

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

2. A 25-year-old man has lost all sensitivity due to damage of his peripheral nerves. Name this disorder:

- a. Ataxia
- b. Anesthesia
- c. Hyperesthesia
- d. -
- e. Hypoesthesia

3. A child is diagnosed with a helminthic invasion. What changes in the leukogram should be expected in this case?

- a. Increased number of lymphocytes
- b. Increased number of monocytes
- c. Increased number of erythrocytes
- d. Increased number of neutrophils
- e. Increased number of eosinophils

4. 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. Phospholipase A2 inhibition
- b. Predominant inhibition of cyclooxygenase-2
- c. Phosphodiesterase inhibition
- d. Predominant inhibition of cyclooxygenase-1
- e. Predominant stimulation of adenylate cyclase

5. 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. Corglycon (Convallatoxin)
- c. Nitroglycerine
- d. Cordiamin (Nikethamide)
- e. Adrenaline hydrochloride

6. After the extraction of the second upper molar, the patient developed bleeding from the tooth socket. What vessel is damaged in this case, causing the bleeding?

- a. Aa. alveolares superiores posteriores
- b. Aa. alveolares superiores anteriores
- c. A) infraorbitalis
- d. A) palatina descendens
- e. A) alveolaris inferior

7. Lab rats were used to study the effect of a certain vitamin on the body. Deficiency of this vitamin has resulted in a disturbed reproductive function and skeletal muscle dystrophy. What vitamin is it?

- a. E
- b. B_2
- c. D
- d. A
- e. K

8. During an appointment with the dentist, a patient developed a bronchial asthma attack. What does this patient need to be prescribed to terminate the bronchospasm?

- a. Methacin (Metocinum iodide)
- b. Salbutamol**
- c. Anaprilin (Propranolol)
- d. Benzohexonium (Hexamethonium bromide)
- e. Droperidol

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

- a. Proliferation
- b. Ischemia
- c. Primary alteration
- d. Exudation**
- e. Leukocyte emigration

10. On autopsy of a 69-year-old woman, who for a long time had been suffering from hypertension, the pathologist determined that both of her kidneys are dense, markedly diminished, with fine-grained surface. These changes are indicative of:

- a. Compression atrophy
- b. Atrophy due to inadequate blood supply**
- c. Senile renal atrophy
- d. Dysfunctional atrophy
- e. Hypoplasia

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

- a. Take before eating
- b. Do not take with vitamin preparations
- 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**

12. An 8-year-old schoolboy came to the dentist with a herptic rash on his lower lip. What medicine will be the most effective in this case and needs to be prescribed for this boy?

- a. Furadonin (Nitrofurantoin)
- b. Ketoconazole
- c. Acyclovir**
- d. Ampicillin
- e. Oxacillin

13. 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. M. digastricus**
- b. M. geniohyoideus
- c. -
- d. M. hyoglossus
- e. M. stylohyoideus

14. Alkaline phosphatase is an important enzyme contained in saliva. It belongs to the following class of enzymes:

- a. Hydrolases**
- b. Lyases
- c. Ligases
- d. Oxidoreductases
- e. Transferases

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

- a. Microscopy
- b. Biological method**

- c. Allergy testing
- d. Bacteriology
- e. Serology

16. A patient with osteomyelitis of the mandible developed sepsis. Blood culture microbiology detects Gram-positive and catalase-positive cocci capable of growing in the presence of NaCl. What microorganisms are the likely cause of this disease?

- a. Sarcinae
- b. Corynebacteria
- c. Streptococci
- d. Escherichia
- e. Staphylococci

17. Complex therapy of a patient with bronchopneumonia accompanied by exhausting dry cough includes a certain mucolytic agent that depolymerizes mucoproteins. Name this drug:

- a. Atenolol
- b. Strophanthin
- c. Acetylcysteine
- d. Codeine
- e. Neodicoumarin

18. What component of the parodontium performs the sensory function that regulates the force of masticatory pressure applied to the teeth?

- a. Periodontium
- b. Bones of the alveolar process
- c. Periosteum
- d. Cement
- e. Gums

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

- a. Acetylation
- b. Partial proteolysis
- c. Covalent modification
- d. Phosphorylation
- e. Methylation

20. The terminal segments of apocrine sweat glands contain myoepithelial cells. What is the function of these cells?

- a. Secretory function
- b. Protective function
- c. Regenerative function
- d. Contractile function
- e. Supporting function

21. A woman with a deep wound on her leg was brought into the trauma department. She received the injury three days ago. What drug must be used to prevent tetanus in this case?

- a. Antitetanic serum
- b. BCG vaccine
- c. Diphtheria and tetanus toxoids
- d. DPT vaccine
- e. Antibiotics

22. An enzyme, connected to substrate, interacts with it only with a part of its molecule. Name this part:

- a. Cofactor
- b. Allosteric center
- c. Polypeptide chain portion
- d. Active center

e. Coenzyme

23. 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. Radioimmunoassay
- b. Opsonization
- c. Fluorescence immunoassay
- d. Coombs' test
- e. Immune-enzyme assay

24. Deficiency of a certain vitamin can result in a group of symptoms called pellagra. Dermatitis, diarrhea, and dementia are the three main symptoms in such cases. Name the deficient vitamin:

- a. Vitamin B₁
- b. Vitamin B₂
- c. Vitamin A
- d. Vitamin C
- e. Vitamin PP

25. A patient with hypersensitivity to sulfonamides needs conduction anesthesia for a tooth extraction. What drug should be used in this case?

- a. Lidocaine
- b. Anaesthesia (Benzocaine)
- c. Cocaine
- d. Dicain (Tetracaine)
- e. Novocaine (Procaine)

26. Microscopy of a plaque-like structure extracted from the lateral surface of the tongue of a man with dentures revealed significant thickening of the epithelial layer along with processes of parakeratosis, hyperkeratosis, and acanthosis; in the connective tissue there are small round cell infiltrations. Make the diagnosis of the given pathological state:

- a. Chronic glossitis
- b. Ichthyosis
- c. Chronic stomatitis
- d. Atrophic (Hunter's) glossitis
- e. Leukoplakia

27. 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. 3.0 mg
- c. 6.0 mg
- d. 1.5 mg
- e. 9.0 mg

28. A topical anesthetic was applied to the tongue apex of an experiment participant. The resulting gustatory loss will make this person unable to feel the following taste:

- a. Sour and salty
- b. Sour
- c. Bitter
- d. Salty
- e. Sweet

29. A 30-year-old patient hospitalized with diagnosis of acute glomerulonephritis presents with proteinuria. What disturbance has caused this phenomenon?

- a. Decreased number of functional nephrons
- b. Delayed excretion of nitrogen metabolism products
- c. Increased permeability of glomerular membrane
- d. Increased hydrostatic pressure on the capillary walls

e. Decreased oncotic blood pressure

30. A patient with high blood coagulability was for a long time treated with salicylates. What metabolic process risks being disturbed as a result?

- a. Oxidative phosphorylation
- b. Tissue respiration
- c. Prostaglandin synthesis
- d. Microsomal oxidation
- e. Coupling between tissue respiration and oxidative phosphorylation

31. A man complains of weight loss, rapid physical and mental fatigability, decreased appetite, arterial hypotension, and hyperpigmentation of the skin. Examination allowed diagnosing him with Addison's disease. What endocrine gland is hypofunctional in this case, causing this condition in the patient?

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

32. In an experiment on a dog, the role of adrenal glands in the thermoregulation processes was studied. What adrenal hormone constricts the blood vessels, reducing the heat emission?

- a. Corticosterone
- b. Androgens
- c. Cortisone
- d. Adrenaline
- e. Estrogens

33. In the course of experiment the vagus nerve of the test animal was severed, which resulted in the animal developing constant tachycardia. What effect of parasympathetic nervous system on cardiac performance is demonstrated by this experiment?

- a. Paradoxical response
- b. Stimulus summation
- c. Mixed effect
- d. Stimulation
- e. Inhibition

34. A 12-year-old girl has an ulcer 5 mm in diameter at the bottom of her oral cavity. The ulcer is surrounded with a bright red tissue that pales when pressed. An ulcer biopsy was performed. Microscopy revealed a tumor composed of numerous blood-filled cavities. The cavities are lined with a single layer of endothelial cells. Between them there is stroma, made up of loose connective tissue. What type of tumor can be characterized by such clinical and laboratory findings?

- a. Ulcerated cavernous hemangioma
- b. Ulcerated melanoblastoma
- c. Non-keratinizing squamous cell carcinoma
- d. Rhabdomyosarcoma with secondary changes
- e. Giant cell tumor of bone

35. Oral examination reveals marked reddening of mucosa at the root of the tongue. What structure is involved in the inflammatory process?

- a. Pharyngeal tonsil
- b. Palatine tonsil
- c. Lingual tonsil
- d. Veil of palate
- e. Tonsil of torus tubaris

36. A 52-year-old man was diagnosed with systemic amebiasis that affects intestine, liver, and lungs. What drug should be administered in this case?

- a. Enteroseptol

- b. Tetracycline
- c. Chingamin (Chloroquine)
- d. Chiniofon
- e. Metronidazole

37. Microslide of a CNS organ impregnated with silver shows piriform cells. The cells are aligned in a row, 3-4 cellular processes branch off from the apices of the cells. These processes branch out further and form nearly two-dimensional layers. Name these cells:

- a. Martinotti cells
- b. Purkinje cells
- c. Betz cells
- d. Golgi cells
- e. Dogiel cells

38. Examination of a 15-year-old patient shows that after a maxillofacial trauma he is unable to move his lower jaw downward. This pathology is likely to be caused by a damaged muscle. What muscle is damaged?

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

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

- a. -
- b. Spinal cord transection at the level of upper cervical segments
- c. Separation of pons cerebelli from medulla oblongata
- d. Bilateral vagal transection
- e. Spinal cord transection at the level of lower cervical segments

40. A child has a trauma of the lower lip. What muscle is damaged in this case?

- a. M. buccinator
- b. M. risorius
- c. M. orbicularis oris
- d. M. levator anguli oris
- e. M. levator labii superioris

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

- a. Pulmonary gangrene
- b. Hemorrhagic pulmonary infarction
- c. Pulmonary carnification
- d. Pulmonary hemorrhage
- e. Pulmonary atelectasis

42. A woman has undergone a surgery for femoral hernia. In this case the hernial protrusion is projected into the:

- a. Gluteal region
- b. Femoral triangle
- c. Inguinal region
- d. Pubic region
- e. -

43. Beriberi is a classical example of thiamine deficiency. Active form of this vitamin is synthesized by an enzyme belonging to the following group:

- a. Lyases
- b. Isomerase
- c. Transferases

- d. Oxidoreductases
- e. Hydrolases

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

- a. Pineal gland
- b. Mesencephalon
- c. Hypothalamus
- d. Pituitary
- e. Medulla oblongata

45. A patient with cholelithiasis produces colorless fatty feces because of obturation of the bile ducts. Steatorrhea is caused by the absence of a certain bile component. Name this component:

- a. Alkaline phosphatase
- b. Bile acids
- c. Bile pigments
- d. Fatty acids
- e. Cholesterol

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

- a. Herpes simplex virus
- b. Mumps virus
- c. Coxsackievirus A
- d. Measles virus
- e. Varicella-zoster virus

47. Examination of the epithelial cells from the buccal mucosa of a man detected that the majority of cell nuclei contain one Barr body. What syndrome can be characterized by these findings?

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

48. A 24-year-old man died of acute cardiopulmonary failure. During the last two days he complained of a cough with a small amount of <<rusty>> sputum, chest pain on the right that intensified sharply during breathing, and a fever of 39°C. Autopsy of the body revealed red, dense, and airless lower pulmonary lobes; the pleura is covered in fibrin threads and membranes. The deceased was diagnosed with bilateral pleuropneumonia of the lower pulmonary lobes. What stage of pneumonia was most likely in this man?

- a. Congestion
- b. Red hepatization
- c. Gray hepatization
- d. Resolution
- e. -

49. A 30-year-old patient has markedly positive Wassermann reaction (+++). What infectious disease can be diagnosed, using the Wassermann reaction?

- a. Poliomyelitis
- b. Tuberculosis
- c. Influenza
- d. Brucellosis
- e. Syphilis

50. After inhalation of dust a person develops cough, which results from stimulation of:

- a. Irritant receptors
- b. Pulmonary thermoreceptors
- c. Pulmonary chemoreceptors
- d. Juxtagillary receptors
- e. Nociceptors

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

52. A woman diagnosed with dysentery was hospitalized into the infectious diseases unit. Laboratory analysis determined that the causative agents are Entamoeba histolytica. What drug should she be prescribed?

- a. Chingamin (Chloroquine)
- b. Isoniazid
- c. Benzylpenicillin sodium salt
- d. Rifampicin
- e. Metronidazole

53. The height of a person is controlled by several non-allelic dominant genes. If the number of these genes is increased, the height of a person increases as well. What type of interaction occurs between these genes?

- a. Epistasis
- b. Codominance
- c. Complementarity
- d. Polymer
- e. Pleiotropy

54. A histology slide with a section of a dental crown shows a small number of radially positioned collagen fibers (Korff fibers) in the intercellular substance of dentin. What layer of dentin is it?

