1. A patient used an indirect-acting adrenergic agonist to treat rhinitis. After the patient has been using the drops for several days, the vasoconstrictive effect of the drug gradually diminished. Name this phenomenon:

a. Cumulation
b. Allergy
c. Tachyphylaxis
d. Teratogenicity
e. Idiosyncrasy

2. A 45-year-old woman presents with insufficient secretion of enterokinase enzyme. Enterokinase deficiency can cause disturbance of the following digestive function:

a. Protein hydrolysis
b. Vitamin absorption
c. Lipid absorption
d. Carbohydrate hydrolysis
e. Lipid hydrolysis

3. Because of a long-term starving a person's glomerular filtration rate increased by 20%. What is the most likely cause of the change in filtration rate in this case?

a. Increased filtration coefficient
b. Increased systemic arterial pressure
c. Decreased oncotic plasma pressure
d. Increased permeability of the renal filter
e. Increased renal plasma flow

4. The effects of the sympathetic and parasympathetic systems on cardiovascular activity were studied in an experiment. As a result of vagus nerve stimulation, decreased blood pressure was observed. This effect of the parasympathetic system is mainly based on the following:

a. Decrease of the heart rate
b. Dilation of arterioles
c. Decrease of the peripheral vascular resistance
d. Dilation of veins
e. Decrease of the force of heart contractions

5. A mixed helminthic infestation, consisting of intestinal ascariasis and hepatic trematodosis, has been detected in a man. What anthelmintic should be prescribed in this case?

a. Chloxyl
b. Piperazine adipinate
c. Pyrantel
d. Levamisole
e. Mebendazole

6. Autopsy of a 58-year-old man, who for a long time has been drinking alcohol in large amounts and died at home, is being conducted. Macroscopically the right lung is dense and enlarged, its tissue is gray and homogeneous on section, its pleura is covered with grayish membranous deposits. Microscopically the alveolar cavities contain fibrin threads, neutrophils, and hemolysed erythrocytes. Make the diagnosis:

a. Primary pulmonary tuberculosis
b. Croupous pneumonia
c. Focal pneumonia
d. Interstitial pneumonia
e. Caseous pneumonia

7. A patient diagnosed with essential hypertension is taking enalapril. What is the mechanism of action of this hypotensive drug?

a. Phosphodiesterase inhibitor
b. Cyclooxygenase inhibitor
c. Angiotensin-converting enzyme inhibitor

d. Ca^{++ channel blocker
e. Angiotensin receptor blocker

8. After an industrial accident, a man was exposed to potassium cyanide, which resulted in cytochrome oxidase blockade in this man. What pathological process can be observed in the patient in this case?
a. Respiratory hypoxia
b. Hypoxic hypoxia
c. Tissue hypoxia
d. Hemic hypoxia
e. Circulatory hypoxia

9. A patient is diagnosed with an acute necrotizing pancreatitis. What peritoneal cavity will be immediately exposed to exudate?
a. Bursa subhepatica
b. Canalis lateralis dexter
c. Bursa pregastrica
d. Bursa omentalis
e. Canalis lateralis sinister

10. Microscopy of a skin biopsy material revealed granulomas consisting of epithelioid cells that were surrounded mainly by T-lymphocytes. Isolated giant multinucleated Langhans cells are located among the epithelioid cells. Some of the granulomas have areas of caseous necrosis in their center. There are no blood vessels. What disease are the described granulomas characteristic of?
a. Glanders
b. Syphilis
c. Rhinoscleroma
d. Leprosy
e. Tuberculosis

11. A 55-year-old patient is being monitored by an endocrinologist for disturbed endocrine function of the pancreas, which manifests as a decrease in glucagon levels in the blood. What pancreatic cells are dysfunctional in this case?
a. Delta-1 cells of the islets of Langerhans
b. Alpha cells of the islets of Langerhans
c. PP cells of the islets of Langerhans
d. Beta cells of the islets of Langerhans
e. Delta cells of the islets of Langerhans

12. A patient in the infectious diseases unit presents with elevated temperature up to 39^oC) ECG shows shortened R-R interval, P wave precedes each QRS complex. Heart rate is 120/min. What characteristic of the cardiac muscle is disturbed, causing the development of this pathological rhythm?
a. Automatism
b. Conductivity
c. Automatism and conductivity
d. Rhythm assimilation
e. Conductivity and rhythm assimilation

13. A 63-year-old woman had a gastrointestinal hemorrhage that exposed blood proteins to intestinal microorganisms, i.e. they became a subject of putrefaction. It resulted in an increased concentration of the following substance in the patient's blood:
a. Indole
b. Globulin
c. Creatinine
d. Albumin
e. Creatine

14. One of the causes of pernicious anemia is the disturbed synthesis of transcorrin - Castle's intrinsic

factor - in the parietal cells of the stomach. What substance is called Castle's extrinsic factor?

a. Cobalamin
b. Biotin
c. Pyridoxine
d. Riboflavin
e. Folic acid

15. Inhibition of nociceptive information occurs with the participation of many mediators, except:

a. Noradrenaline
b. Endorphin
c. Serotonin
d. GABA
e. Glutamate

16. A patient with hereditary hyperammonemia, caused by disturbed ornithine cycle, developed secondary orotaciduria. What metabolite of the ornithine cycle has high levels in this case, causing the increased synthesis of orotic acid?

a. Argininosuccinate
b. Ornithine
c. Carbamoyl phosphate
d. Citrulline
e. Urea

17. A lab rat has subcutaneously received mercury(II) chloride in the amount of 5 mg/kg. 24 hours later the plasma creatinine concentration increased several times. What mechanism of retention azotemia is observed in this case?

a. Increased creatinine reabsorption
b. Increased glomerular filtration
c. Increased creatinine production in the muscles
d. Decreased glomerular filtration
e. Increased creatinine secretion in the renal tubules

18. A 32-year-old man was diagnosed with acute radiation sickness. Laboratory analysis detected a sharp decrease in platelet serotonin levels. The most likely cause of a decrease in platelet serotonin is a disturbed decarboxylation of:

a. Pyruvic acid
b. 5-Oxytryptophan
c. Histidine
d. Serine
e. Tyrosine

19. A patient died of chronic renal failure. The patient's pericardial leaflets are dull-colored and have gray and thin filamentous coating. What pathological process occurred in the pericardium?

a. Proliferative inflammation
b. Serous inflammation
c. Purulent inflammation
d. Catarrhal inflammation
e. Fibrinous inflammation

20. After a hypertensive crisis, a man has lost voluntary movements in his right arm and leg. The muscle tone in these limbs is increased. What type of disorder of the nervous system's motor function is be observed in this case?

a. Central paralysis
b. Reflex paresis
c. Peripheral paresis
d. Central paresis
e. Peripheral paralysis

21. An embryonic organ, in which the first blood corpuscles are formed, is being studied. Name this

organ:
a. Red bone marrow
b. Liver
c. Thymus
d. Yolk sac
e. Spleen

22. In the process of protein conversion into the active form after biosynthesis, the proteins undergo certain postmodification changes. What change occurs when proinsulin transforms into insulin?
a. Acetylation
b. Formation of several subunits
c. Prosthetic group binding
d. Phosphorilation
e. C-peptide detachment

23. A man has a vitamin D deficiency, which causes the malabsorption of:
a. Chlorine
b. Iron
c. Calcium
d. Sodium
e. Water

24. Histology of the lungs of a premature baby shows that the alveoli stick together due to the absence of the surfactant. This condition is associated with the underdevelopment of certain cells in the alveolar wall. Name these cells.
a. Fibroblast-like cells
b. Respiratory alveolar cells
c. Secretory alveolar cells
d. Alveolar macrophages
e. Clara cells

