

1. The doctor stated the absence of respiration and cardiac activity in a traffic accident victim. This condition lasts for 1 minute already. This clinical presentation corresponds with the following terminal state:

- a. Agony
- b. Clinical death**
- c. Preagony
- d. Traumatic shock, torpid phase
- e. Traumatic shock, erectile phase

2. On histological examination of biopsy material taken from the liver of a woman, who for a long time had been suffering from viral hepatitis type B, the pathologist detected diffuse hepatic fibrosis with formation of porto-portal and porto-central fibrotic septa and disturbance of the liver lobular structure (development of pseudolobules). What process can be characterized by the given morphological changes?

- a. Acute hepatitis
- b. Hepatocellular carcinoma
- c. Cholestasis
- d. Chronic hepatitis
- e. Hepatic cirrhosis**

3. A man came to a dentist with complaints of pain, redness, and swelling of the gums. He was provisionally diagnosed with herpetic gingivostomatitis. What virus can cause this disease?

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

4. Resuscitation unit received a patient with acute poisoning caused by unidentified medicine. To quickly excrete the poison from the patient's body, forced diuresis was induced. What substance was used to perform this procedure?

- a. Furosemide**
- b. Spironolactone
- c. Dithylinum (Suxamethonium chloride)
- d. Omeprazole
- e. Hydrochlorothiazide

5. What receptors respond to changes in gas composition of the blood that enters the brain?

- a. Carotid sinus receptors**
- b. Bulbar receptors
- c. Aortic receptors
- d. -
- e. All of the listed

6. A 58-year-old man with acute heart failure developed decreased daily diuresis - oliguria. What is the mechanism of this phenomenon?

- a. Decreased permeability of membrane glomeruli
- b. Decreased glomerular filtration**
- c. Decreased oncotic blood pressure
- d. Decreased number of functional glomeruli
- e. Increased hydrostatic pressure on the capillary wall

7. What bioactive substance stimulates the release of bicarbonate ions by the cells of the pancreatic ducts?

- a. Histamine
- b. -
- c. Secretin**
- d. Cholecystokinin-pancreozymin (CCK-PZ)

e. Gastrin

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

- a. Lipoxygenase
- b. Phospholipase A2
- c. Phospholipase C

d. Cyclooxygenase

e. Phosphodiesterase

9. During examination of the oral cavity at the vestibular surface of the lower right incisor there was detected a rounded growth on the thin pedicle. Histologically: in the connective tissue there are numerous thin-walled sinusoids, hemorrhage areas, hemosiderin foci, and giant cells resembling osteoclasts. Make the diagnosis:

- a. Angiomatous epulis
- b. Granular cell ameloblastoma
- c. Cavernous hemangioma
- d. Gingival fibromatosis

e. Giant cell epulis

10. 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. cGMP
- c. Inositol triphosphate
- d. Diacylglycerol
- e. Ca^{2+}

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

- a. Malaria
- b. Trypanosomiasis
- c. Urogenital trichomoniasis
- d. Toxoplasmosis

e. Cutaneous leishmaniasis

12. After facial trauma the patient developed a buccal hematoma. What salivary gland has its outflow blocked by the hematoma?

- a. Lingual
- b. Sublingual
- c. Submandibular

d. Parotid

e. Buccal

13. A patient presents with osteoporosis; hypercalcemia and hypophosphatemia are observed in the patient's blood. What is the cause of this condition?

- a. Inhibited parathormone secretion
- b. Increased corticosteroid secretion
- c. Increased thyroxin secretion
- d. Inhibited corticosteroid secretion

e. Increased parathormone secretion

14. During DNA sequencing and biochemical analysis of a polypeptide, it was determined that the linear sequence of nucleotide triplets corresponds with the amino acid sequence in the polypeptide chain. What characteristic of the genetic code was determined?

a. Collinearity

- b. Degeneracy
- c. Nonoverlapping
- d. Triplet nature

e. Universality

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

- a. Semi-stem osteogenic cells
- b. Mesenchymal cells
- c. Chondroblasts
- d. Osteoclasts**
- e. Chondrocytes

16. 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. Contractile cardiomyocytes
- c. Lipocytes
- d. Endocrine cells
- e. Pacemaker cells

17. A patient with ischemic heart disease presents with increased blood plasma content of triglycerides and very low-density lipoproteins. What drug should be prescribed?

- a. Lisinopril
- b. Dobutamine
- c. Famotidine
- d. Amiodarone
- e. Fenofibrate**

18. The microslide of a parenchymatous organ shows hexagonal lobules with blurry margins and a vein in the center of each lobule. In the interlobular connective tissue there are triads, consisting of an artery, a vein, and an excretory duct. What organ is it?

- a. Thyroid
- b. Liver**
- c. Pancreas
- d. Spleen
- e. Thymus

19. A patient with chronic hepatitis undergoes blood test for serum protein fractions. Total protein levels are low, which indicates that in the hepatic cells the following organelles are functionally disturbed:

- a. Mitochondria
- b. Lysosomes
- c. Granular endoplasmic reticulum**
- d. Cytoskeleton
- e. Golgi apparatus

20. A patient came to the traumatologist with complaints of developing difficulties during active extension of elbow. What muscle is the most likely to be damaged?

- a. M. triceps brachii**
- b. M. latissimus dorsi
- c. M. pectoralis minor
- d. M. deltoideus
- e. M. coracobrachialis

21. An athlete overexerted himself during a training and developed a muscle contracture. In such cases the muscle loses its flexibility and gradually becomes rigid due to its inability to relax. What is the likely cause of the contracture in this case?

- a. Increased blood levels of K^{+}
- b. Decreased blood levels of Ca^{++}
- c. ATP deficiency**

- d. Tropomyosin structural changes
- e. Increased blood levels of lactic acid

22. A 23-year-old man developed a perforation in his hard palate, a dense formation with clear margins was detected in this area. After a surgery, microscopy of the excised formation shows there a large focus of caseous necrosis surrounded with a granulation tissue with endovascularitis and a cellular infiltration consisting of lymphocytes and epithelioid cells with predominance of plasma cells. What is the most likely disease in this case?

- a. Scleroma
- b. Tuberculosis
- c. Syphilis**
- d. Sarcoma
- e. Leprosy

23. Impaired coordination of movements and disturbed muscle tone are signs of alcohol intoxication. These changes are associated with damage to certain cells in the cerebellum. Name these cells.

- a. Stellate cells of the molecular layer
- b. Basket cells of the granular layer
- c. Golgi cells of the granular layer
- d. Pear-shaped neurons of the Purkinje layer**
- e. Purkinje cells of the molecular layer

24. In a 46-year-old man, examination revealed the processes of cartilaginous tissue destruction in the knee joints. What are the specific features of cartilaginous tissue in this location?

