncture be performed for this purpose?

- A. *Spatium antescalenum*
- B. *Spatium interscalenum*
- C. *Trigonum caroticum*
- D. *Incisura jugularis*
- E. *Trigonum omotracheale*

9. Auscultation of the heart detected reduplication of the first heart sound in the fifth intercostal space along the midclavicular line. In what valve was a pathology auscultated in this case?

- A. Bicuspid valve
- B. Tricuspid valve
- C. Aortic valve
- D. Pulmonary valve
- E. Superior vena cava valve

10. Heart auscultation detected a systolic murmur in the II intercostal space on the left parasternal line. In this case, the doctor was able to auscultate a pathology of the:

- A. Pulmonary valve
- B. Bicuspid valve
- C. Tricuspid valve
- D. Aortic valve
- E. Superior vena cava valve

11. The cessation of bleeding after a childbirth is associated with the effect of hormones on the uterine structures. What layer of this organ plays the largest role in this process?

- A.** Middle layer of the myometrium
- B.** Endometrium
- C.** Inner layer of the myometrium
- D.** Outer layer of the myometrium
- E.** Perimetrium

12. A small amount of specific antibodies was detected in the blood of an infectious patient, which indicates inhibited function of certain connective tissue cells. Name these cells.

- A.** Plasma cells
- B.** Lymphocytes
- C.** Macrophages
- D.** Neutrophilic granulocytes
- E.** Labrocytes

13. Hyperfunction of the thyroid gland was detected in a 30-year-old patient. What is the shape of thyroid follicular cells?

- A.** Prismatic cells with basally located nuclei
- B.** Tall prismatic cells with apically located nuclei
- C.** Squamous cells
- D.** Spindle-shaped cells
- E.** Cuboidal cells

14. In some diseases of the large intestine, the quantitative ratio of various mucosal epithelial cells may change. What type of cells is normally predominant in the epithelium of the crypts of the large intestine?

- A.** Goblet cells
- B.** Columnar villous epitheliocytes
- C.** Endocrinocytes
- D.** Cells with acidophilic granules
- E.** Poorly differentiated cells

15. In the epithelium of the airways, there are cells with a dome-shaped apical part with microvilli on its surface. These cells have a well-developed synthetic apparatus and contain secretory granules in their apical part. Name these cells.

- A.** Clara cells
- B.** Goblet cells
- C.** Endocrine cells
- D.** Cells without a border
- E.** Cambial cells

16. An electron micrograph of red bone marrow shows a megakaryocyte with demarcation channels in its peripheral cytoplasm. What is the function of these structures?

- A.** Platelet formation
- B.** Increasing the surface area of cells
- C.** Increasing the number of ion channels
- D.** Cell division
- E.** Cell destruction

17. In an experimental model, a morphological disturbance was induced in rats in the epithelial cells of the distal parts of the nephron. What functional processes in the kidneys become weakened in this case?

- A.** Reabsorption of electrolytes and water
- B.** Reabsorption of glucose
- C.** Reabsorption of sodium and glucose
- D.** Reabsorption of proteins
- E.** Filtration

18. A histological specimen of the heart wall shows large cells with light-colored cytoplasm and an eccentric nucleus, located between the endocardium and the myocardium. What cardiac cells have such morphological features?

- A.** Purkinje cells
- B.** Pacemaker cells
- C.** Contractile cardiomyocytes
- D.** Endocrine cells
- E.** Lipocytes

19. As a result of a nose injury, a boxer presents with impaired sense of smell. What cells can cause the loss of the sense of smell, if they are damaged?

- A.** Neurosensory cells
- B.** Epithelial supporting cells
- C.** Basal epithelial cells
- D.** Ciliated epithelial cells
- E.** Microvillous epithelial cells

20. The patient's ECG shows a decreased amplitude of the R wave. What does the R wave indicate on an ECG?

- A.** Excitation spreading through the base of the ventricles
- B.** Excitation spreading from the atria to the ventricles
- C.** Electrical diastole of the heart
- D.** Ventricular repolarization
- E.** Excitation spreading through the atria

21. In an experiment, the dependence of the blood pressure from the vascular resistance was measured in test animals. In what vessels will this resistance be the highest?

- A. Arterioles
- B. Arteries
- C. Aorta
- D. Veins
- E. Capillaries

22. In an experiment, dehydration was induced in a test animal. What receptors signal a lack of water?

- A. Atrial volume receptors
- B. Carotid body chemoreceptors
- C. Hypothalamic osmoreceptors
- D. Gastric mechanoreceptors
- E. Taste receptors

23. A patient has been diagnosed with a pathology accompanied by decreased levels of volatile metabolites in the internal environment of the body. Through what organs are they excreted?

- A. Lungs
- B. Kidneys
- C. Sweat glands
- D. Sebaceous glands
- E. —

24. Villikin synthesis is impaired in a patient. What motor function of the small intestine will be disturbed in this case?

- A. Microvillar contractions
- B. Rhythmic segmentation
- C. Pendulum contractions
- D. Peristaltic contractions
- E. Tonic contractions

25. One of the listed amino acids with a hydroxyl group plays the largest role in the formation of the structure of collagen and organic matrix of the tooth. What amino acid is it?

- A. Oxyproline
- B. Serine
- C. Threonine
- D. Tyrosine
- E. Homoserine

26. A person died of potassium cyanide poisoning. The death of this person was caused by a compound formed by cyanide and a certain other substance. Name this substance.

- A. Cytochrome
- B. Riboflavin
- C. ATP
- D. DNA
- E. tRNA

27. Select from the list an amino acid that is encoded by only one triplet.

- A. Methionine
- B. Serin
- C. Alanine
- D. Leucine
- E. Lysine

28. During the first hours after the onset of a myocardial infarction, measuring a certain enzyme in the blood would be the most informative. Name this enzyme.