- a. Interglobular dentin
- b. Granular layer
- c. Parapulpal dentin
- d. Predentin
- e. Mantle dentin

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

- a. Smooth endoplasmic reticulum
- b. Granular endoplasmic reticulum
- c. Lysosomes
- d. Mitochondria
- e. Centrosome

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

- a. It stimulates DNase
- b. It inhibits translation
- c. It inhibits transcription
- d. It inhibits DNA synthesis
- e. It accelerates replication

57. Urinalysis shows glucosuria in a patient with diabetes mellitus. What is the renal threshold for glucose?

- a. 1.0 mmol/L

- b. 8.88 mmol/L
- c. 5.55 mmol/L
- d. 20.0 mmol/L
- e. 15.5 mmol/L

58. A man uses dentures. The dentist has noticed mucosal lesions with a white coating in his oral cavity. Microscopy of the coating detected large oval Gram-positive cells. What microorganisms have caused stomatitis in the patient?

- a. Streptococci
- b. Oral trichomonas
- c. Yeast-like fungi of Candida genus
- d. Actinomycetes
- e. Oral spirochetes

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

- a. Dimedrol (Diphenhydramine)
- b. Nitrazepam
- c. Piracetam
- d. Droperidol
- e. Caffeine and sodium benzoate

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

61. During appointment with the dentist, patients often develop anxiety, fear, and depression. These psychoemotional changes occur due to increased secretion of a certain mediator in the central nervous system. Name this mediator:

- a. Acetylcholine
- b. Noradrenalin
- c. GABA
- d. Serotonin
- e. Dopamine

62. Dopamine precursor - dihydroxyphenylalanine (DOPA) - is used in treatment of Parkinson's disease. This active substance is produced from the following amino acid:

- a. Alanine
- b. Cysteine
- c. Tryptophan
- d. Histidine
- e. Tyrosine

63. Examination of a tooth shows that there is a large cavity in its crown. The floor of the cavity consists of thin layer of softened dentin that separates the cavity from the pulp. What is the most likely diagnosis?

- a. Periodontitis
- b. Superficial caries
- c. Median caries
- d. Deep caries
- e. Pulpitis

64. During analysis of a blood sample, the laboratory assistant additionally noted that this sample

belongs to a female patient. Such conclusion can be made based on the structural characteristics of certain blood corpuscles. Name this type of corpuscles:

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

65. A deletion of the short arm of the 5th chromosome was detected in the somatic cells of an abortive human fetus. Specify the number of autosomes in the karyotype of this organism:

- a. 47
- b. 44
- c. 45
- d. 48
- e. 46

66. During removal of a carious tooth, the dental surgeon noticed a soft elastic gray-pink nodule 1.3 cm in diameter in the region of the dental root. Microscopically, the nodule consists of granulation tissue with lymphocytes, plasma cells, mast cells, macrophages, xanthome cells, and fibroblasts.

Make the diagnosis:

- a. Eosinophilic granuloma
- b. Simple granuloma
- c. Cystic granuloma
- d. Granulating periodontitis
- e. Epithelial granuloma

67. A 36-year-old man was hospitalized into the infectious diseases hospital with profuse diarrhea, signs of exicosis, and low body temperature. He died of uremia. Autopsy revealed a colorless liquid resembling rice water in the lumen of the small intestine; mucosa is edematous. Microscopy of the small intestine shows plethoric vessels, focal hemorrhages, enterocyte desquamation, hypersecretion of goblet cells, and lympholeukocytic infiltration of mucosal stroma. Make the diagnosis:

- a. Typhoid fever
- b. Salmonellosis
- c. Dysentery
- d. Cholera
- e. Crohn disease

68. Condition of a patient with thoracic trauma deteriorates quickly: he develops increasing asphyxiation, facial pallor, tachycardia. What is the likely cause of these developments?

- a. Rib fracture
- b. Fright
- c. Thoracic contusion
- d. Response to pain stimulus
- e. Pneumothorax

69. A man developed a malignant neoplasm in his tongue. What characteristics of this tumor allow identifying it as malignant?

- a. Expansive growth
- b. Increased number of mitotic cells
- c. Infiltrating growth
- d. Anaplasia
- e. Positive Pasteur effect

70. 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. Mixed
- d. Hemic
- e. Respiratory

71. During surgery on the stomach, the surgeon has cut the left gastric artery and ligated it. However the opposite end of the cut artery continued to bleed. What artery anastomoses with the left gastric artery?

- a. Right gastric artery
- b. Right gastroepiploic artery
- c. Left gastroepiploic artery
- d. Splenic artery
- e. Superior pancreaticoduodenal artery

72. A 36-year-old man traveled to the mountains for a vacation (altitude of 2000 meters above the sea level). He developed increased respiration rate, tachycardia, and slight dizziness. Two days later these signs disappeared. This process is called:

- a. Regeneration
- b. Compensation
- c. Proliferation
- d. Adaptation
- e. Inhibition

73. A 20-year-old pregnant woman has a round reddish formation with ulceration on its surface on the vestibular surface of the gums in her incisor region. Microscopy detects in this formation a similarity to a capillary hemangioma. What diagnosis is likely in this case?

- a. Angiomatous epulis
- b. Fibroma
- c. Fibrous epulis
- d. Giant cell epulis
- e. Papilloma

74. In an experiment, thymus was removed from the newborn mice. After its removal, the blood of these mice exhibited low lymphocyte count, no production of antibodies, and no rejection of foreign tissues. In the work of which system of the body thymus plays an important role?

- a. Reproductive
- b. Nervous
- c. Immune
- d. Endocrine
- e. Circulatory

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

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

76. A trauma patient has a fracture in the petrous part of the temporal bone. The fracture line passes behind the internal auditory foramen. What canal of the temporal bone was damaged?

- a. Facial canal
- b. Musculotubal canal
- c. Tympanic canal
- d. Canalculus of the chorda tympani
- e. Carotid canal

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

- a. Platiphylline

b. Mesaton (Phenylephrine)

c. Tropicamide

d. Atropine

e. Homatropine

78. Autopsy of the body of a 62-year-old man detected a focus of tissue breakdown in the liver. The lesion is 4 cm in diameter and filled with a yellowish-green fluid. What is the most likely diagnosis?

a. Carbuncle

b. Abscess

c. Empyema

d. Granuloma

e. Phlegmon

79. 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. Arachidonic acid

b. Biotin

c. Methionine

d. Cholesterol

e. Alanine

80. During a neck surgery, the patient's sternothyroid muscle was damaged by the surgeon. What function will be impaired because of the damage to this muscle?

a. Raising of the larynx

b. Neck extension

c. Raising of the hyoid bone

d. Bending the neck forwards

e. Lowering of the larynx

81. A patient developed hypersalivation during dental manipulations. What group of drugs can inhibit saliva production?

a. Adrenergic antagonists

b. Adrenergic agonists

c. Cholinergic antagonists

d. Astringents

e. Cholinergic agonists

82. A patient needs a surgery on the cervical part of the trachea. Through what part of the neck will the surgeon access the trachea?

a. Omotracheal triangle

b. Lingual triangle

c. Omotrapezoid triangle

d. Submandibular triangle

e. Carotid triangle

83. A woman underwent surgical removal of a mandibular tumor that had the appearance of a detached dense node. The section revealed a red tumor with white spots and small cysts. Histology shows that the tumor consists of giant multinucleated and small mononucleated cells, between which bone trabeculae are formed. What tumor can be characterized by such clinical and laboratory findings?

a. Osteoid osteoma

b. Giant cell tumor of bone

c. Osteosarcoma

d. Ameloblastoma

e. Osteoma

84. Phenylketonuria has autosomal recessive pattern of inheritance. What parental genotypes result in the risk of phenylketonuria in their children?

a. aa x aa

b. AA x aa

c. Aa x Aa

d. AA x AA

e. AA x Aa

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

a. Concentration system

b. Secretion system

c. Filtration system

d. Countercurrent system

e. Reabsorption system

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

a. Purkinje fibers

b. Ebner fibers

c. Sharpey fibers

d. Argyrophilic fibers

e. Korff fibers

87. A 22-year-old man was brought into the inpatient department with complaints of fever and weakness. One of his enlarged cervical lymph nodes was excised for histological analysis. In the tissues of the lymph node there are necrotic foci surrounded with epithelioid cells, Langhans multinucleated giant cells, and lymphocytes. What disease can be suspected in this case?

a. Syphilis

b. Tuberculosis

c. Lymphogranulomatosis

d. Lymphatic leukemia

e. Sarcoidosis

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

a. Histamine

b. Renin

c. Angiotensin II

d. Bradykinin

e. Serotonin

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

a. Activates voltage-gated potassium channels

b. Blocks voltage-gated potassium channels

c. Blocks ligand-gated sodium channels

d. Blocks voltage-gated calcium channels

e. Blocks voltage-gated sodium channels

90. A patient complains of severe rhinitis and total loss of olfactory perception. Receptors of the olfactory analyzer are damaged in this patient. Where in the nasal cavity are these receptors located?

a. Common nasal meatus

b. Middle nasal meatus

c. Choanae

d. Superior nasal meatus

e. Inferior nasal meatus

91. A patient complains of toothache. Examination revealed a carious cavity that exposes the pulp. What stage of caries is it?

a. Circular caries

- b. Median caries
- c. Chalky lesion
- d. Deep caries**
- e. Superficial caries

92. A histopathological analysis of the tissues of an extracted tooth shows that a larger part of the dental cavity is filled with the collagen fiber-rich connective tissue and cellular infiltrations that are made up of lymphocytes and plasma cells. What type of pulpitis can be characterized by the described changes?

- a. -
- b. Fibrous pulpitis**
- c. Purulent pulpitis
- d. Gangrenous pulpitis
- e. Granulating pulpitis

93. After a surgery an animal developed tetany as a result of low plasma calcium levels. What endocrine gland was removed in the animal?

- a. Thymus
- b. Thyroid gland
- c. Parathyroid glands**
- d. Pineal gland
- e. Adrenal cortex

94. A urine sample was taken via a catheter from the urinary bladder of a 17-year-old young man. Microscopy of the urine precipitate in this case can detect cells of the epithelium that lines the urinary bladder. What epithelium is it?

- a. Transitional epithelium**
- b. Keratinized stratified epithelium
- c. Non-stratified cuboidal epithelium
- d. Non-stratified columnar epithelium
- e. Non-keratinized stratified epithelium

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

- a. Albumins, globulins
- b. Enamelin, amelogenin
- c. Osteocalcin, osteonectin**
- d. Collagen, elastin
- e. Fibrinogen, prothrombin

96. 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. Relaxin
- b. Prolactin
- c. Estriol
- d. Testosterone**
- e. Oxytocin

97. Electronic microscopy of a kidney shows tubules paved with cuboidal epithelium. In the epithelium there are light and dark cells. The light cells contain few organelles; their cytoplasm forms folds. These cells provide reabsorption of water from primary urine into blood. The dark cells structurally and functionally resemble gastric parietal cells. What tubules are shown on the microslide?

- a. Descending limb of loop of Henle
- b. Ascending limb of loop of Henle
- c. Proximal tubules
- d. Distal tubules
- e. Collecting tubules**

98. A patient has been hospitalized in a severe general condition, with high temperature and difficulty

breathing. Bacterioscopy of the material obtained from the patient's pharynx and airways allowed provisionally diagnosing the patient with diphtheritic croup. What staining technique was used in this case?

- a. Ziehl-Neelsen stain
- b. Ozheshko stain
- c. Burri-Gins stain
- d. Peshkov stain
- e. Neisser stain

99. Analgin (metamizole) effectively relieves pulpitis-induced pain not only after its resorptive administration, but after topical administration as well. What action of this drug results in anesthetic effect in the latter case?

- a. Inhibition of P substance release
- b. Counter-attracting action
- c. Local anesthetic effect of Analgin (Metamizole)
- d. Inhibition of algogenic kinin formation
- e. Cyclooxygenase-2 inhibition

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

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

- a. HBe antigen
- b. Anti-HBs IgG
- c. Viral DNA
- d. Anti-HBc IgM
- e. HBs antigen

102. After mushroom poisoning, a person developed yellow coloring of the skin and sclera and dark-colored urine. What pigment causes urine discoloration in patients with hemolytic jaundice?

- a. Unconjugated bilirubin
- b. Verdoglobin
- c. Stercobilin
- d. Biliverdin
- e. Bilirubin monoglucuronide

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

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

104. A patient with electrical injury to the neck area developed pathologic fixed sideways flexion of the head towards the injured area, while the face is fixed away from the injury. What neck muscle sustained scarring?

- a. Anterior scalene muscle
- b. Trapezius muscle
- c. Omohyoid muscle
- d. Digastric muscle
- e. Sternocleidomastoid muscle

105. At the end of winter a student, who had been lately in the state of nervous tension, developed a case of URTI after overexposure to cold. What is the case of this disease?

- a. Nervous stress
- b. Pathogenic agent**
- c. Hypovitaminosis
- d. Overexposure to cold
- e. Improper diet

106. In the genetic consultancy a pregnant woman (20 weeks of pregnancy) was examined. US shows normally developed fetus, no abnormalities in the cardiovascular system, ductus arteriosus is functional. What fetal vessels are connected with ductus arteriosus?

- a. Pulmonary trunk and aorta**
- b. Pulmonary trunk and pulmonary veins
- c. Pulmonary trunk and inferior vena cava
- d. Aorta and superior vena cava
- e. Aorta and inferior vena cava

107. A 78-year-old woman during physical exertion suddenly developed abdominal pain accompanied by pallor and a drop in blood pressure to as low as 70/40 mm Hg. Death occurred with signs of acute heart failure. Autopsy detected marked atherosclerosis and a sacculation of vessel wall in the abdominal aorta. The sacculation is 16 cm in diameter and filled with blood clots. In the wall of the sacculation there is a fissured perforation. What pathology occurred in the woman's aorta?