- a. It has perichondrium
- b. It has osteoblasts
- c. It has isogenic groups of osteocytes
- d. It has no isogenic groups of osteocytes
- e. It has no perichondrium**

25. Examination of a patient who came to the neurological department shows smoothed-out forehead wrinkles, inability to squint the eyes, drooping mouth corner. One cheek "inflates" along with breathing. What nerve is damaged in this case?

- a. Oculomotor
- b. Vagus
- c. Accessory
- d. Trigeminal
- e. Facial**

26. At a certain stage of human ontogenesis, physiological bond occurs between circulatory systems of the mother and the fetus. This function is being carried out by the following provisory organ:

- a. Placenta**
- b. Amnion
- c. Serous tunic
- d. Yolk sac
- e. Allantois

27. A woman complains of painful chewing, especially when she moves her lower jaw backwards. What muscles are affected?

- a. Masseter muscles
- b. Posterior bundles of the temporal muscles**
- c. Lateral pterygoid muscles
- d. Anterior bundles of the temporal muscles
- e. Medial pterygoid muscles

28. What enzyme has demineralization effect, i. e. intensifies decomposition of mineral components of the tooth tissues?

- a. Glycogen phosphorylase
- b. Acid phosphatase**

- c. Glucose 6-phosphatase
- d. Phosphotransferase
- e. Alkaline phosphatase

29. A patient with inflammation of the nasal mucosa and a disturbed sense of smell came to the otorhinolaryngology department. What area of the nasal mucosa is most likely to be affected in this case?

- a. Upper nasal meatus
- b. Common nasal meatus
- c. Middle nasal meatus
- d. Nasal septum
- e. Lower nasal meatus

30. During pregnancy, specific proteins that can destroy rhesus-positive erythrocytes of the fetus were detected in the blood of a rhesus-negative mother. Name this defensive component of the mother's body:

- a. Antibody
- b. Hormone
- c. Enzyme
- d. Antigen
- e. Serum

31. A doctor has made a diagnosis of gingivitis and recommended the patient to rinse the oral cavity with an oxidizing agent. Specify this agent:

- a. Brilliant green
- b. Phenol
- c. Hydrogen peroxide
- d. Salicylic acid
- e. Boric acid

32. In some hereditary diseases (e.g., Kearns-Sayre syndrome), mitochondrial destruction can be observed. What cellular processes can be disturbed in the result?

- a. Nuclear division
- b. Lipid synthesis
- c. ATP synthesis
- d. Protein synthesis
- e. Crossingover

33. Thirty minutes after drinking mango juice, a child suddenly developed a limited swelling on the soft palate that hindered swallowing and later breathing. The mucosa in the area of the swelling is hyperemic and painless. Blood test detected eosinophilia. The child's body temperature is normal. From the family history it is known that the child's older sister had bronchial asthma attacks. What type of edema did this child most likely develop?

- a. Inflammatory
- b. Allergic
- c. Cardiac
- d. Alimentary
- e. Hepatic

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

- a. Agranular endoplasmic reticulum and Golgi complex
- b. Golgi complex and mitochondria
- c. Granular endoplasmic reticulum and Golgi complex
- d. Golgi complex and lysosomes
- e. Granular and agranular endoplasmic reticula

35. A patient has a deep incised wound on the back of his neck. What muscle is damaged in this case?

- a. M. mylohyoideus
- b. M. digastricus
- c. M. sternocleidomastoideus
- d. M. trapezius**
- e. M. levator scapulae

36. What artery can be damaged when conduction anesthesia is being administered to the area of mandibular foramen?

- a. Pterygoid branches of the maxillary artery
- b. Middle meningeal artery
- c. Buccal artery
- d. Inferior alveolar artery**
- e. Lingual artery

37. A patient is diagnosed with a displaced fracture of the coronoid process of the mandible. What muscle will displace the coronoid process?

- a. Lateral pterygoid muscle
- b. Temporal**
- c. Masseter
- d. Medial pterygoid muscle
- e. -

38. If blood glucose levels exceed 10 mmol/L, the following is observed:

- a. -
- b. Glucosuria**
- c. Proteinuria
- d. Anuria
- e. Gluconeogenesis

39. 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 glucose
- b. Reabsorption of sodium and glucose
- c. Reabsorption of proteins
- d. Filtration
- e. Reabsorption of electrolytes and water**

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

- a. Tall prismatic cells with apically located nuclei
- b. Squamous cells
- c. Cuboidal cells
- d. Prismatic cells with basally located nuclei**
- e. Spindle-shaped cells

41. A patient with diabetes mellitus developed acidosis because of ketone bodies accumulation in the blood. What changes will be observed in the respiratory system in this case?

- a. Bronchial spasms occur periodically
- b. Breath holding occurs
- c. Cheyne-Stokes respiration is observed
- d. Pulmonary ventilation decreases
- e. Pulmonary ventilation increases**

42. Histological examination of the mandibular bone shows a tumor consisting of fibrous tissue that surrounds basophilic cement-like foci of varying size. Make the diagnosis, what kind of tumor it is:

- a. Cementoblastoma
- b. Giant cementoma
- c. Cementoma

d. Odontogenic fibroma

e. Cemento-ossifying fibroma

43. A child presents with reduced thyroid function from birth. What pathological condition can develop in this child as a result?

a. Cretinism

b. Skin hyperpigmentation

c. Hypopituitarism

d. Giantism

e. Dwarfism

44. Examination of the patient shows that the patient's tongue cannot be moved forward (the patient cannot stick his tongue out). What muscle is damaged?

a. Longitudinal muscle of the tongue

b. Genioglossal muscle

c. Stylohyoid muscle

d. Hyoglossal muscle

e. Transverse muscle of the tongue

45. A sample of the patient's blood was taken for analysis in the presence of heparin. By its chemical structure, this anticoagulant belongs to:

a. Simple proteins

b. Triacylglycerols

c. Glycosaminoglycans

d. Phospholipids

e. Hemoproteins

46. A bacteriological laboratory received a sample of dried fish from an outbreak of food poisoning. Inoculation of the sample on Kitt-Tarozzi medium revealed microorganisms resembling tennis racket. These microorganisms are causative agents of the following disease:

a. Typhoid fever

b. Botulism

c. Dysentery

d. Salmonellosis

e. Diphtheria

47. The sequence of DNA triplets determines the arrangement of amino acids in a protein molecule. This characteristic of the genetic code is called:

a. Universality

b. Redundancy

c. Triplet code

d. Colinearity

e. Non-overlapping

48. Acetylsalicylic acid was prescribed to reduce the fever caused by an acute respiratory viral infection. What type of therapy is it?