25. A patient has telangiectasia and ataxia. Blood tests show reduced T lymphocyte count, absense of IgA, decreased levels of IgG and IgM. What syndrome is it characteristic of?
a. Wiskott-Aldrich syndrome
b. Klinefelter syndrome
c. Louis-Barr syndrome
d. Down syndrome
e. Turner syndrome

26. A patient has a perforated ulcer in the posterior gastric wall. Into what structure will the stomach contents be released in this case?
a. Bursa pregastrica
b. Bursa omentalis
c. Sinus mesentericus sinister
d. Sinus mesentericus dexter
e. Bursa hepatica

27. Chronic overdose of glucocorticoids leads to the development of hyperglycemia in a patient. Name the process of carbohydrate metabolism that results in elevated blood glucose levels:
a. Glycogenesis
b. Aerobic glycolysis
c. Pentose-phosphate pathway
d. Glycogenolysis
e. Gluconeogenesis

28. During blood transfusion, it is recommended to transfer only the blood of the corresponding group. In ABO system the blood group is determined by:
a. Blood serum proteins
b. Protein-polysaccharide components of leukocytes

c. Carbohydrate determinants of erythrocyte membranes
d. Carbohydrate determinants of leukocyte membranes
e. Protein determinants of erythrocyte membranes

29. To examine the retina, an ophthalmologist uses eye drops that cause persistent dilation of the pupil. What reflex process becomes disrupted in this case?
a. Peripheral vision
b. Blinking
c. Accommodation
d. Convergence of eyeballs
e. Refraction

30. Healthy parents gave birth to a son with phenylketonuria. The child presents with normal development due to a special diet. What type of variability is associated with the convalescence of this child?
a. Modification variability
b. Genotypic variability
c. Combinative variability
d. Somatic variability
e. Mutational variability

31. A 39-year-old man underwent a surgery for peptic ulcer disease of the stomach. He died 7 days after the surgery. On autopsy the peritoneal layers are plethoric, dull, and covered with massive yellow-green membranous deposits. The peritoneal cavity contains approximately 300 mL of thick yellow-green fluid. What pathologic process was detected in the peritoneal cavity?
a. Peritoneal commissures
b. Serous peritonitis
c. Fibrinopurulent peritonitis
d. Fibrinohemorrhagic peritonitis
e. Serofibrinous peritonitis

32. Famotidine was prescribed to a patient for the treatment of peptic ulcer disease of the stomach. What is the mechanism of action of this drug?
a. Effect on ion channels in cell membranes
b. Proton pump blockade
c. Effect on transport systems in cell membranes
d. Blockade of H_2-histamine receptors
e. Anti-enzymatic action

33. Examination of a patient shows decreased leukocyte and erythrocyte count and low hemoglobin levels in peripheric blood, as well as appearance of large cells (megaloblasts). What vitamin deficiency can cause these clinical presentations?
a. Biotin
b. Riboflavin
c. Folic acid
d. Ascorbic acid
e. Niacin

34. Antigen-presenting cells play a major role in the immune response in the process of cell cooperation. What cells are antigen-presenting?
a. Dendritic cells, killer T cells
b. Natural killers: NK and K cells
c. Helper T cells, B-lymphocytes
d. Macrophages, B-lymphocytes
e. Helper T cells, killer T cells

35. Systemic blood pressure of a person equals 120/65 mm Hg. Blood ejection into aorta occurs when left ventricular pressure exceeds:
a. 10 mm Hg

b. 65 mm Hg
c. 100 mm Hg
d. 90 mm Hg
e. 120 mm Hg

36. A patient has elevated blood pressure due to increased vascular tone. To lower the blood pressure in this case it is necessary to prescribe the blockers of:
a. beta-adrenoceptors
b. alpha- and beta-adrenoceptors
c. Muscarinic acetylcholine receptors
d. alpha-adrenoceptors
e. Histamine H1 receptors

37. A journalist for a long time was stationed in India. After his return from this country he developed a string-like torus on the right leg in subcutaneous tissues of the popliteal area. At the end of this torus a vesicle filled with necrotic masses was formed. What type of helminthiasis can be suspected?
a. Trichinosis
b. Enterobiasis
c. Opisthorchiasis
d. Ascariasis
e. Dracunculiasis

38. A doctor has detected a persistent arterial hypertension in a 45-year-old woman diagnosed with pyelonephritis. What is the mechanism of this condition development?
a. Activation of central cholinergic mechanisms
b. Activation of angiotensinase synthesis in the renal tissues
c. A decrease in the partial pressure of oxygen in the renal tissues
d. Activation of acidogenesis and ammonogenesis in the kidneys
e. Activation of the renin-angiotensin system

39. A 40-year-old man with impaired venous patency in the lower limbs developed edemas. What mechanism plays the main role in the development of this disturbance?
a. Hypoproteinemia
b. Decreased gradient of osmotic pressure between blood and tissue
c. Elevated filtration pressure
d. Disturbed humoral regulation of water-mineral balance
e. Positive fluid balance

40. A 40-year-old man with pulmonary tuberculosis was prescribed isoniazid. Prolonged taking of this drug can result in development of the following vitamin deficiency:
a. Pyridoxine
b. Thiamine
c. Folic acid
d. Biotin
e. Cobalamin

41. A 25-year-old woman complains of a rash on her torso. The doctor suspects secondary syphilis. What diagnostic method should be used to confirm this diagnosis?
a. Bacteriological
b. Biological
c. Virological
d. Allergy testing
e. Serological

42. A patient has been suffering from bronchial asthma for 15 years. What changes in the patient's leukogram can be expected in this case?
a. Eosinophilia
b. Leukopenia
c. Basophilia

d. Leukocytosis
e. Left shift

43. A 28-year-old woman was admitted to the gynecological deparment with complaints of abdominal pain. An ovarian tumor was clinically detected. Its surgical removal is indicated. During such surgery, it is necessary to cut the ligament connecting the ovary with the uterus. What ligament must the surgeon cut in this case?

a. Lig. Ovarii proprium
b. Lig. Cardinali
c. Lig. Latum uteri
d. Lig. Suspensorium ovarii
e. Lig. Umbilicale laterale

44. A patient with an acute transmural left ventricular myocardial infarction has died of cardiac rupture and tamponade. What process in the infarction zone could have contributed to the rupture?

a. Autolytic processes with pathologic softening of myocardial tissue (myomalacia)
b. Increased pressure in the pulmonary circulation
c. Replacement with connective tissue with a decrease in myocardial elasticity
d. Scar formation with thinning of the wall of the left cardiac ventricle
e. Thinning of the cicatricially-changed stomach wall with formation of an aneurysm

45. A 45-year-old man, who for a long time was keeping to a plant-based diet, has a negative nitrogen balance. What problem with the diet caused this condition in the patient?

a. Not enough fats
b. Not enough proteins
c. Not enough fats and proteins
d. Too much water
e. Too much carbohydrates

46. The only indication for narcotic analgesics (morphine, trimeperidine) is acute intense pain that is life-threatening for the patient. Why does this group of drugs have such limited indications for practical use?

a. Drug addiction
b. Cumulation
c. Hypersensitivity
d. Potentiation
e. Sensitization

47. A histological microslide shows an organ with mucosal lamina propria that contains simple tubular glands, consisting mostly of chief and parietal cells, as well as of mucous neck cells. What type of gland is it?

a. Esophageal cardiac glands
b. Cardiac gastric glands
c. Proper gastric glands
d. Esophageal glands proper
e. Pyloric gastric glands