- A. Creatine phosphokinase
- B. Aspartate aminotransferases
- C. Alanine aminotransferases
- D. Lactate dehydrogenase
- E. Glutamate dehydrogenase

29. The patient's caries was complicated by pulpitis accompanied by unbearable pain. What is the main cause of such pain in cases of pulp inflammation?

- A. Exudation
- B. Primary alteration
- C. Ischemia
- D. Leukocyte emigration
- E. Proliferation

30. A patient diagnosed with chronic myelogenous leukemia developed signs of necrotizing ulcerative stomatitis. Mucosal biopsy detected leukemic cells. In this case, oral cavity damage is associated with a certain link of tumor pathogenesis. Name this link.

- A. Tumor progression
- B. Mutational mechanism of transformation
- C. Epigenomic mechanism of transformation
- D. Promotion
- E. Initiation

31. Bleeding that occurred in a child after the tooth extraction could not be stopped for 6 hours. Testing of the hemostatic system revealed a sharp decrease in the levels of blood coagulation factor VIII. What type of inheritance is characteristic of this disease?

- A. Sex chromosome-linked
- B. Autosomal dominant
- C. Autosomal recessive
- D. Polygenic
- E. Incomplete dominance

32. To model a stomach ulcer, atophan (cinchophen) had been administered into the gastric arteries of a test animal, which caused their sclerosing. What mechanism

of gastric mucosa damage is leading in this experiment?

- A. Hypoxic
- B. Neurodystrophic
- C. Mechanical
- D. Disregulatory
- E. Neurohumoral

33. A patient with chronic renal failure developed anorexia, dyspepsia, heart rhythm disturbances, and skin itching. What is the main mechanism of development of these disorders?

- A. Accumulation of nitrogen metabolism products in the blood
- B. Lipid metabolism disorders
- C. Changes in carbohydrate metabolism
- D. Renal acidosis
- E. Water-electrolyte imbalance

34. A patient with chronic hypoacid gastritis has hypochromic anemia. Blood smear test revealed codocytes (target cells), microanisocytosis, and poikilocytosis. What type of anemia is observed in the patient?

- A. Iron deficiency anemia
- B. Acute posthemorrhagic anemia
- C. Thalassemia
- D. Sickle cell anemia
- E. Pernicious anemia

35. A 58-year-old patient diagnosed with acute heart failure presents with a decreased 24-hour urine output — oliguria. What is the mechanism of oliguria in this case?

- A. Decreased glomerular filtration
- B. Decreased number of the functioning glomeruli
- C. Decreased oncotic blood pressure
- D. Increased hydrostatic pressure applied to the capillary wall
- E. Decreased permeability of the glomerular membrane

36. During starvation, the mass of organs and tissues decreases. What organ loses the most mass during the first stage of starvation?

- A. Liver
- B. Kidneys
- C. Brain
- D. Heart
- E. Muscles

37. Examination of the oral cavity detects enamel damage in the form of isolated and multiple erosions of various shapes

and varying in color from yellow-brown to black. The teeth are fragile, some of them are destroyed. What disease corresponds with such pathological changes?

- A. Fluorosis
- B. Enamel atrophy
- C. Deep caries
- D. Median caries
- E. Dental erosions

38. A 32-year-old woman underwent removal of a brown fungiform gingival neoplasm. Microscopically, it consists of connective tissue with numerous sinusoidal vessels, large multinucleated cells, and small mononuclear cells. Small hemorrhages and hemosiderin deposits are observed as well. What type of neoplasm is it?

- A. Giant-cell epulis
- B. Fibromatous epulis
- C. Angiomatous epulis
- D. Gingival fibromatosis
- E. Hypertrophic gingivitis

39. A 30-year-old patient has been diagnosed with a tumor of the body of the mandible. The tumor appeared several months ago. Macroscopically, the tumor is represented by a dense whitish tissue that destroys the jaw bone. Microscopy of the removed tumor shows that its structure consists of a network of odontogenic epithelial strands with various types of branching. What type of tumor is it?

- A. Plexiform ameloblastoma
- B. Follicular ameloblastoma
- C. Acanthomatous ameloblastoma
- D. Basal cell ameloblastoma
- E. Granular cell ameloblastoma

40. Autopsy of the body of a man revealed a large wedge-shaped focus of a dark red dense tissue in the upper lobe of the right lung. Histology detected necrosis of the alveolar walls, the lumina of the alveoli were tightly packed with erythrocytes. What process has developed in the lungs?

- A. Hemorrhagic pulmonary infarction
- B. Pulmonary carnification
- C. Pulmonary gangrene
- D. Pulmonary hemorrhage
- E. Pulmonary atelectasis

41. A 70-year-old man complains of pain in the small joints of his hands and feet. The joints are deformed and painful. Laboratory testing detected elevated levels of uric acid salts in the patient's

blood and urine, which indicates disturbed metabolism of certain substances. Name these substances.

- A. Nucleoproteins
- B. Calcium
- C. Chromoproteins
- D. Lipoproteins
- E. Potassium

42. Autopsy of the body of a girl, who died of asphyxiation, shows that the mucosa of the trachea and bronchi is covered with a white-gray film that is loosely attached to the underlying tissues and can be easily removed with tweezers. The lumina of the segmental bronchi are filled with loose gray-white masses. What type of tracheobronchitis was revealed during the autopsy, based on the nature of the exudate?