- a. -
- b. Nonspecific aortitis
- c. Dysplastic aortic wall
- d. Aortic aneurysm with rupture**
- e. Syphilitic mesaortitis

108. Prolonged taking of large doses of aspirin (acetylsalicylic acid) leads to inhibition of prostaglandin synthesis because of decreased activity of the following enzyme:

- a. Cyclooxygenase**
- b. Phospholipase A2
- c. Peroxidase
- d. Phosphodiesterase
- e. 5-Lipoxygenase

109. A patient with a many-year-long history of mandibular osteomyelitis developed edema, massive proteinuria, and hyperlipidemia. What condition is the most likely in this patient?

- a. Urolithiasis
- b. Nephrotic syndrome**
- c. Chronic kidney disease
- d. Nephritis
- e. Pyelonephritis

110. Examination of the oral cavity shows that gingival mucosa of the upper jaw is reddish, has signs of edema, and slightly bleeds, with the damage localized primarily at the interdental areas. What diagnosis is likely in this case?

- a. Parodontosis
- b. Ulcerative gingivitis**
- c. Local parodontitis
- d. Hypertrophic gingivitis
- e. Catarrhal gingivitis**

111. Heart auscultation revealed a split first heart sound over the base of the xiphoid process. In this case, the doctor was auscultating the pathology of the following valve:

- a. Pulmonary valve
- b. Aortic valve**
- c. Valve of the superior vena cava

- d. Tricuspid valve
- e. Bicuspid valve

112. A child presents with dry cough. What non-narcotic antitussive drug can relieve the patient's condition?

- a. Glaucine hydrochloride
- b. Potassium iodide
- c. Althaea officinalis roots
- d. Morphine hydrochloride
- e. Codeine phosphate

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

- a. Brain
- b. Kidneys
- c. Muscles
- d. Heart
- e. Liver

114. The patient's EEG shows delta and theta rhythms, which indicates that the patient is in a state of:

- a. Slow-wave sleep
- b. Rest with eyes open
- c. Active wakefulness
- d. Rest with eyes closed
- e. Rapid eye movement sleep

115. An acute blood loss has caused a decrease in the systemic blood pressure. This situation can be stabilized with the intensified secretion of a certain hormone. Name this hormone:

- a. Gastrin
- b. Testosterone
- c. Glucagon
- d. Renin
- e. Insulin

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

- a. Discoordination between the visual and motor systems
- b. Overstimulation of the visceroreceptors in the abdominal cavity
- c. Activation of the parasympathetic part of the autonomic nervous system
- d. Overstimulation of the vestibular apparatus
- e. Activation of the sympathetic part of the autonomic nervous system

117. The pediatrician examines a one-year-old child. The child has 4 teeth in the oral cavity. How many milk teeth should the child have at this age?

- a. 14
- b. 8
- c. 10
- d. 20
- e. 12

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

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

119. Prolonged exposure of a human body to toxic substances has resulted in destruction of the organelles that perform protein synthesis in the hepatocytes. Name these organelles:

- a. Mitochondria
- b. Lysosomes
- c. Ribosomes
- d. Peroxisomes
- e. -

120. Increased aortic blood pressure created an overload of the cardiac muscle. In what cardiac structure does the muscle wall respond to the irritation in this case?

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

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

- a. Hypertelorism
- b. Cheiloschisis
- c. Micrognathia
- d. Macrostomia
- e. Palatoschisis

122. A patient who died of chronic kidney disease has dull pericardial layers with thin fiber-like gray deposits. What pathologic process is observed in the pericardium?

- a. Fibrinous inflammation
- b. Proliferative inflammation
- c. Suppurative inflammation
- d. Catarrhal inflammation
- e. Serous inflammation

123. Microscopy with an immersion system was used to study a smear microslide with a Streptobacillus culture stained according to the Aujeszky method. What structural feature of the bacteria was analyzed?

- a. Cell wall structure
- b. Inclusions
- c. Spores
- d. Capsule
- e. Flagella

124. A 40-year-old man has returned home after his voyages along the coast of West Africa that lasted for many months. 15 days later he developed weakness, headache, elevated temperature, and fever. He was diagnosed with malaria. What laboratory methods of analysis can confirm this diagnosis?

- a. Microscopy, microbial culture
- b. Bacteriology, allergy testing
- c. Bacterioscopy, biologic method
- d. Serology, biologic method
- e. Microscopy, serology

125. A diver that submerged to the depth of 75 meters detected signs of CNS functional disturbance: excitation, lapse of concentration, euphoria leading to professional errors. What substance has toxic effect on the neurons, thus leading to the development of these signs?

- a. Ammonia
- b. Carbon dioxide
- c. Lactate
- d. Oxygen
- e. Nitrogen

126. Increased levels of high-density lipoproteins lead to decreased risk of atherosclerosis. What is the mechanism of anti-atherosclerotic effect of high-density lipoproteins?

- a. They supply tissues with cholesterol
- b. They facilitate cholesterol absorption in the intestine
- c. They take part in cholesterol breakdown
- d. They activate cholesterol transformation into bile acids
- e. They extract cholesterol from tissues

127. There are several ways of ammonia neutralization in the body, with some organs having their own specific ways. What way of ammonia neutralization is characteristic of brain cells?

- a. Glutamine formation
- b. Creatine formation
- c. Asparagine formation
- d. Urea formation
- e. NH₄⁺ formation

128. A man after a traffic accident was brought in a severe condition to the intensive care unit. The patient's condition can be described as a severe pathologic process accompanied by exhaustion of vital functions that brings the body to the brink of death due to critical decrease of capillary circulation in the affected organs. Name the patient's condition:

- a. Coma
- b. Agony
- c. Preagony
- d. Shock
- e. Collapse

129. A patient with acute appendicitis presents with increasing leukocyte blood count. What type of leukocytosis can be observed in the patients diagnosed with this condition?

- a. Basophilic
- b. Eosinophilic
- c. Neutrophilic
- d. Lymphocytosis
- e. Monocytosis

130. A patient with essential hypertension has increased blood vasopressin levels. This hormone has an effect on the functioning of the following organ:

- a. Heart
- b. Kidneys
- c. Adrenal glands
- d. Lungs
- e. Liver

131. During mitosis, chromosome disjunction and movement toward opposite poles of the cell has been disturbed because of the decay of microtubules, contained in the centrioles. What protein makes up centriole microtubules?

- a. Dynein
- b. Tubulin
- c. Actin
- d. Myosin
- e. Vimentin

132. Mitochondrial respiratory chain contains complex cytochrome proteins in its structure. What type of reactions do they catalyze?

- a. Hydration
- b. Deamination
- c. Transamination
- d. Redox
- e. Decarboxylation

133. A patient diagnosed with gout has a significant increase in the levels of uric acid in the blood.

Uric acid is the end product of the metabolism of:

- a. Albumins
- b. Globulins
- c. Triglycerides
- d. Fatty acids
- e. Purine bases

134. A 23-year-old man with a cerebrocranial trauma was hospitalized in a severe condition. His respiration has a characteristically labored spasmodic inspiration that does not stop and only rarely is interrupted by an expiration. What type of respiration is it characteristic of?

- a. Cheyne-Stokes respiration
- b. Kussmaul respiration
- c. Apneustic respiration
- d. Biot respiration
- e. Gasping respiration

135. The dentist examines a pregnant woman. There are 3 round lesions up to 1 cm in diameter on her oral mucosa. The lesions appeared 3 days ago, they have white-gray surface and red margin. The dentist can make the following diagnosis:

- a. Gangrenous stomatitis
- b. Catarrhal stomatitis
- c. Necrotizing ulcerative stomatitis
- d. Aphthous stomatitis
- e. Leukoplakia

136. After a family quarrel, a 70-year-old man was hospitalized with the diagnosis of ischemic heart disease, preinfarction state. What substance can cause a coronary angospasm in the patient?

- a. Thromboxane A₂
- b. Prostacyclin
- c. Adenosine
- d. Potassium ions
- e. Nitrous oxide

137. A man presents with impaired pupillary reflex. His pupils are narrowed and he poorly orients in a dark room. What eyeball muscle is dysfunctional in this case?

- a. M. sphincter pupillae
- b. M. obliquus inferior
- c. M. dilatator pupillae
- d. M. ciliaris
- e. M. obliquus superior

138. A man cannot lift his drooping lower jaw. What muscles of the head \textbf{DO NOT} function properly in this case?

- a. Superior auricular
- b. Masseters
- c. Zygomaticus major
- d. Buccinators
- e. Zygomaticus minor

139. After a total gastric resection the patient developed severe B12-deficient anemia with disturbed hematopoiesis. Changed erythrocytes appeared in the patient's blood. One of the signs of this anemia is the presence of the following in blood:

- a. Microcytes
- b. Anulocytes
- c. Megalocytes
- d. Normocytes
- e. Elliptocytes

140. A 59-year-old man has signs of parenchymal jaundice and portal hypertension. Histology of the puncture biopsy material, obtained from the patient's liver, shows the following: disturbed lobar and trabecular structure, signs of fatty degeneration in a portion of hepatocytes, formation of porto-portal connective tissue septa with pseudolobules and periportal lympho-macrophageal infiltrations. Make the diagnosis:

- a. Chronic hepatitis
- b. Viral hepatitis
- c. Toxic dystrophy
- d. Alcoholic hepatitis
- e. Hepatic cirrhosis

141. A patient came to a dentist complaining of fever and characteristic small vesicles on the buccal, palatal, and lingual mucosa. The dentist suspects herpetic stomatitis. What additional test is necessary to confirm the diagnosis?

- a. Precipitation reaction
- b. Inoculation on Rappaport medium
- c. Inoculation on Eagle medium
- d. Inoculation of chick chorioallantoic membrane or brain tissue of white mice
- e. Inoculation on medium 199 with addition of bovine serum

142. 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. Vagus
- b. Oculomotor
- c. Trigeminal
- d. Facial
- e. Accessory

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

144. To treat ischemic heart disease, a patient was prescribed a beta-adrenergic blocking agent. After a time he developed a cough and bronchospasm. What drug can cause these side effects?

- a. Atenolol
- b. Anaprilin (Propranolol)
- c. Talinolol
- d. Phenihidine (Nifedipine)
- e. Metoprolol

145. Mother of a 4-year-old child complains that the child developed elevated body temperature, tenesmus, diarrhea, and abdominal pain attacks. The child attends a preschool facility. Laboratory analysis detected mucus and blood admixtures in the child's feces. Name the changes that occur in the gastrointestinal tract during dysentery:

- a. Gastroenteritis
- b. Enteritis
- c. Enterocolitis
- d. Gastritis
- e. Colitis

146. Epidermis regeneration in the areas of traumatic damage occurs because of a growth zone (Malpighian layer). What epidermal layers are included into this zone?

- a. Stratum basale and stratum spinosum
- b. Stratum basale and stratum corneum
- c. Stratum spinosum and stratum granulosum
- d. Stratum granulosum and stratum lucidum
- e. Stratum lucidum and stratum corneum

147. A cessation of morphine administration after its long-term use leads to the development of severe mental, neurological, and somatic disorders. Name this condition:

- a. Sensitization
- b. Idiosyncrasy
- c. Tolerance
- d. Withdrawal
- e. Cumulation

148. A patient with essential hypertension presents with significant increase in left ventricular myocardial mass. It is likely to be caused by:

- a. Increased number of cardiomyocytes
- b. Increased volume of cardiomyocytes
- c. Proliferation of connective tissue
- d. Myocardial fluid retention
- e. Fatty infiltration of the myocardium

149. A culture of coccal bacteria was obtained from the oropharynx of a boy with chronic tonsillitis. In the smears these bacteria are arranged in chains. What bacteria are likely in this case?

- a. Streptococci
- b. Clostridia
- c. Escherichia
- d. Staphylococci
- e. Vibrio

150. A patient with bronchopneumonia was prescribed acetylcysteine. What are the indications for this drug?

- a. Asphyxia of newborn
- b. Bronchial asthma
- c. Productive bronchitis
- d. Convulsions
- e. Heart failure

151. The patient's right palpebral fissure is markedly larger than the left. What mimic muscle is functionally disturbed in this case?

- a. M. zygomaticus major
- b. M. orbicularis oculi
- c. M. corrugator supercilli
- d. M. procerus
- e. M. occipitofrontalis (venter frontalis)

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

- a. Visual
- b. Vestibular
- c. Auditory
- d. Olfactory
- e. Gustatory

153. A patient was delivered into a hospital with the provisional diagnosis of botulism. What serological reaction should be used for detection of botulinum toxin in the material being analyzed?

- a. Complement fixation reaction
- b. Agglutination reaction

- c. Immunofluorescence reaction
- d. Precipitation reaction
- e. Neutralization reaction

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

- a. Gram stain
- b. Burri-Gins stain
- c. Ozheshko stain
- d. Ziehl-Neelsen stain
- e. Morozov stain

155. A patient with heatstroke was delivered to the admission room. What compensatory reactions develop in the patient's body in such case?

- a. Increased heart rate
- b. Coronary vasospasm
- c. Peripheral vasodilatation
- d. Peripheral vasoconstriction
- e. Persistent hyperglycemia

156. A histological specimen shows three neurons: pseudounipolar, bipolar, and multipolar. How many axons will each of these cell have?

- a. Two
- b. Many
- c. None
- d. Three
- e. One

157. For two weeks a woman has been taking the mixture for neurasthenia, which was prescribed by a neurologist. Her general state slightly improved but shortly she started complaining of rhinitis, conjunctivitis, skin rashes, fatigue, and memory impairment. What group of drugs can have such a side effect?