48. During a surgery on the thyroid gland due to Basedow disease (toxic diffuse goiter), the patient's parathyroid glands were mistakenly removed. The patient developed seizures and tetany.Metabolism of which bioelement was disturbed?

a. Sodium
b. Calcium
c. Potassium
d. Iron
e. Magnesium

49. Floor of the crypts in the small intestine mucosa contains cells with acidophilic secretory granules and basophilic cytoplasm. These cells function as a part of the antibacterial defense of the body. Name these cells:

a. Cervical mucus cells
b. Endocrine cells
c. Exocrine goblet cells
d. Columnar epithelial cells
e. Paneth cells

50. A patient has a chromosomal disorder - Klinefelter syndrome - with the total number of chromosomes being 47 (karyotype XXY). The patient's somatic cells contain sex chromatin in the amount equal to X chromosome number minus 1. In somatic cells, sex chromatin is called:
a. Barr bodies
b. Cabot rings
c. Jolly bodies
d. Doehle bodies
e. Mallory bodies

51. A bacteriological laboratory studied canned meat that caused a severe toxicoinfection. Microscopy of the culture grown on Kitt-Tarozzi medium shows Gram-positive spore-forming bacilli that resemble a tennis racket. What diagnosis will be made by the doctor?
a. Tularemia
b. Dysentery
c. Botulism
d. Typhoid fever
e. Clamidiosis

52. A microspecimen of the heart demonstrates rectangular cells with a centrally located nucleus and well-developed myofibrils that are connected to each other with intercalated discs. What function is performed by these cells?
a. Cardiac contractions
b. Protective function
c. Regenerative function
d. Impulse conduction
e. Endocrine function

53. Autopsy of the body revealed a large wedge-shaped patch of a dense dark red tissue with clear margins in the upper lobe of the right lung. Histological examination detected there necrosis of the alveolar walls; the alveolar lumen is tightly packed with erythrocytes. What process occurred in the lungs?
a. Hemorrhage
b. Hemorrhagic infarction
c. Atelectasis
d. Gangrene
e. Carnification

54. Histological specimen shows parenchyma of an organ that consists of lymphoid tissue that forms lymph nodules; the nodules are located diffusely and have a central artery. What anatomical structure has such morphological characteristics?
a. Red bone marrow
b. Lymph node
c. Thymus
d. Spleen
e. Tonsil

55. One year after the resection of 2/3 of the stomach, the patient developed complaints of skin pallor, headaches, dizziness, and general weakness. Complete blood count: hemoglobin - 60 g/L, erythrocytes - 2.4·10^12/L. What is the cause of this pathological condition?
a. Increased folic acid levels
b. Decreased copper absorption
c. Increased secretion of Castle's intrinsic factor

d. Decreased secretion of Castle's intrinsic factor
e. Decreased folic acid levels

56. A patient diagnosed with diabetes mellitus presents with increased levels of ketone bodies in the blood. From what compound are ketone bodies synthesized?
a. Butyryl-CoA
b. Acetyl-CoA
c. Succinyl-CoA
d. Oxyacyl-CoA
e. Acyl-CoA

57. Mitochondrial respiratory chain contains complex cytochrome proteins. What type of reactions do they catalyze?
a. Reactions of decarboxylation
b. Reactions of transamination
c. Reactions of hydration
d. Redox reactions
e. Reactions of deamination

58. A 9-month-old baby is on formula-feeding. Formula used to feed the baby is imbalanced in its B_6 vitamin content. The child presents with convulsions that are likely to be caused by disturbed formation of:
a. Histamine
b. Serotonin
c. beta-alanine
d. GABA
e. Dopamine

59. A 23-year-old woman develops attacks of paroxysmal cough when the air temperature drops below 0^oC. What receptors are being stimulated in this case, causing these attacks?
a. Peripheral chemoreceptors
b. Central chemoreceptors
c. Pulmonary stretch receptors
d. Juxtaalveolar receptors
e. Irritant receptors

60. Examination of a man with signs of hypertension shows that the optimal medicine for him would be a drug that manages the blood pressure through the renin-angiotensin system. Name this drug:
a. Anaprilin (Propranolol)
b. Apressin (Hydralazine)
c. Octadine (Guanethidine)
d. Lisinopril
e. Dibazol (Bendazol)

61. Trauma of peripheral nerves leads to muscle atrophy, bones become porous and brittle, ulcers develop on the skin and mucosa. What function of the nervous system is affected in such cases?
a. Higher nervous activity
b. Trophic
c. Vegetative
d. Motor
e. Sensory

62. Autopsy of the body a 40-year-old man detected a dense subpleural area 1.5 cm in diameter with clear borders in the third segment of the right lung. The affected area is surrounded with whitish fibrous tissue and has crumbling white-yellow areas on section. What can be characterized by the presence of such a lesion focus?
a. Peripheral cancer
b. Chondroma
c. Fibroma

d. Organizing pulmonary infarction
e. Encapsulated primary affect

63. During appointment with the dentist, patients often develop anxiety, fear, and depression. These psychoemotional disturbances can be reduced if secretion of a certain mediator is intensified in the central nervous system. Name this mediator:
a. Serotonin
b. Noradrenaline
c. GABA
d. Dopamine
e. Acetylcholine

64. A doctor prescribed an analgesic to a patient for toothache relief. This analgesic does not irritate the lining of the alimentary canal and has no ulcerogenic effect. Name this drug.
a. Paracetamol
b. Naproxen
c. Ibuprofen
d. Acetylsalicylic acid
e. Phenylbutazone

65. Against the background of an allergic reaction, a child has developed laryngeal edema. What type of respiratory failure developed in this case?
a. Perfusion failure
b. Obstructive type
c. Diffusion failure
d. Restrictive type
e. Dysregulatory type

66. Autopsy of the body of a 52-year-old man, who had a long history of tuberculous prostatitis and died of meningoencephalitis, detected a large number of dense gray nodules 0.5-1 mm in diameter in the pia mater at the basal and lateral surfaces of the brain, spleen, kidneys, and liver. Histologically, these nodules consist of epithelioid, lymphoid, and a small number of giant cells with horseshoe-shaped nuclei located at the periphery of the cell. These changes indicate:
a. Peracute tuberculous sepsis
b. Macrofocal disseminated tuberculosis
c. Miliary tuberculosis
d. Secondary tuberculosis
e. Septicopyemia

67. After a collision of two cars, one of the drivers has an extremely painful deformity in the middle third of the left shin. The pain intensifies on an attempt to move the left shin. The ends of a bone with triangular section protrude from the wound. The blood loss increases. What bone is likely to be damaged?
a. Femur
b. Tibia
c. Talus
d. Patella
e. Fibula

68. A player injured his knee joint during a football match. X-ray clearly shows a fracture of the bone that is located within the thick of the quadriceps tendon of the thigh. What type of bone is it?
a. Sesamoid
b. Mixed
c. Flat
d. Pneumatic
e. Tubular

69. Histological microslide of a certain endocrine gland shows epithelial bands that consist of chromophile (acidophilic, basophilic) and chromophobe cells. What organ is it?

a. Neurohypophysis
b. Thyroid gland
c. Adrenal gland
d. Adenohypophysis
e. Pineal gland

70. Examination detected phenylpyruvic acid in patient's urine and elevated phenylalanine levels in the blood. The patient was diagnosed with phenylketonuria. What method can be used to confirm this diagnosis?
a. Cytogenetics
b. Genealogical method
c. Twin study
d. Biochemical method
e. Population statistics