- A. Croupous
- B. Catarrhal
- C. Diphtheritic
- D. Purulent
- E. —

43. A child has been hospitalized with the diagnosis of staphylococcal sepsis. What nutrient medium should be used for inoculation of the patient's blood to isolate the pathogen?

- A. Sugar-peptone broth
- B. Meat-peptone agar
- C. Ploskirev nutrient medium
- D. Buchin nutrient medium
- E. Bile-salt agar

44. A patient was hospitalized on the fifth day after the onset of the disease that manifests as jaundice, muscle pain, chills, and nosebleeds. During laboratory diagnostics, dark-field microscopy of a drop of the patient's blood was performed. Name the causative agents of this disease.

- A. *Leptospira interrogans*
- B. *Borrelia duttonii*
- C. *Calymmatobacterium granulomatis*
- D. *Bartonella bacilliformis*
- E. *Rickettsia mooseri*

45. Bacteriological testing of the stools of a restaurant cook, who had no clinical manifestations of a disease, resulted in growth of small colonies with a metallic sheen on bismuth-sulfite agar. What microorganisms are most likely to form these colonies?

- A. Salmonella
- B. Shigella
- C. Escherichia
- D. Staphylococci
- E. Streptococci

46. A patient has been hospitalized in a severe general condition, with high temperature and difficulty breathing. Bacterioscopy of the material obtained from the patient's pharynx and airways allowed provisionally diagnosing the patient with diphtheritic croup. What staining technique was used in this case?

- A. Neisser stain
- B. Ziehl-Neelsen stain
- C. Burri-Gins stain
- D. Peshkov stain
- E. Ozheshko stain

47. What serological reaction requires 5 ingredients: antigen, antibody, and complement (the first system) and sheep erythrocytes and hemolytic serum (the second system)?

- A. Complement fixation
- B. Passive (indirect) hemagglutination
- C. Precipitation
- D. Hemagglutination inhibition
- E. Neutralization

48. A 50-year-old patient suddenly developed headache, dizziness, and nausea. Blood pressure — 220/110 mm Hg. After intravenous administration of a 0.1% hygronium solution, the patient's condition improved. What is the mechanism of action of this drug?

- A. Blockade of nicotinic acetylcholine ganglion receptors
- B. Activation of α_2 -adrenoceptors
- C. Angiotensin-converting enzyme blockade
- D. Blockade of β_1 -adrenoceptors
- E. Blockade of Ca^{++} channels

49. A 35-year-old patient, who complains of heartburn and sharp pain in the epigastrium on an empty stomach, was prescribed an H_2 -histamine blocker. What drug is it?

- A. Ranitidine
- B. Almagel
- C. Methacin (metocinium iodide)
- D. Vicaline
- E. Atropine

50. What is the mechanism of ESR acceleration in pregnant women?

- A. Increased fibrinogen levels
- B. Increased erythrocyte count
- C. Increased blood volume
- D. Increased albumin levels
- E. Intensified function of the bone marrow

51. A doctor discusses with colleagues a new antiepileptic drug — sodium valproate. What is the likely mechanism of action of this drug?

- A. Inhibition of GABA transferase enzyme activity
- B. Stimulation of GABA transferase enzyme activity
- C. Inhibition of Ca^{2+} -dependent ATPase activity
- D. Stimulation of Ca^{2+} -dependent ATPase activity
- E. Inhibition of monoamine oxidase

52. A patient with thrombophlebitis was prescribed an indirect anticoagulant syncoumar. Specify the time interval, after which the maximum anticoagulant effect should be expected.

- A. 24–72 hours
- B. 12–24 hours
- C. 6–12 hours
- D. 3–6 hours
- E. 5–10 minutes

53. A man with tuberculosis developed impaired hearing when undergoing treatment. What drug could have caused such a side effect?

- A. Streptomycin
- B. Isoniazid
- C. Kanamycin sulfate
- D. Ethionamide
- E. Rifampicin

54. A patient with ciliary arrhythmia and a history of bronchial asthma should be prescribed an antiarrhythmic drug. What antiarrhythmic drug is contraindicated in this case?

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

55. A 9-year-old boy undergoes treatment at the endocrinology department. He has already had several limb fractures because of fragile bones. What endocrine gland does not function properly in this patient?

- A. Parathyroid gland
- B. Thyroid gland
- C. Thymus
- D. Adrenal glands
- E. Pineal gland

56. A patient complaining of intense toothache was prescribed a non-narcotic analgesic (an aniline derivative) with a marked analgesic and antipyretic effect and a weak anti-inflammatory effect. What drug is it?

- A. Paracetamol
- B. Acetylsalicylic acid
- C. Analgin (Metamizole sodium)
- D. Butadion (Phenylbutazone)
- E. Ibuprofen

57. Combined therapy of chronic heart failure with digitoxin and furosemide resulted in acute muscle weakness in the patient. What electrolyte imbalance can be detected in the patient's blood in this case?

- A. Hypokalemia
- B. Hyperkalemia
- C. Hypocalcemia
- D. Hypercalcemia
- E. —

58. Megalocytes can appear in the peripheral blood of a person. When is the presence of these cells in the blood considered to be normal?

- A. During the embryonic stage
- B. At the age of under 1 year
- C. At the age of 1 to 3 years
- D. At middle age
- E. During pregnancy

59. A patient has an open facial wound with overhanging edges. He presents with tissue necrosis accompanied by a gradual partial gangrenous process that almost reaches the bone tissue. Live larvae were detected in the wound during a thorough examination. The patient was diagnosed with tissue myiasis, caused by larvae of a certain *Diptera* species. Name this species.

- A. *Wohlfahrtia magnifica*
- B. *Glossina palpalis*
- C. *Musca domestica*
- D. *Phlebotomus pappataci*
- E. *Stomoxys calcitrans*

60. Mass screening of newborns for phenylketonuria is being carried out in Ukraine. What method of medical genetics is used for this purpose?