- a. Hop preparations
- b. Motherwort preparations
- c. Bromine salts
- d. Valerian preparations
- e. Adaptogens

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

- a. No respiration, thready pulse
- b. No respiration, no cardiac activity
- c. Kussmaul respiration, no cardiac activity
- d. Rapid respiration, weak heart sounds
- e. Apneustic respiration, no cardiac activity

159. To improve digestion of fatty food, the patient was prescribed a bile-containing preparation. What components of this preparation take part in emulsification of fats?

- a. Bilirubin glucuronides
- b. Bile acids
- c. Higher fatty acids
- d. Diglycerides
- e. Cholesterol and its ethers

160. In an experiment, a human cell culture was irradiated with protons. As a result of irradiation, a damage to the nucleoli was observed. Formation of what organelles will be disrupted in this case?

- a. Golgi apparatus
- b. Lysosomes
- c. Microtubules

d. Endoplasmic reticulum

e. Ribosomes

161. A Gram-negative mobile bacillus was obtained from a patient, provisionally diagnosed with typhoid fever. The obtained culture was inoculated onto semiliquid Hiss media for identification. What phenomenon signifies the microbial breakdown of carbohydrates into acid?

a. Nutrient medium becomes turbid

b. Gas formation

c. Indicator changes its color

d. Liquefaction of the medium

e. Precipitation

162. Biological material taken from a patient contains several species of microorganisms (staphylococci and streptococci) that are causative agents of the patient's disease. Name this type of infection:

a. Consecutive infection

b. Coinfection

c. Mixed infection

d. Reinfection

e. Superinfection

163. During examination of a child's oral cavity a dentist noted the appearance of the first permanent molars on the child's lower jaw. How old is the child?

a. 12-13

b. 6-7

c. 8-9

d. 4-5

e. 10-11

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

a. Macrophages

b. Plasma cells

c. Labrocytes

d. Lymphocytes

e. Neutrophilic granulocytes

165. Histology of the dental pulp shows that the larger part of the dental cavity is filled with connective tissue that contains numerous collagen fibers and cellular infiltrations, consisting predominantly of lymphocytes and plasma cells. Some collagen fibers exhibit signs of hyalinosis and petrified patches can be detected. What is the most likely diagnosis?

a. Diffuse purulent pulpitis

b. Fibrous pulpitis

c. Gangrenous pulpitis

d. Granulating pulpitis

e. Serous pulpitis

166. A patient has markedly dilated subcutaneous veins in the area of the anterior abdominal wall around the umbilical region. In what vessel would there be elevated blood pressure, contributing to these symptoms?

a. V. cava superior

b. V. cava inferior

c. V. mesenterica superior

d. V. mesenterica inferior

e. V. portae hepatis

167. A 50-year-old man has been undergoing treatment for peptic ulcer disease of the stomach. His digestion normalized, pain disappeared, and general mood improved. However, several weeks later he again developed epigastric pain, heartburn, and sour eructation. How can this clinical course be

characterized?

- a. Latent period
- b. Relapse
- c. Prodromal stage
- d. Remission
- e. Terminal state

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

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

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

- a. Thalassemia
- b. Sickle cell anemia
- c. Acute posthemorrhagic anemia
- d. Iron deficiency anemia
- e. Pernicious anemia

170. A 72-year-old man with hepatocirrhosis developed hepatic coma. Its development is caused by the substances, that are being neutralized in the liver, entering into general circulation through portacaval shunts (portal hypertension syndrome) and necrosis of hepatic cells. What type of hepatic coma is characterized by these presentations?

- a. Parenchymatous
- b. Hepatocellular
- c. Shunt
- d. Mixed
- e. Ketoacidotic

171. An electronic microphotograph of a cell shows two different protein-destroying organelles. Name them:

- a. Endoplasmic reticulum and microfilament
- b. Lysosomes and proteasomes
- c. Golgi complex and microtubules
- d. Peroxisomes and ribosomes
- e. Ribosomes

172. After an insulin injection, a patient with diabetes mellitus developed unconsciousness and convulsions. What result will be shown by the biochemical test for blood sugar in this case?

- a. 8.0 mmol/L
- b. 10.0 mmol/L
- c. 5.5 mmol/L
- d. 3.3 mmol/L
- e. 1.5 mmol/L

173. In the surgical department, dressing material was being sterilized in an autoclave. Because of nurse's oversight, the sterilization regimen was disturbed and temperature in the autoclave chamber reached only 100°C instead of required 120°C) What microorganisms could remain viable under such conditions?

- a. Mold and yeast-like fungi
- b. Corynebacteria and mycobacteria
- c. Bacilli and clostridia
- d. Salmonellae and klebsiellae

e. Staphylococci and streptococci

174. An 18-year-old man came to a doctor with complaints of a facial deformity. Examination detected a tumor-like formation on his lower jaw. Microscopy revealed that the thickened area of this formation consists of large homogeneous cells, such as histiocytes, and a large number of eosinophils. Horizontal resorption of the patient's interdental septa is observed. What tumor-like disease can be characterized by this histological presentation?

- a. Cherubism
- b. Fibromatous epulis
- c. Fibrous dysplasia
- d. Giant cell epulis
- e. Eosinophilic granuloma**

175. A patient with a hemorrhage into the anterior hypothalamus developed polyuria. What hormone is in this case insufficient, leading to the decreased water reabsorption in the renal tubules?

- a. Aldosterone
- b. Adrenaline
- c. Oxytocin
- d. Calcitonin
- e. Vasopressin**

176. A certain enzyme transports functional groups from one substrate to another. What is the class of this enzyme?

- a. Ligase
- b. Transferase**
- c. Oxidoreductase
- d. Hydrolase
- e. Isomerase

177. Three days after the filling of the first right premolar, the patient developed pain under the right eye and persistent nasal congestion accompanied by the fever of 38^oC and discharge of purulent mucus from the right nasal passage. What mistake was likely made by the doctor in this case?

- a. Perforation of the right wall of the nasal cavity
- b. Perforation of the sphenoid sinus
- c. Fracture of the interalveolar septum
- d. Perforation of the infraorbital canal
- e. Perforation of the right maxillary sinus**

178. A 26-year-old woman was found to have a tumor of the alveolar process. The tumor manifests as a dense node with clear margins. Histological examination shows homogeneous mononuclear small oval cells mixed with multinucleated giant cells; occasionally bone trabeculae form among the cells.

Make the diagnosis:

- a. Ameloblastoma
- b. Primordial cyst
- c. Fibromatous epulis
- d. Giant-cell tumor of the bone**
- e. Eosinophilic granuloma

179. A patient with signs of anxiety, fear, uncertainty, and mental strain was prescribed diazepam. What mechanism of tranquilizing action can be observed in this case?

- a. Interaction with benzodiazepine receptors**
- b. Interaction with adrenergic receptors
- c. Interaction with cholinergic receptors
- d. Interaction with serotonin receptors
- e. Interaction with dopamine receptors

180. During a preventive examination, microbial cysts with eight nuclei were detected in the feces of a cafeteria worker. These cysts belong to the following protozoa:

- a. *Lamblia*

- b. Toxoplasma
- c. Pentatrichomonas hominis
- d. Entamoeba histolytica**
- e. Balantidium

181. For a rapid relief of hypertensive crisis, a 65-year-old man was prescribed a drug that suppresses the reabsorption of sodium chloride in the thick segment of the ascending limb of the loop of Henle and has marked diuretic effect. Name this drug:

- a. Spironolactone
- b. Mannitol
- c. Hydrochlorothiazide
- d. Furosemide**
- e. Triamterene

182. The substances are excreted from the cell, when membrane structure of the Golgi apparatus connects to the cell membrane. The content of this structure is then expelled from the cell. This process is called:

- a. Endocytosis
- b. Osmosis
- c. Exocytosis**
- d. -
- e. Facilitated diffusion

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

- a. Microvillar contractions**
- b. Peristaltic contractions
- c. Pendulum contractions
- d. Tonic contractions
- e. Rhythmic segmentation

184. 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. Local signs of type II hypersensitivity
- d. Type III hypersensitivity reaction
- e. -

185. 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. Degeneracy
- b. Universality
- c. Nonoverlapping
- d. Collinearity**
- e. Triplet nature

186. An unconscious man with carbon monoxide poisoning was brought to the hospital by an ambulance. In his case, hypoxia is caused by accumulation of the following in the blood:

- a. Carboxyhemoglobin**
- b. Oxyhemoglobin
- c. Sulfhemoglobin
- d. Methemoglobin
- e. Carbhemoglobin

187. 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 somatotropin
- c. Increased concentration of glucagon
- d. Increased levels of catecholamines
- e. Increased levels of thyroxine

188. After a glucose-lowering therapy, a patient with diabetes mellitus developed hypoglycemia.

What hormone, taken in excess, could have caused this hypoglycemic condition?

- a. Cortisol
- b. Thyroxine
- c. Insulin
- d. Adrenaline
- e. Glucagon

189. Lately, the laboratory diagnostics of hepatitis B includes detecting the presence of viral DNA in the patient's blood. What reaction is used to determine it?

- a. Enzyme-linked immunosorbent assay
- b. Hemagglutination inhibition reaction
- c. Polymerase chain reaction
- d. Indirect hemagglutination reaction
- e. Complement fixation reaction

190. A cell is an elementary living system that ensures proper structure, development, functioning, adaptation, procreation, and regeneration of the organism. Name the three main structural components of a cell:

- a. Glycocalyx, nucleus, organelles
- b. Cell membrane (plasmalemma), inclusions, organelles
- c. Cytoplasm, organelles, nucleus
- d. Hyaloplasm, plasmalemma, nucleus
- e. Cell membrane (plasmalemma), cytoplasm, nucleus

191. Due to trauma the patient's parathyroid glands have been removed, which resulted in inertness, thirst, sharp increase of neuromuscular excitability. Metabolism of the following substance is disturbed:

- a. Molybdenum
- b. Zinc
- c. Calcium
- d. Manganese
- e. Chlorine

192. A student, who throughout the semester was studying poorly, is emotionally tense during the final exam. Leading mechanism of emotional tension in this case is the lack of:

- a. Information
- b. Time
- c. Energy
- d. Time and energy
- e. Energy and information

193. A 42-year-old man, a hunter, was preparing a fox pelt. One week later, he fell ill. The disease manifested as nervous excitement, hydrophobia, and seizures. Autopsy of the hunter's body revealed encephalitis with damage to the brainstem, walls of the third ventricle, and hippocampus.

Encephalitis manifested as accumulation of lymphocytes and microglial cells around dead neurons and blood vessels. Eosinophilic inclusions (Babesh-Negri bodies) were detected in the hippocampal neurons. What disease can be diagnosed in the deceased?

- a. Plague
- b. Brucellosis
- c. Tularemia

d. Anthrax

e. Rabies

194. Oral examination of a child revealed that the first upper molars have already erupted. What is the age of this child?

a. 6-7 years

b. 12-13 years

c. 4-5 years

d. 8-9 years

e. 10-11 years

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

a. Heterodont

b. Thecodont

c. Acrodont

d. Homodont

e. Pleurodont

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

a. Decreased number of functional glomeruli

b. Decreased glomerular filtration

c. Decreased permeability of membrane glomeruli

d. Increased hydrostatic pressure on the capillary wall

e. Decreased oncotic blood pressure

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

a. Cretinism

b. Dwarfism

c. Giantism

d. Hypopituitarism

e. Skin hyperpigmentation

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

a. Buccal artery

b. Middle meningeal artery

c. Pterygoid branches of the maxillary artery

d. Lingual artery

e. Inferior alveolar artery

199. Macroscopic examination of lung tissue revealed areas of high airiness with small bubbles.

Histological examination revealed thinning and rupture of alveolar septa accompanied by formation of large diversiform cavities. What disease was revealed in the lung?

a. Pulmonary emphysema

b. Chronic bronchitis

c. Fibrosing alveolitis

d. Cavernous tuberculosis

e. Multiple bronchiectasis

200. 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. Specific antigen, known antibody, bacteria

c. Unknown bacterial culture, specific antibodies

d. Thermoextract, specific serum

e. Unknown antibodies, nonspecific antigen

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

- a. Blockade of Ca⁺⁺ channels
- b. Blockade of nicotinic acetylcholine ganglion receptors
- c. Activation of alpha_2-adrenoceptors
- d. Angiotensin-converting enzyme blockade
- e. Blockade of beta_1-adrenoceptors

202. What property is not characteristic of low molecular weight heparins, such as enoxaparin, fraxiparine (nadroparin calcium), etc.?

- a. An increase in the inhibitory effect of antithrombin III on factor Xa
- b. No inhibitory effect on thrombin
- c. Antiplatelet and anticoagulant activity
- d. Injected subcutaneously 1-2 times a day
- e. Bioavailability is higher than that of heparin

203. A certain disease of infection-allergic or unknown origin leads to bilateral diffuse or focal non-suppurative inflammation of renal glomerular apparatus with characteristic renal and extrarenal signs. Name this disease:

- a. Pyelonephritis
- b. Polycystic renal disease
- c. Nephrosclerosis
- d. Nephrolithiasis
- e. Glomerulonephritis

204. A woman complains of impaired gustatory sensitivity of her tongue. This disturbance can be caused by the damage to a certain nucleus of the medulla oblongata. Name this nucleus:

- a. Inferior salivatory nucleus
- b. Hypoglossal nucleus
- c. Solitary nucleus
- d. Nucleus ambiguus
- e. Dorsal nucleus of vagus nerve

205. A patient on examination presents with prolonged I heart sound. This heart sound occurs as the result of:

- a. Opening of the tricuspid valve
- b. Closing of the aortic valve
- c. Closing of the atrioventricular valves
- d. Opening of the mitral valve
- e. Closing of the pulmonary valve

206. Ultrasound of a 1.5-year-old child showed a non-union of the foramen ovale. Where in the heart is this anatomic structure located?