71. Histology of the biopsy material obtained from a mammary gland detects large neoplastic epithelial cells in the epithelium of the ducts, the epidermis of the nipple, and the adjacent skin areas. These cells have a hyperchromic nucleus and pale cytoplasm. They originate from the epithelium of apocrine glands. The cells are isolated and located mostly along basal epidermal cells. What is the most likely diagnosis in this case?
a. Simple (usual) ductal hyperplasia
b. Paget's cancer
c. Infiltrating lobular cancer
d. Adenofibroma
e. Medullary cancer

72. A 7-year-old girl has been hospitalized with a high temperature and complaints of a sore throat and general weakness. The doctor suspected diphtheria and gave the instructions to obtain the material from the child's pharynx and isolate a pure culture of the causative agent. What is crucial in this case for the confirmation of the diagnosis?
a. Phagolysability
b. Toxigenicity test
c. Hemolytic ability of the pathogen
d. Cystinase test
e. Detection of volutine granules in the causative agent

73. A patient with high blood levels of sulfhemoglobin was brought into the intensive care unit. What type of hypoxia occurred in this case?
a. Exogenous type
b. Circulatory type
c. Hemic type
d. Respiratory type
e. Tissue type

74. The dangerous moments in the pathogenesis of myocardial necrosis is the further expansion of the zones of necrosis, dystrophy, and ischemia. An important role in this process belongs to the increased oxygen consumption by the myocardium. What substances contribute to this process?
a. Acetylcholine
b. Cholesterol
c. Adenosine
d. Catecholamines
e. Chlorine ions

75. A 20-year-old woman with intestinal polyposis has a history of frequent fungal and viral diseases. What part of the immune system is most likely to be deficient in this case?
a. Phagocytes
b. Natural killers
c. B-lymphocytes

d. Complement

e. T-lymphocytes

76. Hematologic study shows the following pattern: erythrocytes - 2,8·10^{12/L, Hb - 80 g/L, color index - 0.85, reticulocytes - 0,1%, platelets - 160 thousand per microliter, leukocytes - 60·10^9/L. Basocytes - 2%, eosinophils - 8%, promyelocytes - 5%, myelocytes - 5%, juvenile - 16%, stab neutrophils - 20%, segmented neutrophils - 34%, lymphocytes - 5%, monocytes - 5%. This clinical presentation indicates the following blood pathology:

a. Hypoplastic anemia

b. Undifferentiated leukemia

c. Acute myeloleukemia

d. Hemolytic anemia

e. Chronic myeloleukemia

77. Quinolones are the inhibitors of DNA gyrase enzyme. They are used in treatment of urogenital infections. What process do they primarily disrupt?

a. Translation

b. Recombination

c. Transcription

d. Replication

e. Repair

78. A 3-year-old girl with severe progression of chickenpox has facial defects and a Mongoloid eye-shape. Her blood test shows lymphocytopenia, though her levels of B-lymphocytes and blood immunoglobulins are normal. Her medical history states that the girl had convulsions and persistent mycosis of the oral mucosa. What immunodeficiency syndrome can be characterized by such clinical and laboratory findings?

a. Klinefelter syndrome

b. Wiskott-Aldrich syndrome

c. DiGeorge syndrome

d. Louis-Barr syndrome

e. Turner syndrome

79. Autopsy of the body of a 63-year-old man, who died of lung cancer, detected multiple metastases. What metastases can be classified as implantation (contact) metastases, based on their mechanism of development?

a. Metastases into the peribronchial, bifurcation, and paratracheal lymph nodes

b. Metastases into the brain

c. Invasion of the tumor from the bronchus into the esophagus

d. Metastases into the adrenal glands

e. Small multiple tumor nodules on the pleura

80. A patient has hemeralopia (impaired dark adaptation of the eyes). What vitamin supplement has an effect on the synthesis of visual purple and can improve vision?

a. Ergocalciferol

b. Nicotinic acid

c. Cyanocobalamin

d. Retinol acetate

e. Tocopherol acetate

81. A 12-year-old boy with clinical presentation of influenza has developed respiratory mycoplasmosis. What type of infection has developed under these conditions?

a. Mixed infection

b. Autoinfection

c. Iatrogenic infection

d. Superinfection

e. Relapse

82. Nosocomial pneumonia was diagnosed in a 38-year-old inpatient. The doctor prescribed the

patient a broad-spectrum antibiotic that is resistant to beta-lactamases, inhibits peptidoglycan synthesis in the bacterial membrane, and practically cannot be degraded by dehydropeptidase-1 in the renal tubules. What antibiotic did the patient receive?

a. Streptomycin
b. Levofloxacin
c. Erythromycin
d. Meropenem
e. Rifabutin

83. A patient with pheochromocytoma develops tachycardia, elevated blood pressure, and sharp pain in the epigastric region after mental stress. These attacks occur because of:

a. Release of noradrenaline by sympathetic nerves
b. Massive release of catecholamines by the adrenal glands
c. Increased secretion of thyroid hormones
d. Increased synthesis of adrenocorticotropic hormone
e. Activation of the vegetative nuclei of the hypothalamus

84. A toad was given a solution of a certain chemical substance. As a result, it responds with generalized convulsions to any kind of irritation. What was the toad given in this case?

a. Strychnine
b. Dopamine
c. Acetylcholine
d. Serotonin
e. Adrenalin

85. Microscopy of a lung tissue shows an inflamed area that consists of a necrotic focus surrounded by regular rows of epithelioid and lymphoid cells. There are plasma cells, macrophages, and Pirogov-Langhans giant multinucleated cells. Specify the type of such inflammation.

a. Tuberculous inflammation
b. Typical productive inflammation
c. Leprosy inflammation
d. Exudative inflammation
e. Alterative inflammation

86. After a long-term antibiotic therapy, a patient developed whitish spots on the oral mucosa. Gram-positive oval budding cells were detected in the prepared smears. Name these pathogens.

a. Candida fungi
b. Actinomycetes
c. Staphylococci
d. Tetracocci
e. Sarcina

87. A patient came to the dentist with complaints of pain and redness of oral mucosa and swollen gums. The patient was diagnosed with herpetic gingivostomatitis. This disease is likely to be caused by:

a. Herpes simplex virus 2
b. Epstein-Barr virus
c. Varicella zoster virus
d. Herpes simplex virus 1
e. Cytomegalovirus

88. A patient developed hemolytic jaundice as a result of transfusion of Rh-incompatible blood. What blood test value can confirm this type of jaundice?

a. Decreased levels of unconjugated bilirubin
b. Decreased stercobilin levels
c. Accumulation of urobilinogen
d. Decreased levels of conjugated bilirubin
e. Accumulation of unconjugated bilirubin

89. A 25-year-old patient against the background of acute pneumonia with fever of 40.1^oC presents with leukocytosis of 14.9 g/L with a marked left shift in the leukogram. What factor directly increases both proliferation and differentiation of leukocytes in the bone marrow?

a. Colony-stimulating factor
b. Interleukin-10
c. Prostacyclin
d. Tumor necrosis factor
e. Interleukin-1

90. Some diseases of large intestine lead to the changes in the quantitative ratio between mucosal epithelial cells. What cell types are normally predominant in the cryptal epithelium of the large intestine?

a. Poorly differentiated cells
b. Cells with acidophilic granules
c. Endocrine cells
d. Goblet cells
e. Ciliated columnar epithelial cells

91. Autopsy of the body of a 54-year-old man, who died with clinical signs of diffuse fibrinopurulent peritonitis, revealed that the mucosa in the terminal part of the ileum and in the initial part of the large intestine has numerous longitudinal fissure-like ulcers and transverse fissures, it is tubercular and has a cobblestone appearance. In some areas, perforation of ulcers with formation of intraperitoneal abscesses and fistulas was detected. What disease can be characterized by such changes?