- A. Biochemistry
- B. Genealogy
- C. Twin method
- D. Cytogenetics
- E. Population statistics

61. During the study of pancreatic cells, disturbed functions of concentration, dehydration, and condensation of intracellular secretion products was detected at the subcellular level. What organelle ensures these processes?

- A. Golgi complex
- B. Ribosome
- C. Lysosome
- D. Mitochondria
- E. Endoplasmic reticulum

62. A 50-year-old man with pulmonary fibrosis presents with respiratory insufficiency. What mechanism is the main cause of this condition?

- A. Restrictive insufficiency
- B. Obstructive insufficiency
- C. Dysfunction of the respiratory center
- D. Disturbed gas diffusion in the lungs
- E. Decreased total pulmonary blood flow

63. A 62-year-old woman has insomnia. What medicine should she be prescribed?

- A. Nitrazepam
- B. Caffeine and sodium benzoate
- C. Droperidol
- D. Piracetam
- E. Dimedrol (Diphenhydramine)

64. Autopsy of the body of a 43-year-old man, who died of cardiopulmonary failure, detected a cavity 3 cm in diameter in the lower lobe of the right lung. The cavity is filled with viscous green-gray contents. Histology revealed that the wall of this formation consists of connective tissue and juvenile granulation tissue. The lumen contains neutrophilic leukocytes and the products of their breakdown. What type of inflammation corresponds with such changes?

- A. Chronic abscess
- B. Acute abscess
- C. Empyema
- D. Furuncle
- E. Carbuncle

65. Examination of a patient revealed increased pyruvate levels in the blood and a decrease in transketolase activity of erythrocytes. What vitamin is deficient in

this case, as indicated by these biochemical parameters?

- A. Thiamine
- B. Retinol
- C. Folic acid
- D. Tocopherol
- E. Biotin

66. A patient presents with impaired absorption of fats. A doctor prescribed the patient a bile preparation to improve the digestion of fatty foods. What bile components take part in this process?

- A. Bile acid salts
- B. Saturated fatty acids
- C. Bilirubin glucuronides
- D. Cholesterol and its ethers
- E. Diglycerides

67. To examine the fundus of the eye, a mydriatic was instilled into the patient's conjunctival sac. This mydriatic does not interfere with the process of eye accommodation. Name this drug.

- A. Mesaton (Phenylephrine)
- B. Atropine
- C. Tropicamide
- D. Homatropine
- E. Platyphylline

68. A patient with essential hypertension was prescribed captopril. In this case, formation of a certain substance will decrease. Name this substance.

- A. Angiotensin II
- B. Bradykinin
- C. Serotonin
- D. Histamine
- E. Renin

69. A woman with bronchial asthma was taking tablets sublingually thrice a day for the treatment of her condition. After a while she developed complaints of tachycardia, pain in the area of her heart, dizziness, low blood pressure, and rapid fatigability. What medicine was the patient taking?

- A. Izadrin (Isoprenaline)
- B. Anaprilin (Propranolol)
- C. Digitoxin
- D. Adrenaline
- E. —

70. A patient complains of pain in the eyeballs. Examination detects an increase in the intraocular pressure. This condition has been caused by impaired outflow of a

certain fluid. What fluid is it?

- A. Aqueous humour
- B. Endolymph
- C. Perilymph
- D. Lymph
- E. Tears

71. A 57-year-old patient with a history of chronic pyelonephritis presents with arterial hypertension. What is the main mechanism of arterial pressure increase in this case?

- A. Increased renin secretion in the kidneys
- B. Stimulation of hypothalamic vegetative centers
- C. Increased blood catecholamine levels
- D. Stimulation of sinocarotid baroreceptors
- E. Stimulation of the cerebral cortex

72. In an experiment, the development of mesenchymal cells was completely inhibited. What type of muscle tissue will be maldeveloped as a result?

- A. Smooth muscle tissue
- B. Muscle tissue of neural origin
- C. Muscle tissue of epidermal origin
- D. Cardiac muscle tissue
- E. Skeletal muscle tissue

73. An electron micrograph shows a fibroblast that produces components of the intercellular substance. What organelles take part in this process?

- A. Granular endoplasmic reticulum and Golgi complex
- B. Agranular endoplasmic reticulum and Golgi complex
- C. Golgi complex and mitochondria
- D. Golgi complex and lysosomes
- E. Granular and agranular endoplasmic reticula

74. During a sea trip, a man developed signs of motion sickness: pallor, sweating, dizziness, nausea, rapid breathing, and decreased blood pressure. What causes this condition in this case?

- A. Overstimulation of the vestibular apparatus
- B. Overstimulation of the visceroreceptors in the abdominal cavity
- C. Discoordination between the visual and motor systems
- D. Activation of the sympathetic part of the autonomic nervous system
- E. Activation of the parasympathetic part of the autonomic nervous system

75. During an outbreak of a hospital-acquired infection, pure cultures of *S. aureus* were grown after inoculation of the samples obtained from the nasopharynxes of the medical personnel and from wound drainage of the surgical patients. What tests are necessary to determine the likely source of infection?

- A. Phage typing of the obtained cultures
- B. Repeated inoculations
- C. Antibiotic sensitivity testing
- D. Biochemical profiles
- E. Sero-identification

76. Genetic defects of certain urea-biosynthesis enzymes cause accumulation of free ammonia in the blood and tissues. What organ is most sensitive to hyperammonemia?