- a. Left ventricular wall
- b. Right ventricular wall
- c. Interatrial septum
- d. -
- e. Interventricular septum

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

- a. Obstructive disturbance of alveolar ventilation
- b. Restrictive disturbance of alveolar ventilation
- c. Dysregulatory disturbance of alveolar ventilation
- d. Perfusion insufficiency
- e. Diffusion insufficiency

208. A man, his son, and his daughter have no premolars. The same anomaly was observed in the patrilineal grandfather. What pattern of inheritance is likely in this anomaly?

- a. X-linked dominant
- b. Autosomal dominant**
- c. Y-linked
- d. X-linked recessive
- e. Autosomal recessive

209. A 63-year-old man was diagnosed with deep vein thrombophlebitis of the lower leg. What layer of these vessels is damaged in this case?

- a. Connective tissue layer
- b. Subendothelial layer
- c. Endothelial layer**
- d. Layer of smooth muscle cells
- e. Layer of elastic fibers

210. Sodium citrate is used to preserve donor blood. What should be added to this blood to induce its coagulation?

- a. Prothrombin
- b. Fibrinogen
- c. Vitamin K
- d. Sodium ions
- e. Calcium ions**

211. Ketone bodies were detected in the urine of a patient. Ketone bodies appear in the urine during the following disease:

- a. Renal infarction
- b. Urolithiasis
- c. Renal tuberculosis
- d. Acute glomerulonephritis
- e. Diabetes mellitus**

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

- a. Glycogen phosphorylase
- b. Phosphotransferase
- c. Acid phosphatase**
- d. Glucose 6-phosphatase
- e. Alkaline phosphatase

213. Autopsy of a 72-year-old man with recurrent transmural myocardial infarction revealed his epicardium and pericardium membranes to be swollen, thickened, coarse, as if covered in hair. Name the type of inflammation that occurred in the cardiac membranes:

- a. Catarrhal
- b. Suppurative
- c. Croupous**
- d. Serous
- e. Diphtheritic

214. Microscopy of an extracted tooth shows decreased count and size of odontoblasts and other cells of the dental pulp, with characteristically sclerotic connective tissue that makes up the pulp. What general pathology can be suspected in the dental pulp?

- a. Amyloidosis
- b. Fatty degeneration
- c. Hyalinosis
- d. Reticular atrophy of the pulp**
- e. Pulpal hyperplasia

215. A 40-year-old woman is being treated at the therapeutics department. Her temperature chart

shows cyclic fevers alternating with periods of temperature normalization that last for several days.
What type of temperature profile is it?

- a. Febris recurrens
- b. Febris remittens
- c. Febris intermittent
- d. Febris continua
- e. -

216. Oxidative decarboxylation of pyruvic acid is catalyzed by a multienzyme complex with several functionally linked coenzymes. Name this complex:

- a. Thymidine diphosphate (TDP), flavin adenine dinucleotide (FAD), coenzyme A (CoASH), nicotine amide adenine dinucleotide (NAD), lipoic acid
- b. Flavin adenine dinucleotide (FAD), tetrahydrofolic acid, pyridoxal-5-phosphate, thymidine diphosphate (TDP), choline
- c. Coenzyme A (CoASH), flavin adenine dinucleotide (FAD), pyridoxal-5-phosphate, tetrahydrofolic acid, carnitine
- d. Lipoic acid, tetrahydrofolic acid, pyridoxal-5-phosphate, methylcobalamin
- e. Nicotine amide adenine dinucleotide (NAD), pyridoxal-5-phosphate, thymidine diphosphate (TDP), methylcobalamin, biotin

217. Pediatric examination of a 10-year-old child detected numerous petechiae on the skin, bleeding gums, and low levels of vitamin C in urine. What process is disturbed in this case?

- a. Proteoglycan breakdown
- b. Collagen synthesis
- c. Proteoglycan synthesis
- d. Collagen breakdown
- e. Hyaluronidase activation

218. A patient complains of productive cough and general weakness. Laboratory analysis of sputum revealed larvae. It is a characteristic sign of:

- a. Enterobiasis
- b. Cysticercosis
- c. Taeniasis
- d. Ascariasis
- e. Opisthorchiasis

219. 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

220. A patient on the 2nd day after cardiac infarction presents with acute decrease of systolic blood pressure down to 60 mm Hg with tachycardia 140/min., dyspnea, loss of consciousness. What mechanism is essential in the pathogenesis of shock developed in this case?

- a. Development of paroxysmal tachycardia
- b. Development of anaphylactic reaction to myocardial proteins
- c. Increased myocardial excitability caused by products of necrotic disintegration
- d. Decreased circulating blood volume
- e. Decreased cardiac output

221. During preventive examination a man presents with enlarged thyroid gland, exophthalmia, body temperature of 37.3°C , tachycardia, and trembling fingers. What pathology of the thyroid gland did the patient develop?

- a. Sporadic cretinism
- b. Endemic goiter
- c. Graves' disease

- d. Myxedema
- e. Thyroid adenoma

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

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

223. To treat osteomyelitis, a patient was prescribed an antibiotic that easily penetrates into bone tissue. Name this drug:

- a. Cefazolin
- b. Polymyxin B
- c. Lincomycin hydrochloride
- d. Streptomycin sulfate
- e. Amphotericin B

224. After a psychological trauma, the patient constantly feels agitation, anxiety, and fear. What drug that is a benzodiazepine derivative was prescribed to this patient?

- a. Metoclopramide
- b. Heparin
- c. Bisacodyl
- d. Analgin (Metamizole)
- e. Diazepam

225. A patient suffering from acute bronchitis with difficult expectoration was prescribed acetylcysteine. What drug action will provide curative effect?

- a. Mucoproteins depolymerization
- b. Reflex stimulation of bronchiolar peristalsis
- c. Stimulation of the bronchial glands
- d. Activation of bronchial ciliated epithelium
- e. Alkalination of sputum

226. X-ray scan shows a skull fracture. The line of the fracture passes through the supraorbital rim. What bone is damaged?

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

227. A patient suffers from disturbed blood supply of superior lateral surface of the cerebral hemispheres. What blood vessel is damaged?

- a. Posterior cerebral artery
- b. Medial cerebral artery
- c. Posterior communicating artery
- d. Anterior cerebral artery
- e. Anterior communicating artery

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

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

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

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

230. 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. Hair cells
- b. Marginal cells
- c. Pillars
- d. Supporting cells
- e. Phalangeal cells

231. A man complains to a dentist about problems with chewing and pain that occurs when he moves his jaw backwards. The doctor detected an inflammation of a certain masticatory muscle in this patient. Name this muscle:

- a. Masseter muscle
- b. Medial pterygoid muscle
- c. Temporal muscle (anterior fibers)
- d. Lateral pterygoid muscle
- e. Temporal muscle (posterior fibers)

232. Examination of a person with an extremely short stature (dwarfism) detects childish facial features, normal body proportions, and underdeveloped secondary sexual characters. This person has low hormonal activity in the:

- a. Thyroid gland
- b. Posterior lobe of pituitary gland
- c. Middle lobe of pituitary gland
- d. Anterior lobe of pituitary gland
- e. Thymus

233. A child presents with hepatomegaly, hypoglycemia, and convulsions that occur predominantly during fasting or in stress-inducing situations. The child is diagnosed with von Gierke disease (glycogen storage disease type I). What enzyme is affected by the genetic defect that is the cause of this disease?

- a. Glucokinase
- b. Glycogen phosphorylase
- c. Phosphoglucomutase
- d. Amylo-1,6-glycosidase
- e. Glucose 6-phosphatase

234. 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. Increased vagal tone
- b. Adrenaline production
- c. Increased tone of the sympathetic nervous system
- d. Cortisol production
- e. Aldosterone production

235. What immunoglobulins produced in salivary glands ensure local immunity of oral mucosa?

- a. IgD
- b. IgE
- c. IgA
- d. IgM
- e. IgG

236. 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 pharyngeal muscles
- b. Disturbed contraction of the muscles of the soft palate
- c. Disturbed function of the lingual muscles
- d. Disturbed contraction of the laryngeal muscles
- e. Disturbed contraction of the muscles that elevate the hyoid bone

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

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

- a. Ploskirev nutrient medium
- b. Buchin nutrient medium
- c. Meat-peptone agar
- d. Bile-salt agar
- e. Sugar-peptone broth

239. In an experiment, the oxygen supply to an isolated mammalian nerve cell was completely stopped. How will the resting potential change in this case?

- a. Significantly increase
- b. Significantly decrease
- c. Remain unchanged
- d. Slightly increase
- e. Disappear

240. Examination of a patient detects neck thickening, exophthalmos, fever, and a pulse of 110/min. What hormone levels must be measured in the patient's blood?

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

241. A person came to the admission room with complaints of dry mouth, photophobia, and visual disturbances. Objective examination detected dry hyperemic skin, dilated pupils, and tachycardia. This person was diagnosed with Atropa belladonna alkaloids poisoning. What medicine must be used in this case?

- a. Proserin (Neostigmine)
- b. Dipyroxime (Trimedoxime bromide)
- c. Pilocarpine
- d. Aceclidine
- e. Armin

242. Lower limbs of a patient with varicose veins were examined. The patient's legs are cyanotic and pastose, skin temperature is low, single petechiae are observed. What disturbance of hemodynamics is it?

- a. Venous hyperemia
- b. Obstruction ischemia
- c. Thromboembolism
- d. Compression ischemia

e. Arterial hyperemia

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

244. A man came to the virology laboratory of an infectious diseases hospital. He needs to be examined for HIV infection. What methods of laboratory diagnostics for HIV infection and AIDS are currently used in Ukraine?

- a. Allergological
- b. Biological
- c. Virological
- d. Serological
- e. Bacteriological

245. During acute inflammation of parotid gland, there is damage to the cells of secretory segments observed. What cells are damaged in this case?

- a. Seromucous cells
- b. Serous cells, cells with basal striation, stellate cells
- c. Serous cells, myoepithelial cells
- d. Brush-bordered epithelial cells, cells with basal striation
- e. Albuminous cells, serous cells, mucous cells

246. Autopsy of a 52-year-old man revealed changes in his lungs: there is a segmented area of caseous necrosis in the upper right lung; the segments merge with each other. The lung is enlarged, dense, yellowish-colored on section; there are fibrinous films on the pleura. Name the type of tuberculosis:

- a. Caseous pneumonia
- b. Cirrhotic tuberculosis
- c. Tuberculoma
- d. Infiltrative tuberculosis
- e. Acute cavernous tuberculosis

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

- a. Bronchiectasis
- b. Chronic bronchitis
- c. Metaplasia of bronchial epithelium
- d. Acute bronchitis
- e. Bronchogenic carcinoma

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

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

249. After extraction of a tooth on the lower jaw, a 30-year-old woman developed an increase in temperature and later a swelling in her neck region. A dissection of the skin of her neck revealed that the subcutaneous fatty tissue was soaked through with a foul-smelling opaque yellow-green liquid.

What process developed in the fatty tissue in this case?

- a. Fibrinous inflammation
- b. Phlegmon
- c. Abscess
- d. Serous inflammation
- e. Hemorrhagic inflammation

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

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

251. A 3-year-old child was hospitalized with signs of stomatitis, gingivitis, and dermatitis on the bare areas of skin. Examination determined a hereditary disorder of neutral amino acid transport in the intestine. What vitamin is deficient in this patient, causing such signs?

- a. Pantothenic acid
- b. Cobalamin
- c. Biotin
- d. Niacin
- e. Vitamin A

252. 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. Diencephalon
- c. Cerebral cortex
- d. Hypothalamus
- e. Medulla oblongata

253. A patient diagnosed with arthritis of the maxillofacial joint was taking a non-narcotic analgesic that is a paraaminophenol derivative. Select this drug from the list:

- a. Analgin (Metamizole)
- b. Diclofenac sodium
- c. Butadion (Phenylbutazone)
- d. Ibuprofen
- e. Paracetamol

254. Replication is one of the reactions of matrix synthesis. What new molecule forms on the DNA molecule in the result of replication?

- a. Pro-mRNA
- b. tRNA
- c. mRNA
- d. DNA
- e. rRNA

255. A man diagnosed with arthritis of the maxillofacial joint came to a doctor. The doctor prescribed him an ointment with diclofenac sodium as the active substance. What is the mechanism of action of this medicine?

- a. Activation of opiate receptors
- b. Blockade of opiate receptors
- c. Cyclooxygenase inhibition
- d. Cyclooxygenase activation
- e. Phospholipase inhibition

256. On the day before a surgery, the patient was stressed out. This condition is associated with high blood levels of the following hormone:

- a. Glucagon
- b. Insulin
- c. Adrenaline
- d. Progesterone
- e. Prolactin

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

- a. Narcotic
- b. Chemical
- c. Allergic
- d. Physical
- e. Toxic

258. What helminthiasis typically has natural foci, where population eats freshwater fish?

- a. Dicroceliasis
- b. Taeniasis
- c. Opisthorchiasis
- d. Echinococcosis
- e. Fascioliasis

259. Blood serum of the patient has milky appearance. Biochemical analysis revealed high content of triacylglycerols and chylomicrons. This condition is caused by hereditary defect of the following enzyme:

- a. Phospholipase
- b. Adipose tissue hormone-sensitive lipase
- c. Lipoprotein lipase
- d. Phosphodiesterase
- e. Pancreatic lipase

260. Tyrosine is used as a substrate in thyroxine synthesis. What chemical element takes part in this process?

- a. Iron
- b. Copper
- c. Iodine
- d. Zinc
- e. Calcium

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

262. This extremely dangerous disease can be transmitted from a sick animal to a human via a flea bite. It exhibits characteristic lymphogenic spread of the causative agent with hemorrhagic inflammation of the regional lymph nodes. Name this disease:

- a. Tularemia
- b. Tuberculosis
- c. Anthrax
- d. Plague
- e. Cholera

263. A group of men came to a doctor with complaints of fever, headache, muscle pain, and swollen eyelids and face. These men are hunters and eat meat of wild animals. What disease can be characterized by these signs?