a. Nonspecific ulcerative colitis
b. Typhoid fever
c. Crohn's disease
d. Pseudomembranous colitis
e. Menetrier's disease

92. A 37-year-old man, who has been smoking for 19 years, complains of a constant cough. Bronchial biopsy revealed signs of chronic inflammation, thickening of the mucosa, and transformation of unstratified ciliated epithelium into stratified squamous epithelium. What pathological process is observed in the patient?

a. Epithelial hypertrophy
b. Metaplasia
c. Dysplasia
d. Leukoplakia
e. Epithelial hyperplasia

93. A 22-year-old patient diagnosed with acute diphtheritic myocarditis developed clinical signs of cardiogenic shock. What is the leading pathogenetic mechanism in the development of this type of shock?

a. Blood deposition in the veins
b. Decreased diastolic blood flow to the heart
c. Increased vascular tone
d. Decreased vascular tone
e. Impaired pumping function of the heart

94. Anaprilin (propranolol) therapy had a positive effect on the disease course in a 44-year-old woman with angina pectoris. What is the mechanism of action of this drug?

a. Reduction of myocardial energy consumption due to reduced load
b. Reduction of oxidative metabolism in the myocardium due to blockade of the Krebs cycle enzymes
c. Beta-adrenergic receptor block and a decrease in myocardial oxygen demand
d. Decreased myocardial oxygen demand and increased oxygen supply to the myocardium
e. Increased oxygen supply to the myocardium

95. The main part of anaerobic infections treatment is timely administration of a serum with specific

antibodies. What is being neutralized by the serum in this case?
a. Anatoxin
b. Enterotoxin
c. Antitoxin
d. Anaerobic bacteria
e. Exotoxin

96. A man has stopped breathing as a result of an injury to the back of his head. What could have caused apnea in this case?
a. Damage to the medulla oblongata
b. A rupture of the spinal cord below the fifth cervical segment
c. Traumatic shock
d. A rupture between the mesencephalon and the medulla oblongata
e. Damage to the cerebellum

97. T lymphocytes were affected by HIV. In the process, viral enzyme reverse transcriptase (RNA-dependent DNA-polymerase) catalyzes the synthesis of:
a. Viral RNA on the DNA matrix
b. DNA on the viral RNA matrix
c. Informational RNA on the viral protein matrix
d. Viral protein on the viral RNA matrix
e. Viral DNA on the DNA matrix

98. A tricuspid valve defect was detected in a patient. Where is it located?
a. Opening of the coronary sinus
b. Aortic opening
c. Between the left atrium and left ventricle
d. Opening of the pulmonary trunk
e. Between the right atrium and right ventricle

99. During diabetes mellitus, the content of ketone bodies in the blood is increased, which leads to metabolic acidosis. Ketone bodies are synthesized from:
a. Succinyl-CoA
b. Acetyl-CoA
c. Propionyl-CoA
d. Methylmalonyl-CoA
e. Malonyl-CoA

100. A patient presents with absence of T-lymphocytes, facial defects, defects of thyroid and parathyroid glands, heart disease. Cellular immune responses do not develop. The patient was diagnosed with DiGeorge syndrome. This syndrome is caused by:
a. Primary B cell deficiency
b. Thymus hypoplasia
c. Combined immunodeficiency
d. Thymus hyperplasia
e. Primary T cell deficiency

101. Birds migrate from cold regions to warm regions every year, each time arriving to the same area. What instinct drives them?
a. Ecological instinct
b. Thermoregulating instinct
c. Orienting instinct
d. Protective instinct
e. Play instinct

102. A patient with an eye injury came to a doctor. Examination of the cornea detects changes in the anterior epithelium. What type of epithelium has undergone changes in this case?
a. Pseudostratified epithelium
b. Stratified cuboidal epithelium

c. Non-keratinized stratified squamous epithelium
d. Keratinized stratified squamous epithelium
e. Stratified columnar epithelium

103. A patient complains of red color of his urine and tears. According to his medical history, he undergoes treatment for pulmonary tuberculosis. What antituberculosis agent can cause this phenomenon?
a. Streptomycin sulfate
b. Ethionamide
c. Isoniazid
d. Rifampicin
e. Ethambutol

104. Autopsy of the body of a 45-year-old woman, who was suffering from upper-body obesity, steroid-induced diabetes mellitus, arterial hypertension, and secondary ovarian dysfunction, shows hypertrichosis, hirsutism, and striae on the skin of the thighs and abdomen. In the anterior part of the pituitary gland there is a tumor (microscopically it is a basophilic adenoma). In the adrenal glands, hyperplasia of the fascicular zone is observed. What diagnosis is the most likely?
a. Pituitary dwarfism
b. Cushing syndrome
c. Adiposogenital dystrophy
d. Cushing disease
e. Simmonds disease

105. In the lungs, an enzyme breaks down carbonic acid (H_2CO_3) into water and carbon dioxide that is released with the air. What enzyme catalyzes this reaction?
a. Cytochrome
b. Carbonic anhydrase
c. Cytochrome oxidase
d. Peroxidase
e. Catalase

106. A man presents with decreased blood pH, low levels of bicarbonate ions (a drop in the blood alkaline reserve), and increased blood and urine levels of lactic and pyruvic acids. What type of acid-base imbalance is it?
a. Mixed alkalosis
b. Respiratory alkalosis
c. Metabolic acidosis
d. Respiratory acidosis
e. Metabolic alkalosis

107. A patient has been diagnosed with chronic gastritis. Intragastric pH-metry detects decreased acidity of the gastric juice. What cells have a reduced function in this case?
a. Enteroendocrine cells
b. -
c. Mucocytes
d. Gastric chief cells
e. Gastric parietal cells

108. Some people have a hereditary disease with a complex of sympthoms that include hepatic cirrhosis and dystrophic processes in the brain. This disease is accompanied by decreasing plasma ceruloplasmin levels and disturbed copper metabolism. What disease is it?
a. Gilbert syndrome
b. Tay-Sachs disease
c. Marfan syndrome
d. Wilson disease
e. Niemann-Pick disease

109. A woman came to a doctor with complaints of a lump in the upper lateral area of her right

breast. What lymph nodes should the doctor check to make sure that the pathological process has not spread?

a. Parasternal
b. Anterior mediastinal
c. Intercostal
d. Axillary
e. Superior diaphragmatic

110. A study of residual nitrogen shows that urea nitrogen is significantly reduced. What organ is affected, as indicated by this characteristic?

a. Heart
b. Intestine
c. Liver
d. Stomach
e. Brain

111. A 21-year-old patient complains of weakness and elevated temperature up to 38-40^oC) Objectively the liver and spleen are enlarged. In blood: Hb- 100 g/L, erythrocytes - 2.9·10^{12/L, leukocytes - 4.4·10^9/L, platelets - 48·10^9/L, segmented neutrophils - 17%, lymphocytes - 15%, blast cells - 68%. All cytochemical reactions of blast cells are negative. What hematologic conclusion can be made?

a. Acute erythromyelosis
b. Chronic myeloid leukemia
c. Undifferentiated leukemia
d. Acute myeloblastic leukemia
e. Acute lymphoblastic leukemia

112. A 60-year-old man was taking digoxin systematically. His condition first improved and then started to deteriorate. He developed bradycardia and arrhythmia. What is the underlying phenomenon of this state?