- A. Brain
- B. Liver
- C. Kidneys
- D. Heart
- E. Intestine

77. During an exacerbation of rheumatoid arthritis, the patient with a history of concomitant chronic gastritis was prescribed celecoxib. What decreases the side effects of this drug that affect the digestive tract?

- A. Predominant inhibition of cyclooxygenase-2
- B. Predominant inhibition of cyclooxygenase-1
- C. Phospholipase T_2 inhibition
- D. Predominant stimulation of adenylate cyclase
- E. Phosphodiesterase inhibition

78. Spore-containing bacilli were detected in a patient with tetanus. What staining technique was used to detect them?

- A. Ozheshko stain
- B. Gram stain
- C. Burri-Gins stain
- D. Ziehl-Neelsen stain
- E. Morozov stain

79. A patient with a basilar skull fracture presents with damage to the hook-like process of the medial pterygoid plate of the sphenoid bone. What muscle of the soft palate will become dysfunctional in this case?

- A. Tensor veli palatini muscle
- B. Palatoglossus muscle
- C. Levator veli palatini muscle
- D. Musculus uvulae
- E. Palatopharyngeus muscle

80. During the appendectomy, the patient's *a. appendicularis* was ligated. This vessel is a branch of the following artery:

- A. *A. ileocolica*
- B. *A. colica dextra*
- C. *A. colica media*
- D. *A. sigmoidea*
- E. *A. mesenterica inferior*

81. Gene expression is regulated by various mechanisms and activates upon induction of a certain DNA region. Name this region.

- A. Enhancer
- B. Silencer
- C. Attenuator
- D. Terminator
- E. Spacer

82. Folding is a post-translational modification of a protein. What is the mechanism of pepsin folding in the chief cells of the gastric mucosa?

- A. Partial proteolysis
- B. Acetylation
- C. Methylation
- D. Covalent modification
- E. Phosphorylation

83. In the periodontal tissues, electron microscopy detects fibers, one end of which is embedded into the cementum of the dental root, while the other is embedded into the periosteum of the alveolar process. Name these fibers.

- A. Sharpey fibers
- B. Korff fibers
- C. Ebner fibers
- D. Purkinje fibers
- E. Argrophilic fibers

84. To improve tooth mineralization, dentists prescribe Ca^{2+} preparations. This substance has no effect on the following process in the human body:

- A. Oncotic pressure generation
- B. Hemostasis
- C. Muscle contraction
- D. Development of myocardial depolarization
- E. Synaptic transmission of excitation

85. For the treatment of gingivitis, the

dentist prescribed the patient a drug with an antiprotozoal and antibacterial effect. This drug can cause an aversion to alcohol. What drug was prescribed by the dentist?

- A. Metronidazole
- B. Tetracycline
- C. Levomycetin (Chloramphenicol)
- D. Lincomycin hydrochloride
- E. Ceftriaxone

86. The levels of Ca^{2+} ions in the blood decreased as a result of a special diet, which will in turn cause increased secretion of a certain hormone. Name this hormone.

- A. Parathormone
- B. Thyrocalcitonin
- C. Vasopressin
- D. Somatotropin
- E. Thyroxine

87. A patient consulted a doctor about a dislocation of the articular head of the mandible. What type of bone connection can be observed in this joint?

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

88. A patient has been diagnosed with acute respiratory viral infection. Blood serum analysis detects class M immunoglobulins. What stage of the infectious process is observed in the patient in this case?

- A. Acute stage
- B. Prodromal stage
- C. Incubation
- D. Convalescence
- E. Microbial carriage

89. The sequence of triplets in DNA determines the sequence of amino acids in a protein molecule. What characteristic of the genetic code is it?

- A. Collinearity
- B. Degeneracy
- C. Universality
- D. Triplet structure
- E. Non-overlapping

90. No nitrogenous base of a DNA codon can be a component of another codon. What characteristic of the genetic code is it?

- A. Non-overlapping
- B. Triplet structure
- C. Specificity
- D. Universality
- E. Collinearity

91. Phenylketonuria belongs to the following group of molecular metabolic diseases:

- A. Amino acid metabolism disorders
- B. Carbohydrate metabolism disorders
- C. Hereditary disorders of connective tissue metabolism
- D. Hereditary disorders of lipid metabolism
- E. Mineral metabolism disorders

92. A patient with an incised wound in the area of the middle part of the sternocleidomastoid muscle presents with impaired skin sensitivity in the front part of the neck. What nerve is damaged in this case?

- A. *N. transversus colli*
- B. *N. occipitalis minor*
- C. *N. auricularis magnus*
- D. *N. phrenicus*
- E. *Nn. supraclaviculares*

93. To study the functional state of the kidneys, the challenge test with a para-aminohippuric acid (PAH) was used. What mechanism of urine formation can be studied using this test?

- A. Secretion system
- B. Countercurrent system
- C. Filtration system
- D. Reabsorption system
- E. Concentration system

94. Some infectious diseases can be prevented by undergoing vaccination. Against what protozoan disease can vaccination be used as a preventive measure?

- A. Cutaneous leishmaniasis
- B. Toxoplasmosis
- C. Malaria
- D. Trypanosomiasis
- E. Urogenital trichomoniasis

95. What receptors respond to the gas composition of the blood that enters the brain?

- A. Carotid sinus receptors
- B. Aortic receptors
- C. Bulbar receptors
- D. Mechanoreceptors
- E. Nociceptors

96. A woman with the height of 1.70 m and

the body weight of 94 kg presents with decreased carbohydrate tolerance. What hormone is likely to be deficient in this case, causing this condition?

- A. Insulin
- B. Glucagon
- C. Adrenaline
- D. Cortisol
- E. Somatotropin

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

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

98. A 3-year-old child was given strawberries. Soon after that, rashes appeared on the child's skin. What changes will be detected in the child's leukogram in this case?