a. Symptomatic therapy

b. Etiotropic therapy

c. Replacement therapy

d. Stimulating therapy

e. Preventive therapy

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

a. Oxytocin

b. Relaxin

c. Testosterone

d. Estriol

e. Prolactin

50. A patient with acute pancreatitis presents with significantly increased urine diastase content. What proteolysis inhibitor must be included into complex therapy of this patient?

a. Contrykal (Aprotinin)

b. Digestal

c. Mezymb forte

d. Festal

e. Pancreatine

51. 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. Chronic bronchitis

b. Acute bronchitis

c. Bronchiectasis

d. Bronchogenic carcinoma

e. Metaplasia of bronchial epithelium

52. During a car accident, a person received a strong blow to the epigastric region, which caused a cardiac arrest. What was the likely cause of such changes in the cardiac activity?

a. Adrenaline production

b. Increased vagal tone

c. Aldosterone production

d. Increased tone of the sympathetic nervous system

e. Cortisol production

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

a. Albumins, globulins

b. Osteocalcin, osteonectin

c. Collagen, elastin

d. Fibrinogen, prothrombin

e. Enamelin, amelogenin

54. 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. Cerebral rheumatism

b. Polyarthritic rheumatism

c. Erythema nodosum

d. Muscular rheumatism

e. Cardiovascular rheumatism

55. After the extraction of upper tooth number 7, air appeared in the tooth socket. The wall of what paranasal sinus is most likely to be breached in this case?

a. Middle air cells of the ethmoid sinus

b. Frontal sinus

c. Sphenoid sinus

d. Posterior air cells of the ethmoid sinus

e. Maxillary sinus

56. Normal cardiomyocytes have a specific phase of the action potential:

a. Rapid systolic repolarization

b. Slow repolarization (plateau)

c. Systolic repolarization

- d. Rapid diastolic repolarization
- e. Slow diastolic repolarization

57. 2 months after a kidney transplantation, the patient's condition deteriorated. Based on laboratory analysis, it was determined that transplant rejection started. What factor of the immune system plays the key role in the reaction of transplant rejection?

- a. T helper 2 cells
- b. Interleukin-1
- c. Natural killer cells
- d. T killer cells**
- e. B lymphocytes

58. A patient has a general sensitivity loss in separate areas of his body on the right. What cerebral gyrus is affected in this case?

- a. Postcentral gyrus**
- b. Middle temporal gyrus
- c. Precentral gyrus
- d. Inferior temporal gyrus
- e. Superior temporal gyrus

59. 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 blood catecholamine levels
- b. Tomography of the adrenal glands
- c. Measuring the levels of T3 and T4**
- d. Glucose challenge test
- e. Ultrasound of the ovaries

60. An electrician accidentally touched an exposed electrical wire with both hands and died. What process caused death in this case?

- a. Atrial and ventricular fibrillation**
- b. Inhibition of the sinoatrial node automaticity
- c. Impaired vagal heart rate control
- d. Complete atrioventricular block
- e. Decreased contractility of the myocardium

61. A patient complains of painful chewing, especially when his lower jaw moves forward and to the side. It indicates functional disorder of the following muscles:

- a. Temporal muscles
- b. Mylohyoid muscles
- c. Medial pterygoid muscles
- d. Lateral pterygoid muscles**
- e. Masseter muscles

62. A structural gene - a DNA molecule segment - was damaged. However, it did not result in amino acid replacement in the protein, because after a time this damage was corrected with specific enzymes. Name this DNA ability:

- a. Reverse transcription
- b. Transcription
- c. Replication
- d. Repair**
- e. Mutation

63. The condition of teeth depends on fluorine intake by the body, particularly with water. What is the hygienic norm for fluorine content in 1 liter of potable water?

- a. 12.0 mg
- b. 6.0 mg
- c. 3.0 mg
- d. 1.5 mg**

e. 9.0 mg

64. A patient with streptococcal pneumonia was prescribed an antimicrobial agent that disrupts microbial membranes. Name this drug:

- a. Erythromycin
- b. Azithromycin
- c. Doxycycline hydrochloride
- d. Benzylpenicillin sodium salt**
- e. Gentamicin sulfate

65. Global warming is one of the most concerning ecological problems for the humanity. One of the causes of climate change is the greenhouse effect, which is associated with:

- a. Decreased carbon dioxide levels in the atmosphere
- b. Increased levels of sulfur oxides in the atmosphere
- c. Increased carbon dioxide levels in the atmosphere**
- d. Development of ozone holes
- e. Decreased oxygen levels in the atmosphere

66. After the eruption of the permanent teeth, their dentin was involved into a pathological process. In the affected areas, the following can be detected: uneven mineralization, absent or distorted dentinal tubules, certain inclusions. How is this dentin called?

- a. Secondary
- b. Demineralized
- c. Tertiary**
- d. Predentin
- e. Primary

67. In COVID-19 patients, type II pneumocytes in the lungs are the target cells for coronavirus SarsCov-2. What function of the alveolar epithelium primarily becomes impaired as a result of viral damage to these cells?

- a. Surfactant dissolution
- b. Mucus production
- c. Additional air purification in the alveoli
- d. Surfactant synthesis**
- e. Gas exchange

68. After a tooth extraction, the patient developed bleeding. Blood test revealed a decrease in the prothrombin index. What vitamin deficiency can be the cause of this condition?

- a. A
- b. K**
- c. D
- d. B
- e. C

69. Intensive physical work leads to accumulation of lactic acid in muscles. What enzyme enables formation of lactic acid from pyruvate in the process of anaerobic glycolysis?

- a. Phosphofructokinase
- b. Pyruvate carboxylase
- c. Pyruvate dehydrogenase
- d. Aldolase
- e. Lactate dehydrogenase**

70. A patient is diagnosed with maxillary sinusitis. Into what anatomical structure will the pus flow from the inflamed paranasal sinus?

- a. -
- b. Middle nasal meatus**
- c. Superior nasal meatus
- d. Inferior nasal meatus
- e. Common nasal meatus

71. A 40-year-old woman was diagnosed with bronchial asthma that manifests as periodic asthma attacks. What type of respiratory failure is observed in the woman during the asthma attack?

- a. Dysregulatory
- b. Hypoxemic
- c. Pulmonary restrictive
- d. Obstructive**
- e. Extrapulmonary

72. Laboratory analysis revealed UDP-glucuronyl transferase deficiency in the patient. What blood values can confirm this enzymopathy?