a. Enzyme induction
b. Reduced sensitivity of adrenergic receptors
c. Tachyphylaxis
d. Allergy
e. Material cumulation

113. Biopsy material obtained from thickened nasal mucosa of a 29-year-old woman, who has problems with nasal breathing, contains clusters of lymphocytes, plasma cells, and epithelioid cells, among which there are numerous round hyaline inclusions (Russell bodies) and large macrophages with pale cytoplasm (Mikulicz cells). What type of inflammation developed in the patient's nasal mucosa?

a. With formation of polyps and pointed condylomas
b. Interstitial
c. Exudative
d. Mixed type
e. Granulomatous

114. A 45-year-old man with a past case of left-sided croupous pneumonia died of multiple trauma in a traffic accident. Autopsy shows that the posteriolateral wall of the lower left pulmonary lobe is fused to the chest wall with fibrous commissures. The lobe is shrunken, dense, pink-gray. It has meat-like appearance on section and its pieces sink in the water. Histology shows diffuse proliferation of fibrous connective tissue in these areas. What complication of croupous pneumonia is it?

a. Emphysema
b. Atelectasis
c. Abscess
d. Gangrene
e. Carnification

115. Gene expression is regulated by various mechanisms. What DNA segments activate the gene expression, when induced?

a. Terminator
b. Attenuator
c. Spacer
d. Silencer
e. Enhancer

116. A patient with myocardial infarction has acute heart failure. Among the drugs that increase the force of heart contractions the least dangerous drug in this case will be:

a. Dobutamine
b. Caffeine
c. Adrenaline
d. Euphyllin (Aminophylline)
e. Isadrine (Isoprenaline)

117. Based on their ability to be synthesized in the human body, all proteinogenic amino acids are divided into replaceable, essential, and conditionally essential. Which of the listed amino acids is essential?

a. Proline
b. Serine
c. Phenylalanine
d. Glutamine
e. Tyrosine

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

a. Lysosomal enzymes
b. Cyclooxygenase-1
c. Kallikrein
d. Adenylate cyclase
e. Cyclooxygenase-2

119. A dental patient complains of a painful burning sensation in his tongue and general weakness. Complete blood count shows that the patient has megaloblastic hyperchromic anemia. What drug should be prescribed in this case?

a. Cyanocobalamin
b. Ofloxacin
c. Biseptol (Co-trimoxazole)
d. Paracetamol
e. Nootropil (Piracetam)

120. A 60-year-old man complains of joint pain. Increased levels of C-reactive protein and oxyproline were detected in his blood serum. What disease can be characterized by these symptoms?

a. Diabetes mellitus
b. Hepatitis
c. Rheumatism
d. Gout
e. Jaundice

121. A woman giving birth has an increased pain threshold due to activation of the following system:

a. Sympathoadrenal
b. Sympathoadrenal and pituitary-adrenal
c. Antinociceptive
d. Pituitary-adrenal and antinociceptive
e. Sympathoadrenal and antinociceptive

122. A 45-year-old patient came to a doctor with complaints of headache, dizziness, frequent nausea, vomiting, muscle weakness, and pain in the area of the heart. Blood pressure - 170/110 mm Hg. Sodium levels in peripheral blood - 165 mmol/L, potassium levels - 2.5 mmol/L. Computed tomography detected a tumor 1 cm in size in the left adrenal gland. What changes in the acid-base balance would be observed in this case?

a. No acid-base imbalance occurs
b. Respiratory acidosis
c. Respiratory alkalosis
d. Metabolic acidosis
e. Metabolic alkalosis

123. A man has tissue ischemia below the knee joint, accompanied by intermittent claudication. What artery is likely to be occluded in this case?

a. Descending genicular artery
b. Dorsalis pedis artery
c. Popliteal artery
d. Deep femoral artery
e. Proximal femoral artery

124. A smear prepared from the material obtained from a patient with suspected diphtheria contains yellow bacilli with blue grains at their ends. What staining was used in this case?

a. Loeffler
b. Neisser
c. Romanowsky
d. Ziehl-Nielsen
e. Kozlovsky

125. As a part of complex therapy for gastric ulcer, the doctor has prescribed an antibiotic to a 30-year-old woman who is at week 32 of her pregnancy. What drug can be recommended in case of such a complication?

a. Levomycetin (Chloramphenicol)
b. Gentamicin
c. Azithromycin
d. Tetracycline
e. Benzylpenicillin

126. It has been established that from the same amount of glucose a tumor tissue receives 20-25 times less energy than a healthy cell. This phenomenon indicates the following change in the tumor glucose metabolism:

a. Normal ratio of the processes
b. Intensified tissue respiration
c. Intensified anaerobic glycolysis
d. Decreased anaerobic respiration
e. Intensified oxidative processes

127. Carboxybiotin is a coenzyme form of vitamin H. This vitamin takes part in the following process in the human body:

a. Decarboxylation of amino acids
b. Hydroxylation of proline
c. Tricarboxylic acid cycle
d. Transamination of acids
e. Biosynthesis of higher fatty acids

128. An older woman has broken her arm four times already. What substance makes bones more fragile, if its concentration is increased?

a. Water
b. Organic substances
c. Nonorganic substances

d. Binding substance
e. Extracellular fluid

129. For relief of pain syndrome, a patient with myocardial infarction was prescribed an analgesic. The patient's condition improved, but with time the patient developed euphoria and miosis. The doctor noted respiratory depression. What medicine was prescribed in this case?
a. Ibuprofen
b. Meloxicam
c. Morphine hydrochloride
d. Paracetamol
e. Baralgin (Metamizole)

130. A 35-year-old man with a hand injury came to the traumatology department. Examination revealed an incised wound on the palmar surface of the left hand; middle phalanges of digits II-IV cannot be flexed. What muscles are damaged?
a. Palmar interossei
b. Dorsal interossei
c. Flexor digitorum superficialis
d. Lumbrical muscles
e. Flexor digitorum profundus

131. A 65-year-old woman, who had been suffering from deep vein thrombophlebitis of the lower leg, suddenly died when awaiting her appointment with the doctor. Autopsy revealed loose friable red masses with corrugated dull surface in the main pulmonary artery and its bifurcation. What pathologic process was discovered by the pathologist in the pulmonary artery?
a. Thrombosis
b. Fat embolism
c. Foreign body embolism
d. Thromboembolism
e. Tissue embolism

132. A number of blood and connective tissue cells participate in the synthesis and release of inflammatory mediators. In what cells is interleukin-1 synthesized?
a. Tissue basophils
b. Eosinophilic granulocytes
c. Lymphocytes
d. Macrophages
e. Platelets

133. A man with type 2 diabetes mellitus has developed hyperglycemic coma (blood glucose levels - 56 mmol/L). What pathological phenomenon is the cause of the brain cell dysfunction in this case?
a. Energy deficit
b. Ionic imbalance
c. Hyperhydration of brain cells (swelling)
d. Toxic damage
e. Hypohydration of brain cells

134. A woman came to a doctor with complaints of redness and itching of the skin of her face after using a cosmetic cream. She was prescribed diphenhydramine. What is the mechanism of antiallergic action of this drug?
a. Blockade of H_1-histamine receptors
b. Stimulation of H_1-histamine receptors
c. Stimulation of beta-adrenoreceptors
d. Blockade of H_2-histamine receptors
e. Inhibition of leukotriene receptors

135. A 55-year-old man suddenly developed strong palpitations and pain in the heart, sudden weakness, increased blood pressure, and irregular pulse with a deficit. ECG has no P waves and a varying duration of RR intervals. What heart rhythm disorder is observed in this patient?