- a. Trichinosis

- b. Cysticercosis
- c. Taenia solium invasion
- d. Filariasis
- e. Taenia saginata invasion

264. A man with a cardiovascular pathology presents with overproduction of angiotensin II. What enzyme takes part in angiotensin II synthesis?

- a. Kininase
- b. Urokinase
- c. Cyclooxygenase
- d. Angiotensin converting enzyme**
- e. Kallikrein

265. 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. Traumatic shock, torpid phase
- d. Traumatic shock, erectile phase
- e. Preagony

266. A skin neoplasm was removed from a patient. The neoplasm is a dense node with a papillary surface that resembles a cauliflower. Microscopically the tumor consists of numerous papillae. Its parenchyma is formed from the covering epithelium with increased number of layers. The epithelium retains the cell polarity, as well as its stratification and intactness of the proper membrane. The tumor stroma is located within the center of the papillae. Make the diagnosis:

- a. Adenoma
- b. Fibroadenoma
- c. Cystadenoma
- d. Fibroma
- e. Papilloma**

267. An 8-year-old child presents with frequent severe subcutaneous hemorrhages. Prescription of Vicasol, synthetic analogue of vitamin K, had a positive effect. This vitamin participates in gamma-carboxylation of glutamic acid in a certain blood-clotting protein. Name this protein:

- a. Proconvertin
- b. Fibrinogen
- c. Rosenthal factor
- d. Hageman factor
- e. Prothrombin**

268. In a closed community it is necessary to determine community members immunity to diphtheria and verify the need for their vaccination. What investigation is necessary in this case?

- a. Determine antitoxin titer by means of indirect hemagglutination assay**
- b. Determine community members immunity to diphtheria bacillus
- c. Check medical records for vaccination
- d. Determine diphtheria antibody titer
- e. Test community members for diphtheria bacillus carriage

269. 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. Imanin
- b. Interleukin
- c. Complement
- d. Interferon

e. Lysozyme

270. A 5-year-old child has suffered a helminthic invasion, which resulted in sensitization of the body. What parameters of the leukogram can confirm this process?

- a. Decreased eosinophil count
- b. Increased eosinophil count
- c. Decreased basophil count
- d. Increased basophil count
- e. Increased neutrophil count

271. Autopsy of an 86-year-old woman, who suffered from cerebral atherosclerosis, shows atrophy of her cerebral cortex. Name this type of atrophy based on its cause:

- a. Pressure-induced
- b. Dysfunctional
- c. Insufficient blood supply
- d. Neurogenic
- e. Caused by physico-chemical factors

272. Examination of the femur detected suppurative inflammation of compact bone substance and bone marrow with formation of sequestra. What disease causes such changes?

- a. Periostitis
- b. Reticulosarcoma
- c. Osteomyelitis
- d. Giant cell tumor of bone
- e. Multiple myeloma

273. A 28-year-old patient complains of frequent gingival hemorrhages. Blood test revealed the clotting factor II (prothrombin) deficiency. What phase of blood coagulation is impaired in this patient?

- a. Vascular-platelet haemostasis
- b. Thrombin generation
- c. Clot retraction
- d. -
- e. Fibrinolysis

274. An experimental animal, a dog, received a weak solution of hydrochloric acid through a tube inserted into the duodenum. Primarily it will result in increased secretion of the following hormone:

- a. Histamine
- b. Secretin
- c. Neuropeptides
- d. Gastrin
- e. Cholecystokinin

275. Correlation between one nerve fiber and all the muscle fibers it innervates is called a motor unit. What body part has the smallest number of muscle fibers innervated by one nerve fiber?

- a. Eye
- b. Back
- c. Shin
- d. Palm
- e. Shoulder

276. To terminate a bronchial asthma attack that developed in the patient during the tooth extraction, the patient was given salbutamol. This drug belongs to the following pharmacological group:

- a. Adaptogens
- b. Analeptics
- c. Muscarinic agonists
- d. Narcotic analgesics
- e. Beta-2-adrenergic agonists

277. A man came to the dentofacial orthopedist to have dentures made for him. The doctor determined that all the teeth without second antagonists need dentures. Name these teeth:

- a. Lower second molars
- b. Upper second molars
- c. Upper third molars
- d. Lower first molars
- e. Lower second premolars

278. 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. Cryptogenic
- c. Odontogenic
- d. Therapeutic
- e. Tonsilogenic

279. A man has a malignant lingual tumor. The surgeon ligates his A) Lingualis in the area of the Pirogov triangle. In this case, special attention should be paid to the:

- a. N. lingualis
- b. N. hypoglossus
- c. N. glossopharyngeus
- d. Ansa cervicalis
- e. N. sublingualis

280. A 43-year-old man has stomatitis, glossitis, and a smooth crimson tongue. His complete blood count shows the following: Hb - 100 g/L, erythrocytes - $2.3 \cdot 10^{12}/L$, color index - 1.30. What pathological condition can be characterized by such clinical and laboratory findings?

- a. Hypoplasia of the red bone marrow
- b. Vitamin B₁₂ deficiency
- c. Disturbed porphyrin synthesis
- d. Iron deficiency
- e. Erythrocyte hemolysis

281. A patient came to a family doctor with complaints of weakness, weight loss, and enlarged cervical lymph nodes. Microscopy of the biopsy material obtained from a lymph node shows giant multinucleated Reed-Sternberg cells, lymphocytes, plasma cells, histiocytes, eosinophils, and areas of necrosis and sclerosis. What disease can be characterized by the described changes?

- a. Lymphocytic leukemia
- b. Lymphogranulomatosis (Hodgkin lymphoma)
- c. Lymphosarcoma
- d. Tuberculosis
- e. Sarcoidosis

282. A dentist has found an ulcer on the oral mucosa of a 7-year-old girl. The ulcer is 1.5 cm in diameter, it has uneven edges and a gray floor. After the ulcer scrape was stained using the Ziel-Nielsen technique, thin ruby-red bacilli were detected in the slide. The bacilli are isolated or arranged in chaotic clusters. This pathogen is characteristic of the following disease:

- a. Candidiasis
- b. Syphilis
- c. Diphtheria
- d. Actinomycosis
- e. Tuberculosis

283. A woman presents with edemas. In her urine there is a large amount of protein excreted. What nephron segment is functionally disturbed in this case?

- a. Ascending limb of loop of Henle
- b. Distal convoluted tubule
- c. Proximal convoluted tubule
- d. Renal corpuscle**
- e. Descending limb of loop of Henle

284. In an experiment, cerebral neurons of a test animal were electrostimulated, which resulted in hypophagia (refusal to eat food). Where in the brain were the electrodes placed?

- a. Red nucleus
- b. Adenohypophysis
- c. Thalamus
- d. Hypothalamus**
- e. Neurohypophysis

285. A patient developed anaphylactic shock after administration of novocaine (procaine) for conduction anesthesia. What is the drug of choice for shock relief in this case?

- a. Dimedrol (Diphenhydramine)
- b. Adrenalin hydrochloride**
- c. Prednisolone
- d. Noradrenaline hydrotartrate
- e. Suprastin (Chloropyramine)

286. Examination of a patient detects calcinosis cutis, Raynaud's syndrome, esophageal motility disorder, sclerodactyly, and telangiectasia. These changes are called CREST syndrome. What disease can be characterized by the described changes?

- a. Gouty arthritis
- b. Systemic lupus erythematosus
- c. Dermatomyositis
- d. Rheumatoid arthritis
- e. Systemic scleroderma**

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

- a. tRNA
- b. Riboflavin
- c. DNA
- d. Cytochrome**
- e. ATP

288. A 42-year-old woman, who has been keeping to a vegetarian diet for a long period of time, consulted a doctor. Examination revealed negative nitrogen balance in the patient. What factor is the most likely cause of such a condition?

- a. Insufficient amount of dietary fiber
- b. Decreased rate of metabolic processes
- c. Excessive amount of fats in the diet
- d. Insufficient amount of fats in the diet
- e. Insufficient amount of proteins in the diet**

289. A dental plaque swab was stained using the Burri-Gins technique. Microscopy of the swab revealed red cells of microorganisms against a dark brown background, with some of the bacteria surrounded by a light halo. What structure of the microorganisms was detected?

- a. Outer membrane
- b. Exoenzymes attached to the cell wall
- c. Protoplast
- d. Capsule**
- e. Peptidoglycan layer

290. Because cutaneous leishmaniasis in the urban areas can be characterized by a cyclic course, a physician suspects that the patient has been ill for approximately 3-6 months. What pathological anatomical changes allow making this conclusion, if they appear?

- a. Ulcerative stage
- b. Primary leishmanioma
- c. Scar stage
- d. Nosular stage
- e. Tuberculoid form

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

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

292. A 37-year-old patient was diagnosed with essential hypertension and prescribed lisinopril. What is the mechanism of action of this drug?

- a. Blocks angiotensin receptors in blood vessels
- b. Stimulates imidazoline receptors
- c. Blocks calcium channels
- d. Binds angiotensin-converting enzyme and blocks the conversion of angiotensin I into angiotensin II
- e. Blocks potassium channels

293. Analysis of sputum taken from a patient with suspected pneumonia revealed slightly elongated gram-positive diplococci with tapered opposite ends. What microorganisms were revealed in the sputum?

- a. Streptococcus pneumoniae
- b. Staphylococcus aureus
- c. Neisseria meningitidis
- d. Neisseria gonorrhoeae
- e. Klebsiella pneumoniae

294. A 25-year-old man undergoes dental procedures. Several minutes after his oral cavity was lavaged with a furacilin (nitrofural) solution, he developed markedly swollen lips. What type of allergic reaction is observed in this case?

- a. Stimulating
- b. Cytolytic
- c. Delayed-type hypersensitivity
- d. Anaphylactic
- e. Immune complex

295. Name the dental tissue that is similar to bone tissue in terms of its development source, morphological organization, and mineralization degree:

- a. Pulp
- b. Acellular cementum
- c. Cellular cementum
- d. Enamel
- e. Periodontium

296. In tuboottitis, tympanic membrane retraction occurs. The handle of one of the auditory ossicles, connected to the tympanic membrane, becomes more horizontal. In such cases, the doctor needs to determine the position of the following bone during the examination:

- a. Processus mastoideus
- b. Stapes
- c. Incus
- d. Malleus

e. Squama os temporale

297. Before a maxillofacial surgery, the patient received a drug that is a natural anticoagulant that directly affects blood coagulation factors. It is rapidly acting, if administered intravenously. In dental practice, it is used for prevention of thromboembolic complications during extensive maxillofacial surgery. Name this drug:

- a. Aminocapronic acid
- b. Neodicoumarin
- c. Phenylin (Phenindione)
- d. Contrykal (Aprotinin)
- e. Heparin

298. Erythrocytes of a person with fourth blood group (genotype IAIB) contain both antigen A controlled by allele IA and antigen B that is the product of allele IB expression. What type of gene interaction is demonstrated by this phenomenon?

- a. Codominance
- b. Epistasis
- c. Semidominance
- d. Complementarity
- e. Polymery

299. A 59-year-old man was diagnosed with chorea that manifests as involuntary rapid movements accompanied by grimaces. Chorea development is associated with damage to a certain brain structure. Name this brain structure.

- a. Claustrum
- b. Thalamus
- c. Amygdala
- d. Striatum
- e. N. fasciculi longitudinalis medialis (Darkshewitch nuclei)

300. A newborn failed to take his first breath. Autopsy revealed that despite unobstructed airways the lungs of the newborn were unable to stretch. What is the most likely cause of this condition?

- a. Pleural thickening
- b. Absence of surfactant
- c. Alveolar enlargement
- d. Bronchial rupture
- e. Bronchial narrowing

301. The course of complete starvation consists of three stages. What is characteristic of the third (terminal) stage of starvation?

- a. Development of non-gaseous acidosis
- b. Intensified protein catabolism in muscles and gluconeogenesis in the liver
- c. Increased breakdown of proteins in vital organs
- d. Increased formation of ketone bodies in the liver
- e. Activation of lipolysis in adipose tissue

302. A patient with malignant tumor was prescribed a narcotic analgesic to relieve the unbearable pain. What is the mechanism of analgesic action of such drugs?