- a. Ketoacidosis
- b. Phenylketonuria
- c. Indicanuria
- d. Hyperbilirubinemia**
- e. Uremia

73. X-ray shows a cranial fracture. The fracture line passes through the superior nuchal line. What bone is damaged?

- a. Parietal bone
- b. Frontal bone
- c. Palatine bone
- d. Occipital bone**
- e. Temporal bone

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

- a. Allergy testing
- b. Biological method
- c. Microscopy
- d. Serology
- e. Bacteriology**

75. A diabetes mellitus patient developed unconsciousness and convulsions after administration of insulin. What result of blood glucose analysis is the most likely in this case?

- a. 5.5 mmol/L
- b. 10 mmol/L
- c. 1.5 mmol/L**
- d. 8 mmol/L
- e. 3.3 mmol/L

76. Biopsy material of oral mucosa demonstrates morphological signs of gums. What structural characteristics of the gingival mucosa can normally be observed?

- a. No muscular layer, well developed submucous layer
- b. Loosely attached to the periosteum, well-defined muscular layer
- c. Tightly attached to the periosteum, lamina propria forms tall papillae, no muscular layer**
- d. No lamina propria or muscular layer
- e. Contains numerous small salivary glands

77. Prior to tooth extraction under a local anesthesia, the patient was tested for novocaine allergy. The test result was positive. What substance can be used to administer anesthesia in this case?

- a. Lidocaine**
- b. Procainamide
- c. Acetylsalicylic acid
- d. Sodium valproate
- e. Analgin (Metamizole)

78. A 55-year-old man with radiation sickness was brought into the hospital with signs of hemorrhagic syndrome. What changes in his blood are the most important in the pathogenesis of this syndrome?

- a. Thrombocytopenia**

- b. Eosinopenia
- c. Immune tolerance
- d. Lymphopenia
- e. Neutropenia

79. Two years after a tooth extraction, the patient presents with a decrease in the volume of the tooth socket. What pathological process does it indicate?

- a. Pressure-induced atrophy
- b. Dysfunctional atrophy**
- c. Neurotic atrophy
- d. Atrophy caused by physical factors
- e. Atrophy caused by insufficient blood circulation

80. Kidney diseases lead to increased levels of residual nitrogen in the blood. What fraction contributes to the elevated residual nitrogen levels in the patients with renal pathology?

- a. Prokinase
- b. Uric acid
- c. Ammonia
- d. Ammonium
- e. Urea**

81. A patient was diagnosed with Klinefelter's syndrome. The patient with this disease will have the karyotype (47, XXY). How many sex chromosomes are in this complement?

- a. One
- b. Forty four
- c. Three**
- d. Two
- e. Zero

82. 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. Cholesterol and its ethers
- b. Bile acid salts**
- c. Diglycerides
- d. Saturated fatty acids
- e. Bilirubin glucuronides

83. Examination of a 32-year-old man shows disproportional skeletal structure and enlargement of the supraorbital ridge, nose, lips, tongue, jawbones, and feet. What is the likely cause of these disturbances?

- a. Decreased concentration of insulin
- b. Increased levels of thyroxine
- c. Increased levels of somatotropin**
- d. Increased levels of catecholamines
- e. Increased concentration of glucagon

84. Amniocentesis detected karyotype 45, X0 in fetal epithelial cells. The mother and father are healthy. What is the likely diagnosis in this case?

- a. Edwards syndrome
- b. Trisomy X
- c. Turner syndrome**
- d. Patau syndrome
- e. Cri-du-chat syndrome

85. A 45-year-old man came to the hospital complaining of sensory loss in the posterior 1/3 of his tongue. Which pair of the cranial nerves is functionally disturbed?

- a. IX**
- b. VIII
- c. V

- d. X
- e. XII

86. A patient was delivered into the admission room. He has the signs of acute heart failure: pallor, acrocyanosis, frequent and shallow respirations. What medicine of those listed below is indicated in this case?

- a. Digitoxin
- b. Nitroglycerine
- c. Cordiamin (Nikethamide)
- d. Adrenaline hydrochloride

e. Corglycon (Convallatoxin)

87. A 50-year-old patient was diagnosed with myxedema. The development of this pathology is caused by disturbed production of certain hormones. Name these hormones.

- a. ACTH and growth hormone
- b. Insulin and glucagon

c. Thyroxine and triiodothyronine

- d. Oxytocin and vasopressin
- e. Cortisol and aldosterone

88. A 35-year-old man had been suffering from bronchial asthma for a long time. Eventually he developed a status asthmaticus that became lethal. Examination of section materials shows a bronchiolar spasm in the lungs. The bronchiolar walls show signs of cellular infiltration with predominance of eosinophilic leukocytes and lymphocytes, labrocytes with signs of degranulation are observed. What mechanism of hypersensitivity is the cause of these changes?

a. -

b. Reaginic reaction

- c. Antibody-dependent
- d. Cell-mediated cytotoxicity
- e. Immune complex

89. To prevent an increase in hepatitis B morbidity in the city hospitals, it is necessary to vaccinate the medical personnel. What should be used for immunization in this case?

a. Interferon

b. Recombinant vaccine

- c. Arbidol (Umifenovir)
- d. Live attenuated vaccine
- e. Inactivated vaccine

90. In a car accident, a driver has received multiple traumas to the side of his head, including a zygomatic arch fracture. What muscle will be functionally impaired in this case?

- a. M. orbicularis oris
- b. M. buccinator
- c. M. procerus

d. M. masseter

e. M. risorius

91. A patient with a severe toothache that lasted for several days made no appointment with a doctor and engaged in self-treatment instead. As a result, his tooth needs to be extracted. What analgesic increases the probability of a hemorrhage developing after the tooth is extracted?

- a. Analgin (Metamizole)
- b. Dimedrol (Diphenhydramine)

c. Acetylsalicylic acid

- d. Paracetamol
- e. Codeine phosphate

92. A patient suffers from diabetes mellitus with fasting hyperglycemia over 7.2 mmol/L. What blood plasma protein would allow to assess the patient's glycemia level retrospectively (4-8 weeks prior to examination)?

- a. Ceruloplasmin
- b. Fibrinogen
- c. Albumin
- d. C-reactive protein
- e. Glycated hemoglobin**

93. A patient has a history of trauma followed by hemorrhagic bursitis of the left knee joint. During an examination 3 months later, limited mobility is observed in this joint because of scar formation. What inflammation component is the basis for the development of this complication?

- a. Proliferation**
- b. Primary alteration
- c. Secondary alteration
- d. Exudation
- e. Disturbed microcirculation

94. 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. 23
- c. 45
- d. 44
- e. 47

95. With age a person develops wrinkled skin. This condition is predominantly caused by changes in certain skin structures. Name these structures:

- a. Collagen fibers
- b. Elastic fiber**
- c. Subcutaneous fat
- d. Amorphous substance
- e. Epidermis

96. A man, who for a long time has been suffering from chronic mandibular osteomyelitis, died of chronic kidney disease. Autopsy revealed large lardaceous kidneys. What process had occurred in the kidneys?