a. Extrasystole
b. Respiratory arrhythmia
c. Ciliary arrhythmia
d. Paroxysmal tachycardia
e. Transverse heart block

136. A patient presents with a sharp decrease in oncotic pressure and albumin levels in the blood plasma. What would be the result of this condition?
a. Increased blood density
b. Edema
c. Reduced diuresis
d. Reduced ESR
e. Increased blood volume

137. A 64-year-old woman has suffered a pathological fracture of the humerus. Biopsy detects atypical plasma cells. X-ray shows tumor-like formations at the fracture site. What disease is likely in this case?
a. Chondrosarcoma
b. Chronic osteomyelitis
c. Fibrous dysplasia of bone
d. Adenocarcinoma metastasis
e. Myeloma disease

138. When eating food that contains gluten protein, a person can develop celiac disease (gluten disease). The following signs are characteristic for this condition: the intestinal villi degenerate and lose their absorptive function, while the patient develops diarrhea, steatorrhea, abdominal distention, weight loss, and other extraintestinal signs. Gluten is a protein of:
a. Rice
b. Wild strawberries
c. Eggs
d. Corn
e. Wheat

139. Microscopy of the liver biopsy material obtained from a woman with a 10-year-long history of fatty hepatosis revealed the following: dilation and sclerosis of the portal and periportal tracts, small pseudolobules separated by narrow layers of connective tissue, marked presence of medium and large fat droplets in hepatocytic cytoplasm. What disease can be characterized by these signs?
a. Primary biliary cirrhosis of the liver
b. Portal cirrhosis of the liver
c. Postnecrotic cirrhosis of the liver
d. Incomplete septal cirrhosis of the liver
e. Secondary biliary cirrhosis of the liver

140. Histology of the neck of the proper gastric gland reveals small cells with high nuclear-cytoplasmic ratio and mitotic figures. What is the function of these cells?
a. Epithelial regeneration
b. Endocrine
c. Secretion of Cl^- ions
d. Pepsinogen secretion
e. Protective

141. A man suffers from cortical blindness. In this case, thrombosis developed in the following artery:
a. Medial cerebral artery
b. Anterior cerebral artery
c. Posterior communicating artery
d. Anterior choroid artery
e. Posterior cerebral artery

142. In an experiment, pluripotent embryonic stem cells were obtained from a human blastocyst.

Over the course of the next several months, they formed millions of new cells in a nutrient medium at the laboratory. What is the name of the process of multiple cell renewal?

a. Repair

b. Proliferation

c. Maturation

d. Apoptosis

e. Differentiation

143. A woman complains of itching and burning in her external genitalia and purulent frothy discharge from them. Discharge samples contain unicellular pear-shaped organisms with 4 flagella, undulating membrane, and a spike on one end of their bodies. What species do they belong to?

a. Lamblia intestinalis

b. Trichomonas hominis

c. Toxoplasma gondii

d. Entamoeba gingivalis

e. Trichomonas vaginalis

144. When a person's body adapts to being high up in the mountains, the synthesis of 2,3-diphosphoglycerate in erythrocytes increases. What is the effect of this substance?

a. Stimulates oxyhemoglobin dissociation

b. Stimulates oxyhemoglobin formation

c. Stimulates tissue respiration

d. Stimulates oxidative phosphorylation

e. Stimulates carbhemoglobin formation

145. A person presents with base metabolism that exceeds normal by 8%. It means that the processes of energy metabolism in this person are:

a. Moderately increased

b. Significantly increased

c. Within normal range

d. Moderately inhibited

e. Significantly inhibited

146. The mother of a 2-year-old boy brought him to a hospital complaining of enlargement of her child's scrotum. After examination, the child was diagnosed with hydrocele testis (fluid accumulation between the testicular membranes). What tunic of the testicle contains this fluid?

a. Internal spermatic fascia

b. Tunica vaginalis

c. Tunica albuginea

d. Tunica dartos

e. External spermatic fascia

147. During the emergency ascent from the depths, a diver developed seizures with loss of consciousness. What is the main pathogenetic mechanism in the development of these disorders?

a. Hypoxia

b. Toxic effect of nitrogen

c. Toxic effect of oxygen

d. Hypercapnia

e. Gas embolism

148. A patient with diabetes mellitus developed a diabetic coma because of an acid-base imbalance. What type of imbalance occurred in this case?

a. Mixed alkalosis

b. Nongaseous alkalosis

c. Metabolic acidosis

d. Respiratory acidosis

e. Metabolic alkalosis

149. A 5-year-old child is diagnosed with Bruton's disease (X-linked agammaglobulinemia) that

manifests itself in severe clinical course of bacterial infections and absence of B lymphocytes and plasma cells. What changes of immunoglobulin content can be observed in blood serum of the child with immunodeficiency?

a. Decreased IgD, IgE
b. Increased IgD, IgE
c. Decreased IgA, IgM
d. Increased IgA, IgM
e. No changes

150. Electronic microphotograph of a renal corpuscle shows certain cells with processes between the capillaries of the vascular glomerulus. There is a large number of filaments in their cytoplasm. Name these cells:

a. Juxtavascular
b. Adventitial
c. Mesangial
d. Juxtaglomerular
e. Fibroblasts

151. A woman presents with weight loss, exophthalmus, tachycardia, negative nitrogen balance, high blood glucose and high blood levels of free fatty acids. What dysfunction can be characterized by such changes?

a. Adrenal insufficiency
b. Hyperthyroidism
c. Diabetes mellitus
d. Hypothyroidism
e. Overproduction of growth hormone

152. A 2.5-year-old child is provisionally diagnosed with pharyngeal diphtheria. Smear from the child's mucosa was obtained and inoculated into a coagulated equine serum. What is the purpose of this stage of microbiological diagnostics?

a. Detection of toxigenicity
b. Pure culture isolation
c. Determination of toxin serotype
d. Determination of biochemical properties
e. Analysis of antigenic properties

153. A woman with a pregnancy pathology needs medical anesthesia for childbirth. What medication can be prescribed in this case?

a. Trimeperidine
b. Morphine
c. Fentanyl
d. Metamizole sodium
e. -

154. A child has 3 copies of chromosome 18, which resulted in characteristic cranial elongation from front to back, maldevelopments of the musculoskeletal system, fused fingers, and maldevelopments of skeletal muscles. What hereditary pathology is observed in this child?

a. Down syndrome
b. Edwards syndrome
c. Turner syndrome
d. Patau syndrome
e. Klinefelter syndrome

155. After a trauma the patient cannot extend his arm in the elbow joint. This condition is likely to be caused by functional disturbance of the following muscle:

a. M. brachialis
b. M. coraco-brachialis
c. M. biceps brachii

d. M. subscapularis
e. M. triceps brachii

156. A 55-year-old man was examined by the endocrinologist because of a disturbance in the pancreatic endocrine function. This disturbance manifests as decreased blood glucagon levels. What cells of this gland do not function properly in this case?
a. PP cells
b. B cells
c. D1 cells
d. A cells
e. D cells

157. A patient developed punctate hemorrhages after a tourniquet had been applied. It occurred due to functional disturbance of the following blood corpuscles:
a. Monocytes
b. Neutrophils
c. Platelets
d. Eosinophils
e. Lymphocytes

158. A 30-year-old person has been stung by a bee. The stung area exhibits edema, hyperemia, and elevated temperature. What is the initial pathogenetic factor of inflammatory edema in this case?
a. Increase of osmotic pressure in the inflammation focus
b. Decrease of oncotic blood pressure
c. Increase of microvascular permeability
d. Increase of capillary blood pressure
e. Disturbed lymphatic efflux