- a. Inhibition of cholinergic receptors
- b. Activation of opiate receptors
- c. Activation of D2 dopamine receptors
- d. Inhibition of serotonin receptors
- e. Inhibition of histamine receptors

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

- a. Carotid sinus receptors
- b. Bulbar receptors
- c. Mechanoreceptors
- d. Nociceptors

e. Aortic receptors

304. Nitrogen(II) oxide is an unstable molecule that takes part in vasodilation, immune processes, and neurotransmission. What enzyme participates in formation of nitrogen(II) oxide from arginine?

a. Argininosuccinate lyase

b. NO-synthase

c. Arginase

d. Ornithine carbamoyl transferase

e. Argininosuccinate synthetase

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

a. In the region of the mitral valve

b. Between the left and right atria

c. Between the left atrium and left ventricle

d. Between the left and right ventricles

e. Between the right atrium and right ventricle

306. When preparing a dental plaque smear and staining it according to the Gram method, a student during microscopy detected there various violet and pink microorganisms. What structural component of microorganisms causes different response to stains?

a. Cytoplasmic membrane

b. Cytoplasm

c. Cell wall

d. Internal periplasmic space

e. Outer membrane

307. A patient came to the doctor with complaints of general weakness and sleep disturbances.

Objectively the patient's skin is yellow. In blood there is increased concentration of direct bilirubin and bile acids. Acholic stool is observed. What condition can be characterized by these changes?

a. Parenchymatous jaundice

b. Hemolytic jaundice

c. Mechanical jaundice

d. Chronic cholecystitis

e. Familial nonhemolytic (Gilbert's) syndrome

308. Fluorination is one of the main methods for improvement of enamel resistance. The mechanism of fluorine anti-caries action is based on:

a. Chlorapatite synthesis

b. Tooth demineralization

c. Hydroxyapatite synthesis

d. Fluorapatite synthesis

e. -

309. Oral examination revealed dark yellow and brown spots and stripes on the labial and lingual surfaces of the patient's teeth; more than the half of the dental surface is affected; enamel and dentin are destroyed. What diagnosis is the most likely?

a. Fluorosis

b. Dystrophic calcification

c. Cuneiform defect

d. Dental calculus

e. Metastatic calcification

310. 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. Spleen

b. Thyroid

c. Pancreas

d. Liver

e. Thymus

311. After examination, the signs of acromegaly were detected in a patient. What endocrine gland is involved in this pathological process?

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

312. Examination of a patient detects an anomaly of enamel development. What structural components of the tooth bud were damaged, causing this condition?

- a. Stellate reticulum
- b. Stratum intermedium
- c. Inner enamel epithelium**
- d. Cervical loop
- e. Outer enamel epithelium

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

- a. Periodontium
- b. Cellular cement**
- c. Enamel
- d. Mantle dentin
- e. Reticulofibrous bone tissue

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

- a. Thalamus
- b. Claustrum
- c. Amygdala
- d. Corpus striatum**
- e. Darkschewitsch nuclei

315. Histology of the heart valves of a patient who died of acute heart failure revealed mucoid edema, fibrinoid changes, sclerosis, and fresh and old thrombi on the obturating edge of the valve. What form of endocarditis is observed in the deceased?

- a. Fibroplastic endocarditis
- b. -
- c. Polypous ulcerative endocarditis
- d. Diffuse endocarditis
- e. Recurrent verrucous endocarditis**

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

317. A man with mandibular sarcoma presents with metaplasia in his biopsy material. Describe this phenomenon:

- a. Cells lose their ability to differentiate
- b. Tumor cells revert to their normal condition
- c. Tumor progression
- d. Intensified mitosis of tumor cells
- e. Tumor tissue assumes the properties of other tissue**

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

319. Some mRNA triplets (UAA, UAG, UGA) code no amino acids and terminate the information readout instead, i.e., they can stop the process of transcription. These triplets are called:

- a. Stop codons
- b. Exons
- c. Operators
- d. Introns
- e. Anticodons

320. A 27-year-old man came to a doctor. Examination detects enlarged hands, feet, and lower jaw, deformed joints (kyphosis), and hormonal disorders (impotence and testicular atrophy). What gland is dysfunctional in this patient, as indicated by these signs?

- a. Adrenal glands
- b. Pineal gland
- c. Anterior pituitary gland
- d. Thyroid gland
- e. Parathyroid glands

321. Secretory units of salivary glands are surrounded with specific contractile cells. Name these cells:

- a. Ciliated cells
- b. Pericytes
- c. Adipocytes
- d. Myoepithelial cells
- e. Endotheliocytes

322. Physiologists determined that erythrocyte blood count depends on the functional condition of red bone marrow and the life span of an erythrocyte. What is the average life span of an erythrocyte in the peripheral blood?

- a. 220 days
- b. 70 days
- c. 50 days
- d. 120 days
- e. 150 days

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

324. A child with a point mutation presents with absence of glucose 6-phosphatase, hypoglycemia, and hepatomegaly. These signs are characteristic of:

- a. Von Gierke disease (glycogen storage disease type I)
- b. Parkinson disease
- c. McArdle disease (glycogen storage disease type V)
- d. Addison disease (primary adrenal insufficiency)

e. Gaucher disease

325. 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. Cardiac
- b. Allergic**
- c. Hepatic
- d. Inflammatory
- e. Alimentary

326. A child was hospitalized with diagnosis of diphtheria. What should be given to this child for specific therapy?

- a. Codivac vaccine, sulfanilamides
- b. Diphtheria antitoxin serum, antibiotics**
- c. Diphtheria vaccines: DPT, DT, diphtheria vaccine
- d. Diphtheria anatoxin, antibiotics
- e. Diphtheria bacteriophage

327. After a trauma a man is unable to extend his arm in the elbow joint. It can be caused by disturbed function of the following muscle:

- a. Musculus infraspinatus
- b. Musculus teres major
- c. Musculus subscapularis
- d. Musculus triceps brachii**
- e. Musculus levator scapulae

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

- a. Serine
- b. Tyrosine
- c. Homoserine
- d. Oxyproline**
- e. Threonine

329. Because of a trauma, a patient developed a skin defect. To remove the defect, the surgeons replaced this patch of skin with a skin patch taken from other body part of the same patient. What type of transplantation is it?

- a. Xenotransplantation
- b. Autotransplantation**
- c. Allotransplantation
- d. Explantation
- e. Homotransplantation

330. The most common cause of incomplete lipid digestion in the digestive tract and an increase in the levels of neutral fats in the feces is a deficiency of a certain enzyme. Name this enzyme:

- a. Pancreatic lipase**
- b. Phospholipase
- c. Gastric lipase
- d. Enterokinase
- e. Intestinal lipase

331. After ineffective treatment of stomatitis with antibiotics, the patient consulted a dentist. The dentist made a diagnosis of herpetic stomatitis. What medicine should the patient be prescribed?

- a. Acyclovir**
- b. Metrogyl (Metronidazole)
- c. Clotrimazole

- d. Azithromycin
- e. Sulfacyl sodium (Sulfacetamide)

332. The toxicology department received a patient with signs of acute mercury compound poisoning. What drug should be prescribed as an antidote?

- a. Barrol (Rabeprazole)
- b. Neuromidin (Ipidacrine)
- c. Plantaglucid (Plantaginis majoris foliorum extract)
- d. Triphthazin (Trifluoperazine)
- e. Unithiol (Dimercaptopropansulfonate)**

333. A patient underwent a glucose tolerance test that confirmed the absence of diabetes mellitus in this person. When, after a sugar load, a healthy person will have the highest glucose levels?

- a. 120 minutes
- b. 90 minutes
- c. 30-60 minutes**
- d. 10-20 minutes
- e. 150 minutes

334. A 38-year-old man with chronic alcoholism died of progressive heart failure. An autopsy shows lobar pleuropneumonia in the lower lobe of the right lung. Histology shows a fibrinous exudate and segmented leukocytes in the alveoli. Determine the stage of croupous pneumonia:

- a. Resolution
- b. -
- c. Influx
- d. Gray hepatization**
- e. Red hepatization

335. A patient has arrhythmia. What medicine needs to be prescribed in this case?

- a. Imizine (Imipramine)
- b. Nitroglycerine
- c. Cavinton (Vinpocetine)
- d. Amiodarone**
- e. Euphyllin (Aminophylline)

336. 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. Lower, due to higher blood CO₂ levels**
- d. No difference
- e. Lower, due to O₂ release from the organism

337. After a nose trauma, a boxer developed an impaired sense of smell. What cells can cause a loss of smell, when damaged?

- a. Basement epithelial cells
- b. Supporting epithelial cells
- c. Neurosensory epithelial cells**
- d. Ciliary epithelial cells
- e. Microvillous epithelial cells

338. A histological specimen shows cells that form isogenous groups. There are glycoproteins, proteoglycans, and collagen fibers in the intercellular substance. What tissue is it?

- a. White adipose tissue
- b. Mucous tissue
- c. Brown adipose tissue
- d. Bone tissue
- e. Cartilaginous tissue**

339. In certain cells of an adult person, mitosis is not observed throughout the life and the

quantitative content of DNA remains constant. Name these cells.

- a. Epidermis
- b. Hematopoietic
- c. Neurons
- d. Endothelium
- e. Muscle (smooth)

340. 2 days after a hunter cut a ground squirrel's body, he developed fever up to 39°C, his lymph nodes enlarged. Later he developed pneumonia with serohemorrhagic exudate that contained egg-shaped microorganisms with bipolar staining. What provisional diagnosis can be made in this case?

- a. Plague
- b. Anthrax
- c. Brucellosis
- d. Tetanus
- e. Pseudotuberculosis

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

342. 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. Famotidine
- b. Fenofibrate
- c. Lisinopril
- d. Dobutamine
- e. Amiodarone

343. What diuretic will produce no effect in a patient with Addison disease?

- a. Furosemide
- b. Triamterene
- c. Ethacrynic acid
- d. Spironolactone
- e. Hydrochlorothiazide

344. A person develops alimentary (nutritional) hyperglycemia after eating, which stimulates secretion of the following hormone:

- a. Insulin
- b. Noradrenaline
- c. Glucagon
- d. Cortisol
- e. Adrenaline

345. A patient suffers from angina pectoris. What antianginal drug is this patient CONTRAINDICATED if he is allergic to iodine?

- a. Drotaverine
- b. Amiodarone
- c. Nitrosorbide (Isosorbide dinitrate)
- d. Nitroglycerine
- e. Verapamil

346. A child presents with delayed mental development, delayed growth and formation of the teeth, late development of ossification foci, and low basal metabolic rate. What endocrine gland is

functionally insufficient, causing this condition?

- a. Gonads
- b. Thyroid gland
- c. Pancreas
- d. Adrenal glands
- e. Neurohypophysis

347. Some unicellular organisms, i.e. amoebae, feed via phagocytosis. What cells of the human body use this method not as a means of feeding, but as a defensive mechanism against foreign bodies (microorganisms, dust, etc.)?

- a. Leucocytes
- b. Epithelial cells
- c. Platelets
- d. Myocytes
- e. Erythrocytes

348. A 65-year-old man came to the general physician. He complains of dyspnea during even slight physical exertion, cyanotic skin, and leg edemas. Prescribe him a cardiac glycoside for treatment of chronic heart failure:

- a. Heparin
- b. Digoxin
- c. Panangin (potassium aspartate and magnesium aspartate)
- d. Metoprolol
- e. Methyluracil

349. A boy has blood group I ($I^0 I^0$), while his sister has blood group IV ($I^A I^B$). What blood groups do their parents have?

- a. I ($I^0 I^0$) and IV ($I^A I^B$)
- b. II ($I^A I^A$) and III ($I^B I^0$)
- c. I ($I^0 I^0$) and III ($I^B I^0$)
- d. II ($I^A I^0$) and III ($I^B I^0$)
- e. III ($I^B I^0$) and IV ($I^A I^B$)

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

351. During oral cavity examination a dentist noticed eruption of the permanent canines in a child.

The child grows and develops normally. Determine the child's age:

- a. 11-13 years
- b. 6-7 years
- c. 8-9 years
- d. 13-16 years
- e. 9-10 years

352. A woman is diagnosed with a hemorrhage into the posterior horns of the spinal cord. What is their function?

- a. Sensory
- b. Parasympathetic
- c. Sympathetic
- d. -
- e. Motor

353. A certain hereditary syndrome affects teeth, hair, and bones. Each generation has affected individuals. The syndrome occurs equally frequent in men and women. What type of inheritance is it?

- a. Autosomal recessive
- b. X-linked dominant
- c. X-linked recessive
- d. Y-linked
- e. Autosomal dominant

354. Autopsy of a 7-year-old child, who died of uncompensated congenital heart disease, revealed increase in mass and volume of the thymus. On microscopy thymus structure is normal. What pathologic process had occurred in the thymus?

- a. Congenital thymomegaly
- b. Thymic dysplasia
- c. Accidental involution
- d. Thymic agenesis
- e. Thymoma

355. To model a stomach ulcer, atophan (cinchophen) had been administered into the gastric arteries of a test animal, which caused their sclerosing. What mechanism of gastric mucosa damage is leading in this experiment?

- a. Neurohumoral
- b. Neurodystrophic
- c. Mechanical
- d. Disregulatory
- e. Hypoxic

356. A 57-year-old man with chronic pyelonephritis developed arterial hypertension. What is the main mechanism of arterial pressure increase in this case?

- a. Increased renin secretion in the kidneys
- b. Stimulation of hypothalamic vegetative centers
- c. Stimulation of sinocardiotid baroreceptors
- d. Stimulation of the cerebral cortex
- e. Increased blood levels of catecholamines

357. Before diving underwater, pearl hunters make several deep inhales and exhales. Why do they do it?

- a. To increase the diffusing capacity of the lungs
- b. To provide the body with oxygen reserves
- c. To increase the blood flow in the pulmonary circulation
- d. For the maximum possible excretion of CO₂ from the body
- e. For the maximum possible excretion of nitrogen from the body

358. An organ of the cardiovascular system is composed of cells that connect to each other with intercalated discs. What organ is it?

- a. Mixed type artery
- b. Heart
- c. Muscular vein
- d. Aorta
- e. Muscular artery

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

- a. Morula
- b. Gastrula
- c. Blastocyst
- d. Zygote
- e. Neurula

360. The cessation of postpartum hemorrhage is associated with the effect of oxytocin on the uterine wall. What uterine membrane responds to this substance?