- A. Eosinophilia
- B. Lymphocytopenia
- C. Neutrophilic leukocytosis
- D. Monocytosis
- E. Lymphocytosis

99. During emotional stress, a hormone-sensitive enzyme triglyceride lipase activates in the adipose tissue. What second messenger takes part in activation of this enzyme?

- A. cAMP
- B. Ca^{2+}
- C. Diacylglycerol
- D. Inositol triphosphate
- E. cGMP

100. Patients with ischemic heart disease are prescribed small doses of aspirin that inhibits the synthesis of platelet aggregation activator thromboxane T_2 . Thromboxane T_2 forms from the following acid:

- A. Arachidonic
- B. Malonic
- C. Acetic
- D. Homogentisic
- E. Glutamic

101. A patient with leukemia was prescribed 5-fluorouracil. What effect does this drug have?

- A. It inhibits DNA synthesis
- B. It stimulates DNase
- C. It inhibits translation
- D. It inhibits transcription
- E. It accelerates replication

102. What drug is a β -lactam antibiotic?

- A. Benzylpenicillin
- B. Erythromycin
- C. Ofloxacin
- D. Biseptol (Co-trimoxazole)
- E. Tetracycline

103. 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

104. Contraction of cross-striated muscles is impossible without calcium. What do calcium ions bind to, when forming the actin-myosin cross-bridges?

- A. Troponin
- B. Cholinergic receptors
- C. Serotonin receptors
- D. Histamine receptors
- E. Adrenoceptors

105. 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. Pulmonary semilunar valve
- C. Left bicuspid valve
- D. Right tricuspid valve
- E. Bicuspid and tricuspid valves

106. Some drugs can be classified as enzymes. Select one such enzyme drug among the listed compounds.

- A. Pepsin
- B. Glucokinase
- C. Glucose oxidase
- D. Hydrocortisone
- E. Insulin

107. Ammonia is a toxic substance that is neutralized mainly in hepatic cells in the course of a certain cycle. What cycle is it?

- A. Ornithine cycle
- B. Citric acid cycle
- C. Glycolysis
- D. Knoop-Linen cycle
- E. Glycogenolysis

108. A patient has been diagnosed with Vaquez disease (polycythemia vera). What is the cause of this pathology?

- A. Tumor damage to the progenitor cells of myelopoiesis
- B. Local renal hypoxia
- C. Increased erythropoietin production
- D. Redistribution of erythrocytes
- E. Hereditary defect

109. Examination of a woman detects neck thickening, exophthalmos, and the pulse of 110/min. What additional tests are necessary to make the diagnosis in this case?

- A. Measuring the levels of T3 and T4
- B. Ultrasound of the ovaries
- C. Measuring the blood catecholamine levels
- D. Tomography of the adrenal glands
- E. Glucose challenge test

110. A patient has been diagnosed with mucopolysaccharidosis. What substances are typically deposited in various tissues of the body in this disease?

- A. Glycosaminoglycans
- B. Triglycerides
- C. Glycogen
- D. Fructose
- E. Fatty acids

111. A patient has been hospitalized with high nitrogen levels in the blood. What effect does nitrogen have in the human body, if its levels are high?

- A. Narcotic
- B. Toxic
- C. Allergic
- D. Chemical
- E. Physical

112. A woman has been hospitalized with complaints of dry mouth, thirst, and weight loss. Examination detected glucosuria. Her blood glucose level is 8.7 mmol/L. What pathological condition can be characterized by these symptoms?

- A. Diabetes mellitus
- B. Diabetes insipidus
- C. Renal diabetes
- D. Steroid-induced diabetes
- E. Alimentary glucosuria

113. After a cerebral hemorrhage, the patient developed significant impairment of the sense of taste. What cerebral structure is most likely to be damaged in this case?

- A. Postcentral gyrus
- B. Hippocampus
- C. Hypothalamus
- D. Substantia nigra
- E. Amygdala

114. Aortic stenosis was detected in a young woman, but no circulatory disorders were observed in the patient. What immediate mechanism ensures cardiac compensation in such cases?

- A. Homeometric
- B. Increased blood pressure
- C. Heterometric
- D. Decreased heart weight
- E. Myogenic dilation

115. A 38-year-old patient has been hospitalized with alcohol-induced psychosis accompanied by marked psychomotor agitation. What neuroleptic must be prescribed in this case?

- A. Aminazine (Chlorpromazine)
- B. Sodium bromide
- C. Galantamine hydrobromide
- D. Valerian extract
- E. Diphenin (Phenytoin)

116. In the bone tissue there are large multinucleated cells with processes that contain numerous lysosome. Name these cells.

- A. Osteoclasts
- B. Mesenchymal cells
- C. Semi-stem osteogenic cells
- D. Chondroblasts
- E. Chondrocytes

117. A 60-year-old man with heart failure developed hypoxia. What type of hypoxia is primary in this case?

- A. Circulatory hypoxia
- B. Tissue hypoxia
- C. Respiratory hypoxia
- D. Hemic hypoxia
- E. Hypoxic hypoxia

118. To study the blood flow, a doctor

placed the sensor in the area of the *sulcus bicipitalis medialis*. What vessel is being studied by the doctor?

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

119. What is the name of the cartilaginous formations that improve the congruence of articular surfaces?

- A. Menisci
- B. Discs
- C. Labia
- D. Folds
- E. Ligaments

120. After acute blood loss, the patient with rhesus-negative blood was mistakenly transfused with rhesus-positive blood. What changes will occur in the blood in this case?