159. A 65-year-old woman diagnosed with Dressler syndrome was hospitalized into the cardiology department. She has a history of myocardial infarction. What additional clinical and laboratory findings can confirm the diagnosis of Dressler syndrome?
a. Fever
b. Increased levels of blood autoantibodies
c. Increased activity of aspartate aminotransferase in the blood
d. Increased ESR
e. Leukocytosis

160. A patient with bilateral adrenal damage developed dark-brown skin color. Histochemical analysis of the patient's skin shows negative Perls reaction. What pigment caused the skin discoloration in this case?
a. Melanin
b. Hemosiderin
c. Lipofuscin
d. Biliverdine
e. Porphyrin

161. Family of a 52-year-old man brought him to a doctor with complaints that he does not understand spoken words, despite being able to speak himself. He cannot read written text, as well. Where is the brain damage localized in this case?
a. In the cortex of the posterior part of the superior temporal gyrus
b. In the cortex of the anterior part of the superior temporal gyrus
c. -
d. In the cortex of the posterior part of the inferior frontal gyrus
e. In the hippocampus

162. Copper deficiency has an effect on energy metabolism in the human body. What substance becomes deficient as a result of this process?
a. Arginase
b. Pyruvate carboxylase

c. Lactate dehydrogenase
d. Cytochrome oxidase
e. Succinate dehydrogenase

163. A patient has been diagnosed with mucopolysaccharidosis. In this disease, certain substances typically become deposited in various tissues of the body. Name these substances.
a. Fructose
b. Fatty acids
c. Glycogen
d. Triglycerides
e. Glycosaminoglycans

164. Oxygen tension in the arterial blood of a person has increased to 104 mm Hg., while carbon dioxide tension has been reduced to 36 mm Hg. It is likely to be caused by:
a. High altitude
b. Holding one's breath
c. Moderate physical exertion
d. Voluntary hyperventilation
e. Intense physical exertion

165. Examination of the oral cavity of a 50-year-old man, who smokes for a long time, revealed an irregularly-shaped white plaque on the buccal mucosa. Histology detects thickening of stratified squamous epithelium, parakeratosis, hyperkeratosis, and acanthosis. What pathological process is observed in the patient?
a. Leukoplakia
b. Avitaminosis A
c. Keratoacanthoma
d. Hypertrophic glossitis
e. Chronic stomatitis

166. After a week of starvation, blood glucose levels maintain stability due to the following process:
a. Glycogen phosphorolysis
b. Gluconeogenesis
c. Glycogenolysis
d. Tricarboxylic acid cycle
e. Glycolysis

167. Blood test shows low hemoglobin levels. What function of the blood will be disturbed in this case?
a. Hormone transport
b. Immunity maintenance
c. Gas transport
d. Nutrient transport
e. Coagulability

168. A 67-year-old woman has gastric cancer with metastases in the liver. What characteristic of tumor cells gives them the ability to form metastases?
a. Autonomy
b. Rapid growth
c. Biochemical atypism
d. Infiltrative growth
e. Immunological anaplasia

169. A 5-year-old child with fever and a maculopapular rash on the skin has been hospitalized into the infectious diseases department. The doctor diagnosed the child with measles. Serological testing detects specific antibodies in the blood serum. What class of immunoglobulins indicates the acute (initial) stage of a viral infection?
a. IgG
b. IgM

c. IgA
d. IgE
e. IgD

170. Before surgery, a patient with a hepatic disorder was prescribed a drug that activates the synthesis of blood coagulation factors and is a synthetic water-soluble analogue of a certain vitamin. Name this drug.
a. Validol (Menthyl isovalerate)
b. Neostigmine
c. Menadione
d. Neodicumarin
e. Heparin

171. When examining a patient with bleeding wounds on the skin of the head, a doctor detected tissue damage caused by larvae, as well as local areas of suppuration. The diagnosis of obligate myiasis was established. What pathogen causes this condition?
a. Stomoxys calcitrans
b. Glossina (Tsetse fly)
c. Triatominae
d. Musca domestica
e. Wohlfahrtia magnifica

172. You work with the following specimens: 1) brucellosis topical vaccine; 2) leptospirosis vaccine; 3) BCG vaccine; 4) adsorbed diphtheria-tetanus pertussis vaccine (DTP vaccine); 5) tetanus toxoid adsorbed. What kind of immunity do they produce?
a. Antitoxic immunity
b. Artificial active immunity
c. Artificial passive immunity
d. Non-sterilizing (infectious) immunity
e. Antibacterial immunity

173. Laboratory analysis of blood respiratory function determined that the CO_2 transport has worsened. It is likely to be caused by an enzyme deficiency. What enzyme is deficient in this case?
a. Protein kinase
b. 2,3-Diphosphoglycerate
c. Phosphorylase
d. Carbonic anhydrase
e. Adenylate cyclase

174. A patient has plasma glucose levels of 15 mmol/L, polyuria, thirst. What hormone levels are low in the patient's blood, causing such changes?
a. Glucagon
b. Growth hormone
c. Cortisol
d. Insulin
e. Growth hormone-releasing factor

175. A 25-year-old woman, who gave birth one month ago, complains of decreased lactation. What hormone is deficient in this case, causing this condition?
a. Prolactin
b. Adrenocorticotropic hormone
c. Somatostatin
d. Insulin
e. Glucagon

176. Exo- and endotoxins, aggression enzymes play a significant role in the pathogenesis of cholera. Dehydration is the main syndrome of this disease. Which of the following pathogenetic effects is the main cause of dehydration?
a. Neuraminic acid elimination

b. Membrane phospholipid defect
c. Mucin destruction
d. Hyaluronic acid destruction
e. Adenylate cyclase activation

177. A patient takes choleretic drugs. What process, besides bile secretion, do they stimulate?
a. Secretion of pancreatic juice
b. Secretion of gastric juice
c. Intestinal motility
d. Water absorption
e. Gastric motility

178. A 6-year-old child died of respiratory failure due to paralysis of the respiratory muscles. Histology of the thoracic spinal cord shows hyperemia, a smoothed out pattern of the gray matter, droplet hemorrhages, small concave areas of softened brain tissues, and inflammation with proliferation of neuroglia around dead neurons. What disease can be characterized by these pathological changes?
a. Adenovirus infection
b. Toxoplasmosis
c. Cytomegaly
d. Poliomyelitis
e. Meningococcal infection

179. A patient was hospitalized with provisional diagnosis of acute pancreatitis. What enzyme will have a markedly increased activity in the patient's blood and urine in this case?
a. Creatine phosphokinase
b. Aspartate aminotransferase
c. Alpha-amylase
d. Alanine aminotransferase
e. Lactate dehydrogenase

180. What must be added to donor blood preserved with sodium citrate to provoke its clotting?
a. Prothrombin
b. Fibrinogen
c. Calcium ions
d. Sodium ions
e. Vitamin K

181. A patient has been hospitalized with complaints of headache, muscle pain during movements, weakness, fever, and edema of the eyelids and face. The doctor suspects that this condition was caused by eating pork bought at an unofficial market. What provisional diagnosis can the doctor make in this case?
a. Trichinellosis
b. Fascioliasis
c. Taeniasis
d. Opisthorchiasis
e. Taeniarhynchosis

182. A young man came to a doctor with complaints of pain in his heart. It turns out that he drinks up to 8 cups of coffee per day. What is the effect of the caffeine contained in coffee on the human heart?
a. Increases body temperature
b. Causes narrowing of coronary vessels
c. Decreases the force of heart contractions
d. Causes tachycardia, increases myocardial oxygen demand
e. Slows down conduction in the heart