- a. Renal amyloidosis**
- b. Contracted kidney
- c. Necrotic nephrosis
- d. Glomerulonephritis
- e. Arterial nephrosclerosis

97. A patient is diagnosed with stomatitis caused by herpes simplex virus, type 1 and 2. What medicine that is an analogue of nucleosides and is converted by thymidine kinase can provide highly effective selective antiviral therapy?

- a. Oxolin (Dioxotetrahydrooxytetrahydro-naphthaline)
- b. Rimantadine
- c. Acetylcysteine
- d. Laferon (recombinant human interferon alpha-2b)
- e. Acyclovir**

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

- a. Passive (indirect) hemagglutination
- b. Complement fixation**
- c. Hemagglutination inhibition
- d. Neutralization
- e. Precipitation

99. During examination a neurologist taps the tendon under the patient's kneecap with a reflex

hammer to evaluate reflex extension of the knee. This response is provoked by stimulation of the following receptors:

- a. Muscle spindles**
- b. Tactile receptors
- c. Nociceptors
- d. Golgi tendon organ
- e. Articular receptors

100. A dentist has to spend much of his time on his feet when working, which can result in a venous congestion in the legs and varicose veins. Leading mechanism of congestion in this case is the decrease of:

- a. Skeletal muscle contraction in the lower limbs**
- b. Thoracic pump effect
- c. Blood pressure gradient in the veins
- d. Cardiac residual pumping force
- e. Diaphragmatic piston effect on the abdominal organs

101. A doctor has detected an inflammation of the patient's oral mucosa, accompanied by excruciating pain. What nerve is affected in this case?

- a. Trigeminal nerve**
- b. Glossopharyngeal nerve
- c. Vagus nerve
- d. Chorda tympani
- e. Facial nerve

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

- a. Fluorouracil
- b. Ciprofloxacin**
- c. Cefazolin
- d. Urosulfan (Sulfacarbamide)
- e. Furazolidone

103. Light microscopy was used to study the morphology of human Y chromosome. Centromere is located close to one of the ends of the chromosome. Name the type of the chromosome:

- a. Polytene
- b. Acrocentric**
- c. Telocentric
- d. Metacentric
- e. Submetacentric

104. Name the state of the biosphere, where the human mental activity is the key developmental factor:

- a. Hydrosphere
- b. Troposphere
- c. Lithosphere
- d. Atmosphere
- e. Noosphere**

105. To speed up the healing process in a wound located on the patient's oral mucosa, the patient was prescribed a medicine that is a thermostable protein. This protein can be found in human tears, saliva, and breastmilk and it can be detected in freshly laid eggs. It is known as a factor of the body's natural resistance. Name this protein:

- a. Interleukin
- b. Imanin
- c. Lysozyme**
- d. Complement
- e. Interferon

106. A traumatologist has diagnosed a patient with a fracture in the area of the canine fossa. This fossa is located on the:

- a. Zygomatic bone
- b. Frontal bone
- c. Maxilla**
- d. Mandible
- e. Palatine bone

107. A certain drug with potent natriuretic action is usually prescribed for dehydration therapy of cerebral and pulmonary edemas. Name this drug:

- a. Mannitol
- b. Spironolactone
- c. Etacrynic acid
- d. Theophylline
- e. Furosemide**

108. A patient was diagnosed with caries and underwent an oropharyngeal swab. In the sample, microscopy detected unicellular organisms with wide pseudopodia; their cytoplasm is clearly divided into two layers, while the nucleus is barely visible. What protozoon was detected in the swab?

- a. Entamoeba gingivalis**
- b. Trichomonas hominis
- c. Entamoeba histolytica
- d. Entamoeba coli
- e. Lamblia intestinalis

109. During a regular check-up with the dentist, a patient diagnosed with chronic gingivitis presents with no inflammatory changes in the gingival mucosa. This condition of the patient can be characterized as:

- a. Pathologic process
- b. Complication
- c. Remission**
- d. Pathologic reaction
- e. Recurrence

110. 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. -
- b. Lungs**
- c. Sweat glands
- d. Kidneys
- e. Sebaceous glands

111. A 43-year-old man complains of sudden skin edema and redness with vesicles and itching. He developed these signs after eating shrimps. Such local signs are characteristic of the following type of hypersensitivity:

- a. Local signs of type I hypersensitivity**
- b. Local signs of type IV hypersensitivity
- c. Type III hypersensitivity reaction
- d. -
- e. Local signs of type II hypersensitivity

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

- a. Uric acid**
- b. Purine
- c. Allantoin
- d. Hypoxanthine
- e. Xanthine

113. A lab rat received a subcutaneous injection of mercury(II) chloride in the dosage of 5 mg per 1 kg

of body mass. 24 hours later, the creatinine levels in the animal's blood plasma increased several times. What mechanism of retention azotemia is observed in this case?

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

114. An athlete before a sports contest presents with elevated blood pressure and heart rate. What part of the CNS induces these changes?

- a. Mesencephalon
- b. Cerebral cortex**
- c. Hypothalamus
- d. Diencephalon
- e. Medulla oblongata

115. A patient diagnosed with stomatitis came to a dentist. Objectively, against the background of inflammatory reaction of the oral mucosa, increased salivation is observed, forcing the patient to spit constantly. What water-electrolyte metabolic imbalance is likely to develop in this case?

- a. Hyperosmolar hyperhydration
- b. Hyperosmolar hypohydration**
- c. Hypoosmolar hypohydration
- d. Hypoosmolar hyperhydration
- e. There will be no water-electrolyte metabolic imbalances

116. What nerves must be anesthetized for extraction of an upper third molar?

- a. Middle superior alveolar nerves
- b. Greater palatine nerve
- c. Anterior superior alveolar nerves
- d. Posterior superior alveolar nerves**
- e. Posterior superior nasal nerves

117. When studying masticatory muscles, a student discovered that only one of them does not raise the lower jaw. Name this muscle:

- a. Medial pterygoid muscle
- b. Medial bundles of the temporal muscle
- c. Anterior bundles of the temporal muscle
- d. Masseter
- e. Lateral pterygoid muscle**

118. Examination revealed the patient to have decreased secretory function of the nasal cavity glands. What nerve provides parasympathetic innervation of these glands?

- a. N. petrosus major**
- b. N. petrosus minor
- c. N. chorda tympani
- d. N. maxillaris
- e. N. petrosus profundus

119. A 55-year-old man was diagnosed with purulent otitis complicated with meningitis. The posterior cranial fossa was contaminated by pus. What wall of the tympanic cavity was destroyed in this case?