- A. Hemolysis of the recipient's erythrocytes
- B. Erythrocytosis
- C. Aggregation of the donor's erythrocytes
- D. Platelet aggregation
- E. Hemolysis of the donor's erythrocytes

121. Formation of dental bone tissue requires calcium. The active form of vitamin *D* plays a large role in calcium metabolism and is produced in:

- A. Kidneys and liver
- B. Kidneys and heart
- C. Liver and muscles
- D. Stomach and heart
- E. Intestine and liver

122. A 40-year-old patient has been diagnosed with herpetic stomatitis. What antiviral drug should be prescribed in this case?

- A. Acyclovir
- B. Tinidazole
- C. Para-aminosalicylic acid
- D. Oxacillin sodium
- E. Phthalazol (Phthalylsulfathiazole)

123. On tooth section in the area of the root apex there is a tissue consisting of cells with processes surrounded by the mineralized intercellular substance. Name this tissue.

- A. Cellular cementum
- B. Reticulofibrous bone tissue
- C. Mantle dentin
- D. Enamel
- E. Periodontium

124. Human teeth are fixed in the special sockets on the upper and lower jaw, which means that they belong to the following system:

- A. Thecodont
- B. Homodont
- C. Heterodont
- D. Acrodont
- E. Pleurodont

125. Autopsy of the body of a 6-month-old child, who died of a protracted infectious disease, revealed a decrease in the mass and size of the thymus. Microscopy detected lobular atrophy in the thymus with a significant decrease in the number of lymphocytes, inversion of the layers, and an increase in the number of thymic bodies. What pathological process most likely developed in the thymus?

- A. Accidental thymic transformation
- B. Thymoma
- C. Thymic agenesis
- D. Age-related thymic involution
- E. —

126. Examination of a child detected dense painless nodules 5–7 mm in size within the skin of the occipital region. Similar formations were detected around the knee joints and along the tendons of the lower limbs. Pathohistological conclusion of the biopsy material studies: macrophage granuloma. Clinical diagnosis: rheumatism. Specify the clinical and morphological form of rheumatism observed in this case.

- A. Erythema nodosum
- B. Muscular rheumatism
- C. Polyarthritic rheumatism
- D. Cerebral rheumatism
- E. Cardiovascular rheumatism

127. A 65-year-old woman with pathological fractures of the mandible had a 15-year-long history of chronic osteomyelitis. Against the background of deterioration of her general condition, her blood test detected hypoproteinemia and dysproteinemia, while urinalysis detected proteinuria and protein casts. The woman died of chronic kidney failure. What pathological process is most likely to be observed in the kidneys during autopsy?

- A. Secondary amyloidosis of the kidneys
- B. Primary amyloidosis of the kidneys
- C. Hydronephrosis
- D. Pyelonephritis
- E. Chronic glomerulonephritis

128. After the tooth extraction, the patient was prescribed ibuprofen for pain relief. What enzyme does it inhibit?

- A. Cyclooxygenase
- B. Lipoxygenase
- C. Phospholipase B₂
- D. Phospholipase C
- E. Phosphodiesterase

129. In an experiment, a test animal had a part of its brain destroyed, which caused the animal to change from a homeothermic to a poikilothermic state. What part of the brain was destroyed in this case?

- A. Hypothalamus
- B. Pituitary gland
- C. Pineal gland
- D. Medulla oblongata
- E. Mesencephalon

130. A patient has been hospitalized with a rectal prolapse. Examination of the rectum detected small helminths attached to the mucosa. They resemble small whips with varying diameter of the body. Stool test revealed barrel-shaped eggs with bipolar plugs. What is the most likely causative agent of the disease?

- A. *Trichuris trichiura*
- B. *Entamoeba histolytica*
- C. *Lambia intestinalis*
- D. *Ascaris lumbricoides*
- E. *Enterobius vermicularis*

131. What parasite has a mollusk as an intermediate host?

- A. *Fasciola hepatica*
- B. Echinococcus
- C. *Diphyllobothrium latum*
- D. Giardia
- E. Trichinella

132. A man was immunized with a recombinant vaccine against hepatitis B. What serological marker was detected in the patient's blood serum?

- A. Anti-*HBsIgG*
- B. Viral DNA
- C. *HBs* antigen
- D. Anti-*HBcIgM*
- E. *HBe* antigen

133. A 12-year-old child complains of difficulty breathing through the nose. Examination revealed that this condition had been caused by persistent hypertrophy of the lymphoid tissue. What tonsil is likely to be enlarged in this case, as indicated by these pathological changes?

- A. Pharyngeal tonsil
- B. Palatine tonsil
- C. Left tubal tonsil
- D. Lingual tonsil
- E. Right tubal tonsil

134. A 6-month-old child has a dense red nodule on the skin. The nodule becomes pale when pressed. What disease can be characterized by these pathological changes?

- A. Hemangioma
- B. Leiomyoma
- C. Pigmented nevus
- D. Melanoma
- E. Lymphangioma

135. In a 6-year-old child, a dentist detected gray-white spots up to one millimeter in diameter on the buccal mucosa at the level of the premolars. The child was not vaccinated at the age of 12 months. The dentist suspects that the mucosal lesion was caused by a complex RNA virus with hemagglutinating properties. This virus has no neuraminidase activity and cannot be cultivated in chicken embryos. What virus has caused the development of this disease?

- A. Measles virus
- B. Herpes simplex virus
- C. Varicella zoster virus
- D. Coxsackievirus A
- E. Mumps virus

136. A patient has a tumor in the left half of the medulla oblongata. Examination shows that the soft palate on the affected side sags, the pharyngeal reflex is reduced, the uvula deviates to the healthy side when making the sound "a", the voice is hoarse. What nerves are likely to be dysfunctional due to the tumor?