- a. Paries tegmentalis
- b. Paries labyrinthicus
- c. Paries mastoideus**
- d. Paries membranaceus
- e. Paries jugularis

120. Disturbed auditory function can be caused by changes in the structure of the receptor cells of spiral organ of Corti. What cells are affected in such cases?

- a. Pillars

b. Hair cells

- c. Marginal cells
- d. Supporting cells
- e. Phalangeal cells

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

- a. Mycological analysis
- b. Protozoan analysis

c. Bacteriological analysis

- d. Serological analysis
- e. Microscopy

122. A patient with bronchial asthma developed acute respiratory insufficiency. What type of respiratory insufficiency develops in such cases?

- a. Dysregulatory disturbance of alveolar ventilation
- b. Restrictive disturbance of alveolar ventilation

c. Obstructive disturbance of alveolar ventilation

- d. Diffusion insufficiency
- e. Perfusion insufficiency

123. What type of apatite makes up the largest portion of mineral component in the human teeth?

a. Hydroxyapatite

- b. Strontium apatite
- c. Chlorapatite
- d. Carbonate apatite
- e. Fluorapatite

124. A 59-year-old man was diagnosed with a transmural left ventricular myocardial infarction. He died of a true heart rupture - cardiac tamponade. What process in the infarction site could have contributed to the cardiac rupture in this case?

- a. Replacement of the infarct site with connective tissue (organization)
- b. Increased pressure in the pulmonary circulation
- c. Scar formation with thinning of the left ventricular wall
- d. -

e. Autolytic processes of myocardial softening (myomalacia)

125. The autopsy of the body of a 4-year-old girl, who was ill for a long time and died of confluent pneumonia, showed that the weight of her thymus was 2 grams. Thymus histology revealed sharp decrease in lymphocyte levels, collapse of the thymic stroma, and a small number of calcified, cystically dilated Hassall's corpuscles. What pathological process developed in the thymus?

- a. Thymomegaly
- b. Thymic dysplasia
- c. Thymic hyperplasia

d. Thymic atrophy

- e. -

126. To clarify the diagnosis of a 15-year-old patient, it is necessary to perform a sialography of the parotid gland. Where is the opening, through which a radiocontrast agent will be introduced in this case?

- a. On the cheek, opposite of the 2nd upper premolar
- b. On the cheek, opposite of the 2nd lower molar
- c. -

d. On the cheek, opposite of the 2nd upper molar

- e. On the cheek, opposite of the 2nd lower premolar

127. Under the influence of ionizing radiation or in case of avitaminosis E, an increased permeability of lysosome membranes can be observed in the cells. What are the likely consequences of such

pathology?

- a. Formation of the mitotic spindle
- b. Intensive energy synthesis
- c. Partial or complete destruction of the cell**
- d. Restoration of the cytoplasmic membrane
- e. Intensive protein synthesis

128. A patient with chronic hyperacidic gastritis developed joint pain and was prescribed celecoxib. This drug has no effect on gastric mucosa because of its selective effect on a certain enzyme. What enzyme is it?

- a. Kallikrein
- b. Phospholipase A2
- c. Phospholipase C
- d. Cyclooxygenase 1
- e. Cyclooxygenase 2**

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

- a. Q fever, typhus
- b. Poliomyelitis, viral hepatitis type A
- c. Dysentery, cholera
- d. Tuberculosis, mycobacteriosis
- e. Infectious mononucleosis, AIDS**

130. A patient has been administered conduction anesthesia with novocaine in preparation for tooth extraction. After the anesthesia administration the patient developed swelling and hyperemia around the injection site, skin itch, general fatigue, motor agitation. Name the developed complication:

- a. Inflammation
- b. Drug dependence
- c. Idiosyncrasy
- d. Allergy**
- e. Tachyphylaxis

131. 30 minutes after dental treatment the patient developed red itching spots on the face and oral mucosa. The patient was diagnosed with urticaria. What bioactive substance with vasodilating and pruriginous effect is produced during this type of allergic reaction?

- a. Bradykinin
- b. Interleukin-1
- c. Prostaglandin E2
- d. Leukotriene B4
- e. Histamine**

132. During oral examination, a dentist noted that the patient's tongue has a whitish coat. What histological structures take part in the formation of this coat?

- a. Epithelium of circumvallate papillae
- b. Epithelium of fungiform papillae
- c. Epithelium of foliate papillae
- d. Epithelium of filiform papillae**
- e. Lingual tonsil

133. In a 65-year-old man with portal hypertension, the substances that are being neutralized in the liver enter his general bloodstream through portocaval anastomoses. What type of hepatic coma will develop in the patient in this case?

- a. Shunt**
- b. Parenchymatous
- c. Ketoacidotic
- d. Hepatocellular

e. Mixed

134. Contractions of the respiratory muscles completely stop, if:

a. Bilateral vagal transection

b. -

c. Spinal cord transection at the level of upper cervical segments

d. Separation of pons cerebelli from medulla oblongata

e. Spinal cord transection at the level of lower cervical segments

135. Alkaline phosphatase catalyzes the reactions of phosphorus-ether bonds hydrolysis with release of phosphate ions that play an important role in the formation of bone mineral matrix. What factors ensure the course of such reactions?

a. Fe^{3+} , pH=7.0-7.4

b. Zn^{2+} , pH=7.0-7.4

c. Fe^{3+} , pH=5.0-5.5

d. Fe^{2+} , pH=7.0-7.4

e. Zn^{2+} , pH=5.0-5.5

136. After an exposure to radiation, the patient is recommended to include more vegetable oils in his diet as they are a source of polyene fatty acids. Name the acid that has three double bonds:

a. Arachidonic acid

b. Stearic acid

c. Palmitic acid

d. Oleic acid

e. Linolenic acid

137. A 50-year-old man, who has been suffering from chronic hepatic failure for years, developed ascites. What is the main mechanism of development of this new disorder in the patient?

a. Increased oncotic blood pressure

b. Appearance of neurotoxic substances in blood

c. Increased pressure in the portal venous system

d. Decreased hepatic synthesis of albumins and globulins

e. Increased blood levels of low density and very low density lipoproteins

138. Significant shortcoming of microscopy in infection diagnostics is its insufficient information value due to morphological similarity between many species of microorganisms. What immunoassay can significantly increase informativity of this method?

a. Opsonization

b. Immune-enzyme assay

c. Radioimmunoassay

d. Fluorescence immunoassay

e. Coombs' test

139. A human embryo unattached to the endometrium was detected in the uterine cavity. What stage of embryo development is it?

a. Neurula

b. Morula

c. Zygote

d. Gastrula

e. Blastocyst

140. What drugs are used for specific treatment of diphtheria?

a. Antibiotics

b. Placental gamma globulin

c. Native plasma

d. Antitoxic serum

e. Anatoxin

141. For a surgery in the maxillofacial area, cholinergic agents are used to decrease salivation. What

drug of those listed below would you recommend for this purpose?

- a. Lobeline hydrochloride
- b. Dithylinum (Suxamethonium chloride)
- c. Atropine sulfate**
- d. Proserin
- e. Adrenaline hydrochloride

142. Accelerated synthesis of a certain polysaccharide precedes the deposition of mineral salts into the organic matrix of the tooth. Name this polysaccharide:

- a. Heparin
- b. Dermatan sulfate
- c. Glycogen
- d. Keratan sulfate
- e. Chondroitin sulfate**

143. A patient with acne is prescribed doxycycline hydrochloride. What should the patient be warned against, regarding administration of this drug?

- a. Do not take with vitamin preparations
- b. Take before eating
- c. Course of treatment should not exceed 1 day
- d. Take with large amount of liquid, preferably milk
- e. Avoid prolonged exposure to the sun**

144. 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. Intestine and liver
- b. Kidneys and heart
- c. Stomach and heart
- d. Liver and muscles
- e. Kidneys and liver**

145. A patient delivered to the neurological department presents with increased inhibition processes in the central nervous system. What neurotransmitter can cause this condition, when in excess?

- a. Adrenaline
- b. Dopamine
- c. GABA**
- d. Acetylcholine
- e. Noradrenaline

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

- a. Adrenaline
- b. Aldosterone
- c. Parathyrin
- d. Calcitonin**
- e. Thyroxine

147. When determining comparative tissue radiosensitivity, it was revealed that different tissues have different level of sensitivity toward ionizing radiation. What tissue of those listed below is the most radiosensitive?

- a. Bone
- b. Nerve
- c. Muscular
- d. Cartilaginous
- e. Hematopoietic**

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

- a. Phosphodiesterase inhibition

b. Predominant inhibition of cyclooxygenase-2

- c. Predominant inhibition of cyclooxygenase-1
- d. Phospholipase A2 inhibition
- e. Predominant stimulation of adenylate cyclase

149. In the course of a surgery, the fibers of the 12th pair of cranial nerves were damaged. This damage manifested as:

- a. Disturbed contraction of the muscles that elevate the hyoid bone
- b. Disturbed contraction of the laryngeal muscles
- c. Disturbed contraction of the pharyngeal muscles

d. Disturbed function of the lingual muscles

- e. Disturbed contraction of the muscles of the soft palate

150. A patient was diagnosed with a malignant tumor of the pineal gland. The tumor penetrates into one of the subarachnoid cisterns in the brain. To remove the tumor, a surgery must be performed in the area of the following cistern:

- a. Cisterna chiasmatis
- b. Cisterna interpeduncularis

c. Cisterna quadrigeminalis

- d. Cisterna pericallosa
- e. Cisterna ambiens

151. A woman is diagnosed with Turner's syndrome (karyotype 45, X0). How many autosomal pairs would her somatic cells contain?

- a. 24
- b. 44
- c. 22
- d. 23
- e. 45

152. A person with trauma bleeds from a head wound. Where should the carotid artery be pressed to temporarily stop the bleeding?

- a. To the anterior tubercle on the transverse process of the C4 vertebra
- b. To the anterior tubercle on the transverse process of the C6 vertebra
- c. To the anterior tubercle on the transverse process of the C7 vertebra
- d. To the anterior tubercle on the transverse process of the C5 vertebra
- e. To the spine in the upper portion of the neck

153. During examination of the oral cavity, a dentist detected a carious cavity in the lower second premolar. The cavity is located on the crown surface that faces the first premolar. What surface of the dental crown is affected in this case?

- a. Facies occlusalis
- b. Facies distalis
- c. Facies vestibularis
- d. Facies mesialis
- e. Facies lingualis

154. A 2-year-old child with a history of URTI, who died with signs of cardiopulmonary failure, has hyperemic right lung. In segments 2, 6, and 10 on the surface and on section there are irregular-shaped yellow airless foci, with their size varying from several millimeters to 1 cm. Microscopy shows that in these portions of pulmonary tissue the alveoli, bronchioles, and small bronchi contain exudate with predominance of neutrophils. What is the most likely diagnosis?

- a. Acute bronchitis
- b. Interstitial pneumonia
- c. Croupous pneumonia
- d. Focal pneumonia
- e. Pulmonary abscess

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

- a. Giardia
- b. Fasciola hepatica
- c. Echinococcus
- d. Trichinella
- e. Diphyllbothrium latum

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

- a. Atrial volume receptors
- b. Gastric mechanoreceptors
- c. Carotid body chemoreceptors
- d. Hypothalamic osmoreceptors
- e. Taste receptors

157. Reading of hereditary information encoded within a gene begins with pre-mRNA synthesis on a fragment of DNA matrix chain. Where does this process occur in the eukaryotic cells?

- a. Golgi complex
- b. Ribosomes
- c. Cytoplasm
- d. Centrosomes
- e. Nucleus

158. An experiment was conducted to measure the threshold of tactile receptors stimulation with various stimuli. What stimulus will have the lowest threshold?

- a. Mechanical stimulus
- b. Heat stimulus
- c. Photic stimulus
- d. Cold stimulus
- e. Chemical stimulus

159. After a collision of two cars, one of the drivers presents with a deformity in the middle third of the left shin. The driver feels extreme pain that exacerbates on attempts to move it. The ends of a broken bone protrude from the open wound, the bone is triangular on section, movements cause the bleeding to intensify. What bone was damaged?

- a. Fibula
- b. Tibia
- c. Femur
- d. Talus
- e. Patella

160. The patient, who for a long time has been keeping to an unbalanced low-protein diet, developed fatty liver infiltration. Name the substance, absence of which in the diet can lead to this condition:

- a. Methionine
- b. Arachidonic acid
- c. Biotin
- d. Alanine
- e. Cholesterol

161. During a surgery on the oral diaphragm, a surgeon needs to locate an area that is called a "submandibular triangle". What muscle bounds this area?

- a. -
- b. M. geniohyoideus
- c. M. digastricus
- d. M. stylohyoideus
- e. M. hyoglossus

162. A patient presents with aspermia. What organ is functionally disturbed?

- a. Epididymis
- b. Seminal vesicles

- c. Testicle
- d. -
- e. Prostate

163. After a cerebral hemorrhage, the patient developed a significant loss of gustatory sensitivity. What cerebral structure is likely to be damaged in this case?

- a. Amygdala
- b. Hypothalamus
- c. Hippocampus
- d. Postcentral gyrus
- e. Substantia nigra

164. What drug that can penetrate into bone tissue and bone marrow is advisable for the treatment of skeletal system infections (osteomyelitis, osteitis)?