- A. Glossopharyngeal nerve and vagus
- B. Vagus and accessory nerve
- C. Accessory nerve and hypoglossal nerve
- D. Glossopharyngeal nerve and accessory nerve
- E. Glossopharyngeal nerve and facial nerve

137. A patient has been hospitalized with an injury to the occipital region. Examination detects a hemorrhage in the area of the calcarine sulcus. In this case, it is likely that the cortical site of a certain analyzer is damaged. What analyzer is it?

- A. Visual
- B. Auditory
- C. Olfactory
- D. Vestibular
- E. Gustatory

138. During chest X-ray, a patient was diagnosed with a diaphragmatic hernia, located in the posterior mediastinum. At what weak point of the diaphragm was this hernia formed?

- A. Lumbocostal triangle
- B. Sternocostal triangle
- C. Central tendon of the diaphragm
- D. Medial and lateral arcuate ligaments
- E. Opening of the inferior vena cava

139. A 59-year-old man has a nervous system disorder (chorea) that manifests as involuntary rapid movements and grimacing. This nervous system disorder occurs because of damage to a certain brain structure. What structure is damaged in this case, causing this disorder?

- A. Corpus striatum
- B. Darkschewitsch nuclei
- C. Thalamus
- D. Claustrum
- E. Amygdala

140. 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 detected in the hippocampal neurons. What disease was diagnosed in the deceased man?

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

141. A patient died in the intensive care unit of multiple organ dysfunction syndrome. The patient had a history of surgery for acute purulent periostitis. Histology of necrobiopsy materials detects hyperplasia of tonsillar lymphoid tissue, diffuse neutrophil infiltration of the necrotically changed alveolar process of the jaw, regional purulent lymphadenitis, phlegmon of the soft tissues of the neck, bilateral polysegmental purulent pneumonia, splenomegaly, and irreversible changes in cardiomyocytes and epithelium of renal tubules. Postmortem bacteriology detected *Staphylococcus aureus* in the blood of the deceased. What type of sepsis is likely in the deceased patient?

- A. Odontogenic
- B. Tonsilogenic
- C. Therapeutic
- D. Surgical
- E. Cryptogenic

142. During a regular examination of a 2-year-old child, the doctor noted that the child's anterior fontanelle is open. At what age does it close?

- A. During the second year of life
- B. During the first year of life
- C. At the age of 6–9 months
- D. At the age of 3 months
- E. At the age of 1–2 months

143. A 25-year-old patient has been hospitalized with complaints of headache, purulent discharge from the nasal cavity, and difficulty breathing through the nose. X-ray revealed inflammation in the region of the right maxillary sinus. Into which nasal meatus will the pathological fluid be discharged in this case?

- A. Right middle nasal meatus
- B. Right supreme nasal meatus
- C. Right inferior nasal meatus
- D. Right superior nasal meatus
- E. Right common nasal meatus

144. Examination detects a fracture of the lateral forearm bone in its middle third. What part of what forearm bone is injured in this case?

- A. Diaphysis of the radius
- B. Epiphysis of the ulna
- C. Epiphysis of the radius
- D. Metaphysis of the ulna
- E. Diaphysis of the ulna

145. After a craniocerebral injury, a 45-year-old woman was diagnosed with superior orbital fissure syndrome (Rochon-Duvigneaud syndrome). It is a complex of symptoms resulting from damage to certain pairs of cranial nerves that pass through the fissure of the same name. What pairs of nerves are affected in this case?

- A. *N. oculomotorius*, *n. trochlearis*, *n. abducens*, *r. ophthalmicus* *n. trigemini*
- B. *N. olfactorius*, *n. opticus*
- C. *N. facialis*, *n. trochlearis*, *n. abducens*
- D. *N. vestibulocochlearis*, *n. glossopharyngeus*
- E. *N. vagus*, *n. accessorius*, *n. hypoglossus*

146. A 60-year-old patient died of cardiopulmonary failure. In the lower lobes of both lungs, the walls of the bronchi are of varying thickness and have bag-like distensions. In some of the distended bronchi, their lumina are filled with purulent masses. In the bronchial walls, histology detects destruction of non-striated muscle fibers and elastic fibers, as well as chronic inflammatory infiltration of the tissue. What disease can be characterized by these pathological changes?

- A. Bronchiectasis
- B. Bronchogenic carcinoma
- C. Metaplasia of bronchial epithelium
- D. Chronic bronchitis
- E. Acute bronchitis

147. Examination of a patient detects calcinosis cutis, 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

148. A 2-month-old girl has been diagnosed with cri-du-chat syndrome. This condition is caused by the deletion of the short arm of chromosome 5. What total number of chromosomes will be detected in this child?

- A. 46
- B. 47
- C. 44
- D. 45
- E. 23

149. Examination of the oral cavity of a patient with AIDS detected deposits of gray-white caseous inflammatory films on the oral mucosa. The films consist of microorganisms mixed with fibrinopurulent exudate. What pathological process has developed in the oral cavity of this patient?

- A. Oral candidiasis
- B. Gingivitis
- C. Leukoplakia
- D. Squamous cell carcinoma
- E. Ulcer

150. Autopsy of the body of a deceased 64-year-old woman diagnosed with tuberculosis shows a dense and enlarged spleen with multiple small gray-white foci. Microscopy detects caseous necrosis in the center of the foci, surrounded by epithelioid cells, multinucleated giant cells, and lymphocytes. What spleen disorder has developed in this woman?

- A. Miliary tuberculosis of the spleen
- B. Sago spleen
- C. Porphyry spleen
- D. Lardaceous spleen
- E. Septic spleen