- a. Bicillin-3
- b. Gentamicin
- c. Synthomycin (D,L-chloramphenicol)
- d. Lincomycin
- e. Benzylpenicillin

165. 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. Increasing the number of ion channels
- b. Cell destruction
- c. Cell division
- d. Platelet formation
- e. Increasing the surface area of cells

166. Miners' work at the coal-face often leads to development of anthracosis. What type of respiratory failure arises along with this disease?

- a. Obstructive
- b. Dysregulatory
- c. Restrictive
- d. Diaphragmatic
- e. Thoracic

167. At the crown apex of the second molar, on the surface that comes into contacts with the cheek, the doctor detected a carious cavity. Name the affected crown surface:

- a. Facies occlusalis
- b. Facies mesialis
- c. Facies lingualis
- d. Facies distalis
- e. Facies vestibularis

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

- a. colica media
- b. sigmoidea
- c. colica dextra
- d. mesenterica inferior
- e. ileocolica

169. 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. Primary amyloidosis of the kidneys
- b. Chronic glomerulonephritis

- c. Secondary amyloidosis of the kidneys
- d. Pyelonephritis
- e. Hydronephrosis

170. During the oral cavity examination, the dentist detected an inflammation of the tissues that surround the tooth. What anatomical structure is inflamed in this case?

- a. Alveola dentalis
- b. Gingiva
- c. Cementum
- d. -
- e. Paradontium

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

- a. Pancreas
- b. Adrenal glands
- c. Pineal gland
- d. Thymus
- e. Thyroid gland

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

- a. Glycogenolysis
- b. Citric acid cycle
- c. Ornithine cycle
- d. Glycolysis
- e. Knoop-Linen cycle

173. Numerous substances dangerous to the body can get into the oral cavity with water and food. What components of saliva and gingival fluid provide protection against these compounds?

- a. Alkaline and acid phosphatase
- b. Lysozyme, immunoglobulins, leukocytes
- c. Lactate dehydrogenase, glucuronidase
- d. Hyaluronidase, cathepsin D
- e. Lactic acid, urea, ammonia

174. How does pH of venous blood differ from pH of arterial blood and why?

- a. Higher, due to O₂ release from the organism
- b. Higher, due to higher blood CO₂ levels
- c. No difference
- d. Lower, due to higher blood CO₂ levels
- e. Lower, due to O₂ release from the organism

175. Chronic overdosage of glucocorticoids leads to the development of hyperglycemia. What process of carbohydrate metabolism is responsible for this effect?

- a. Pentose-phosphate cycle
- b. Glycogenesis
- c. Gluconeogenesis
- d. Aerobic glycolysis
- e. Glycogenolysis

176. A 2-month-old child has been diagnosed with cri-du-chat syndrome. This disease is caused by deletion of the short arm of autosome 5. What is the total number of chromosomes in this child?

- a. 45
- b. 46
- c. 44
- d. 47
- e. 23

177. 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. Surgical
- b. Odontogenic
- c. Tonsilogenic
- d. Cryptogenic
- e. Therapeutic

178. A person bitten by a stray dog came to the surgeon's office. Wide lacerated wounds are localized on the patient's face. What rabies-prevention aid should be provided to this person?

- a. Immediately administer DPT vaccine
- b. Begin immunization with antirabic vaccine
- c. Hospitalize the patient and continue to monitor his condition
- d. Prescribe combined vitamin therapy
- e. Immediately administer normal gamma globulin

179. A person complains that lifting the lower jaw is problematic because of an incised wound in the area of the gonial angle. What muscle is likely to be damaged in this case?

- a. M. orbicularis oris
- b. M. temporalis
- c. M. pterigoideus medialis
- d. M. masseter
- e. M. pterigoideus lateralis

180. A patient complains of urine excretion that occurs during sexual intercourse. What organ is affected?

- a. Urinary bladder
- b. Epididymis
- c. Seminal vesicles
- d. Prostate
- e. Testicle

181. A patient diagnosed 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. Changes in carbohydrate metabolism
- c. Water-electrolyte imbalance
- d. Lipid metabolism disorders
- e. Renal acidosis

182. A patient presents with damaged fibers of the ninth pair of cranial nerves (glossopharyngeal nerve). What gustatory sensation will be disturbed in this case?

- a. Sweetness
- b. Bitterness
- c. Saltiness
- d. All gustatory sensations
- e. Sourness

183. A child asked you to blow a balloon as much as you can in one exhale. What air volume will you use for this purpose?

- a. Inspiratory capacity
- b. Vital capacity
- c. Inspiratory reserve volume

- d. Functional residual lung capacity
- e. Total lung capacity

184. Dental implants were installed in a patient. Three weeks later, implant rejection occurred. What blood cells play the largest role in this pathological process?

- a. Immunoglobulins M
- b. B lymphocytes
- c. Plasmacytes
- d. T lymphocytes
- e. Immunoglobulins E

185. An 8-year-old girl against the background of a suspected viral infection developed body temperature of 39°C . What medicine should she be prescribed to lower her temperature?

- a. Paracetamol
- b. Diphenine (Phenytoin)
- c. Nicotinamide
- d. Codeine
- e. Pentazocine

186. A patient is registered for regular check-ups. Laboratory analyses for viral hepatitis diagnostics are made. In the blood serum only antibodies to HbsAg are detected. Such result is indicative of:

- a. Past case of viral hepatitis type B
- b. Viral hepatitis type A
- c. Chronic viral hepatitis type C
- d. Acute viral hepatitis type B
- e. Acute viral hepatitis type C

187. During identification of pure culture of microorganisms the most important part is a serological identification that is conducted by means of agglutination reaction. What components are necessary to conduct this reaction?

- a. Specific antigen, serum sample obtained from the patient
- b. Unknown antibodies, nonspecific antigen
- c. Unknown bacterial culture, specific antibodies
- d. Thermoextract, specific serum
- e. Specific antigen, known antibody, bacteria

188. A 13-year-old girl is an in-patient at the hematology department of the regional children's hospital. She was diagnosed with iron-deficiency anemia. What type of hypoxia does this patient have?

- a. Tissue
- b. Circulatory
- c. Hemic
- d. Mixed
- e. Respiratory

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

- a. Monocytes
- b. Platelets
- c. Lymphocytes
- d. Neutrophils
- e. Erythrocytes

190. Bacteria that enter the body are being phagocytized by macrophages. What is the role of macrophages in cooperation of immunocompetent cells during the first phase of immune response?

- a. Activate NK cells
- b. Activate T killer cells
- c. Ensure antigen processing and presentation to T helper cells
- d. Ensure antigen processing and presentation to T killer cells

e. Produce immunoglobulins