- a. Submucosa

- b. Myometrium
- c. Perimetrium
- d. Parametrium
- e. Endometrium

361. A man came to a dentist with complaints of pain during chewing and moving the jaw forward. What masticatory muscles are inflamed in this case?

- a. M.m. temporales
- b. M.m. pterigoidei laterales**
- c. M.m. buccalis
- d. M.m. pterigoidei mediales
- e. -

362. The patient exhausted by starvation presents with intensification of the following process in the liver and kidneys:

- a. Uric acid synthesis
- b. Bilirubin synthesis
- c. Urea synthesis
- d. Hippuric acid synthesis
- e. Gluconeogenesis**

363. A 26-year-old woman presents with skin rashes and itching after eating citrus fruits. Prescribe her a drug that is an H1-histamine receptor antagonist:

- a. Dimedrol (Diphenhydramine)**
- b. Paracetamol
- c. Menadione (Vicasolum)
- d. Analgin (Metamizole)
- e. Acetylsalicylic acid

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

365. 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. Changes in carbohydrate metabolism
- b. Water-electrolyte imbalance
- c. Renal acidosis
- d. Lipid metabolism disorders
- e. Accumulation of nitrogen metabolism products in the blood**

366. During laboratory diagnostics of hepatitis C, it is necessary to detect the presence of antibodies to hepatitis C virus in the patient's blood serum. What test should be conducted in this case?

- a. Nucleic acid hybridization
- b. Nucleic acid hybridization with signal amplification
- c. Enzyme-linked immuno sorbent assay (ELISA)**
- d. DNA probe method
- e. Ligase chain reaction

367. A 60-year-old man with diabetes mellitus was prescribed insulin. What type of pharmacological therapy is it?

- a. Etiotropic
- b. Pathogenetic
- c. Replacement**

- d. Preventive
- e. Symptomatic

368. A 50-year-old man came to a hospital with complaints of memory disorders, painful sensations along the nerve trunks, decreased mental ability, circulatory disorders and dyspepsia. Anamnesis states excessive alcohol consumption. What vitamin deficiency can result in such symptoms?

- a. Riboflavin
- b. Calciferol
- c. Niacin
- d. Retinol
- e. Thiamine

369. Autopsy of the body of a 62-year-old man, who died with progressing signs of heart failure, revealed enlarged heart. The heart is flaccid and its chambers are distended. The myocardium is dull and clay-yellow on section. The endocardium has yellow-white stripes that are especially marked in the papillary muscles. What pathological process is the most likely?

- a. Dilated cardiomyopathy
- b. Fatty degeneration of the myocardium
- c. Cardiosclerosis
- d. Myomalacia
- e. Fatty heart

370. What process becomes disturbed, if salivary pH drops below 6.5?

- a. Dentin formation
- b. Dental blood supply
- c. Intensity of metabolic processes in the pulp
- d. Supply of hard dental tissues with mineral substances
- e. -

371. During ultrasound a patient with atherosclerosis was diagnosed with bilateral stenosis of the renal arteries. Specify the bioactive substance that is the key pathogenetic link in the development of arterial hypertension in this case:

- a. Adrenaline
- b. Thyroxin
- c. Renin
- d. Vasopressin
- e. Cortisol

372. Basement membrane consisting of three layers is an important component of renal filtration barrier. Its electron-dense middle layer has specialized reticular structure. This membrane is located in:

- a. Proximal tubule
- b. Capillaries of peritubular capillary network
- c. Renal corpuscle
- d. Thin tubule
- e. Distal straight tubule

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

- a. Malaria
- b. Toxoplasmosis
- c. Urogenital trichomoniasis
- d. Cutaneous leishmaniasis
- e. Trypanosomiasis

374. In an adult person, mitosis is not observed in certain cells throughout life and the quantity of DNA in them remains constant. What are these cells called?

- a. Smooth muscle cell
- b. Neurons

- c. Epidermal cells
- d. Hematopoietic cells
- e. Endothelial cells

375. 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. Inositol triphosphate
- b. Ca²⁺
- c. cAMP
- d. cGMP
- e. Diacylglycerol

376. 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. Digestal
- b. Mezym forte
- c. Pancreatin
- d. Festal
- e. Contrykal (Aprotinin)

377. Increased stimulation rate of isolated heart of a rabbit leads to incomplete relaxation of the heart ventricles due to:

- a. Calcium accumulation in cardiomyocytes
- b. Increased potassium content in the interstitial tissue
- c. Increased potassium content in cardiomyocytes
- d. Inhibition of K-Na pump
- e. Increased sodium content in cardiomyocytes

378. In Western Europe nearly half of all congenital malformations occur in the children conceived in the period, when pesticides were used extensively in the region. Those congenital conditions result from the following influence:

- a. Mutagenic
- b. Malignization
- c. Teratogenic
- d. Mechanical
- e. Carcinogenic

379. The patient is in the state of cardiogenic shock, he needs to be given a non-glycoside cardiotonic drug. What will be the drug of choice in this case?

- a. Ethimizol
- b. Dobutamine
- c. Amrinone
- d. Caffeine
- e. Cordiamin (Nikethamide)

380. At the sixth month of pregnancy a woman developed marked iron-deficiency anemia. The diagnostic character of this disease is the appearance of the following in the blood:

- a. Macrocytes
- b. Poikilocytes
- c. Normocytes
- d. Annulocytes
- e. Reticulocytes

381. Ten weeks after a case of jaundice, HBsAg were detected in the patient's blood. What pathology is it characteristic of?

- a. Viral hepatitis A
- b. Viral hepatitis D
- c. Viral hepatitis C
- d. Viral hepatitis E

e. Viral hepatitis B

382. According to the law of constancy of chromosome numbers, most animal species have definite and constant chromosome number. The mechanism that maintains this constancy during sexual reproduction of organisms is called:

- a. Schizogony
- b. Meiosis
- c. -
- d. Amitosis
- e. Regeneration

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

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

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

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

385. During a visit to the dentist, the patient developed bronchospasm. What medicine must be used in this case?

- a. Anaprilin (Propranolol)
- b. Analgin (Metamizole)
- c. Naphthyzin (Naphazoline)
- d. Salbutamol
- e. Atenolol

386. A histology slide of the heading end of an embryo at 5 weeks of gestation shows pharyngeal arches. What develops from the first pair of these structures?

- a. Mandibular and maxillary processes
- b. Maxillary processes
- c. Mandibular processes
- d. External auditory meatus
- e. Thyroid cartilage

387. A pregnant woman developed severe toxemia with exhausting recurrent vomiting throughout a day. By the end of the day she developed tetanic convulsions and dehydration. The described changes were caused by the following type of acid-base imbalance:

- a. Nongaseous excretory alkalosis
- b. Gaseous alkalosis
- c. Nongaseous excretory acidosis
- d. Gaseous acidosis
- e. Nongaseous metabolic acidosis

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

389. 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. Transverse muscle of the tongue
- c. Genioglossal muscle
- d. Stylohyoid muscle
- e. Hyoglossal muscle

390. During a visit to a dentist, the patient's oral mucosa is bright red. The patient has angular stomatitis and cheilosis. What vitamin deficiency is observed in this case?

- a. C
- b. B2
- c. B1
- d. B6
- e. B5

391. A 30-year-old woman complains of intense thirst and dryness of the mouth that developed after a severe emotional shock. Laboratory analysis revealed increase of the patient's blood sugar level up to 10 mmol/L. What endocrine gland is affected in the patient?

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

392. A group of people came to a hospital complaining of weakness, intestinal pain, and indigestion. Their stool tests detected cysts with four nuclei that are characteristic of the following protozoon:

- a. Entamoeba histolytica
- b. Entamoeba gingivalis
- c. Entamoeba coli
- d. Giardia
- e. Balantidium coli

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

- a. Lungs
- b. -
- c. Sebaceous glands
- d. Kidneys
- e. Sweat glands

394. A dental surgeon has diagnosed a 24-year-old woman with suppurative inflammation of the sphenoidal sinus. All possible measures are taken to prevent the artery wall from being involved in this process. The artery is located in the cavernous sinus and its involvement can cause fatal hemorrhage. Name this artery:

- a. A) infraraorbitalis
- b. F. supraorbitalis
- c. A) carotis interna
- d. A) ophthalmica
- e. A) carotis externa

395. A patient had an angina pectoris attack during a visit to the dentist. What drug must be used in this case?

- a. No-Spa (Drotaverine)
- b. Nitroglycerin
- c. Nitrosorbide (Isosorbide dinitrate)
- d. Verapamil
- e. Propranolol

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

397. Autopsy of the body of a man, who died after 3 weeks of pneumonia, shows acutely enlarged lower lobe of his right lung. The lobe is dense, airless, gray, with fibrin deposits on the pleura.

Microscopy shows fibrin and segmented leukocytes in all alveoles of this lobe. Make the diagnosis:

- a. Focal bronchopneumonia
- b. Influenza virus pneumonia
- c. Fibrinous pleurisy
- d. Croupous pneumonia**
- e. Interstitial pneumonia

398. A 43-year-old woman against the background of septic shock presents with thrombocytopenia, decreased fibrinogen levels, fibrin degradation products appearing in the blood, and petechial hemorrhages. Specify the cause of these changes:

- a. Autoimmune thrombocytopenia
- b. Hemorrhagic diathesis
- c. Disturbed platelet production
- d. Exogenous intoxication
- e. Disseminated intravascular coagulation**

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

- a. At the age of 1 to 3 years
- b. During pregnancy
- c. During the embryonic stage**
- d. At middle age
- e. At the age of under 1 year

400. During examination the doctor performs auscultation to assess the functioning of the patient's mitral valve. Where can the sound of this valve be auscultated?

- a. At the edge of the sternum over the 5th costal cartilage on the left
- b. At the apex of the heart**
- c. At the edge of the sternum in the 2nd intercostal space on the right
- d. At the edge of the sternum in the 2nd intercostal space on the left
- e. At the edge of the sternum over the 5th costal cartilage on the right

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

402. A histological specimen of mucous tunic of a certain organ shows stratified epithelium consisting of 20-25 cellular layers with squamous superficial cells. Name the organ from which this sample was obtained:

- a. Large intestine
- b. Duodenum
- c. Small intestine
- d. Gastric fundus
- e. Esophagus**

403. A patient diagnosed with acute pulpitis complains of toothache and swollen lower face on the side of the affected tooth. What is the leading mechanism of edema development in this disease?

- a. Disturbed nerve regulation of water metabolism
- b. Hypoproteinemia
- c. Disturbed microcirculation in the lesion focus
- d. Disturbed trophic function of the nervous system
- e. Increased aldosterone production

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

405. Mother of a 2-year-old child with delayed physical and mental development has made an appointment with the genetic consultation. What method allows the doctor to rule out chromosomal abnormalities?

- a. Population statistics
- b. Biochemical
- c. Cytogenetic
- d. Genealogical
- e. Cytological

406. 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. Botulism
- b. Diphtheria
- c. Dysentery
- d. Typhoid fever
- e. Salmonellosis

407. A patient with dislocated jaw was given a short-acting muscle relaxant by a doctor. Name this drug:

- a. Procaine
- b. Pyridostigmine hydrobromide
- c. Cytitonum (Cytisine)
- d. Papaverine hydrochloride
- e. Dithylinum (Suxamethonium chloride)

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

409. A 61-year-old patient died in the intensive care unit due to multiple organ dysfunction syndrome. Previously, the patient underwent a surgery for acute purulent periostitis. Histology of necropsy materials revealed hyperplasia of the lymphoid tissue of the tonsils, diffuse neutrophilic infiltration of the necrotically changed alveolar process of the jaw, regional purulent lymphadenitis, soft tissue phlegmon of the neck, bilateral polysegmental purulent pneumonia, splenomegaly, irreversible changes in cardiomyocytes and epithelium of the renal tubules. Postmortem bacteriology detected *Staphylococcus aureus* in the blood. What disease is the cause of these pathological manifestations?

- a. Cryptogenic sepsis

- b. Odontogenic sepsis
- c. Treatment-induced sepsis
- d. Surgical sepsis
- e. Tonsilogenic sepsis

410. A patient has a penetrating wound of the oral diaphragm. What muscle must be sutured to restore the intactness of the floor of the mouth?

- a. M. omohyoideus
- b. M. stylohyoideus
- c. M. platysma
- d. M. mylohyoideus**
- e. M. sternocleidomastoideus

411. A 42-year-old man was examined. He has a slightly feminized stature, testicular atrophy, and sparse hair growth on his face and chest. His neutrophilic leukocytes contain drumstick-shaped sex chromatin. What is the most likely diagnosis in this case?

- a. Down syndrome
- b. Klinefelter syndrome**
- c. Trisomy X
- d. Patau syndrome
- e. Phenylketonuria

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

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

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

414. A patient, who was taking a blood pressure-lowering drug, complains of dry mouth. What antihypertensive agent has such a side effect?

- a. Dibazol (Bendazol)
- b. Clonopine (Clonidine)**
- c. Verapamil
- d. Adelphane (Reserpine + Dihydralazine)
- e. Anaprilin (Propranolol)

415. Mucin aggregates retain water, which results in their viscosity and protective action. It is possible because mucin structure contains:

- a. Oligosaccharides
- b. Glycosaminoglycans**
- c. Homopolysaccharides
- d. Disaccharides
- e. Glucose

416. A 58-year-old man has a clinical presentation of acute pancreatitis. This diagnosis can be confirmed, if urine levels of a certain substance are elevated. Name this substance:

- a. Amylase**
- b. Uric acid
- c. UreaD) Albumin

d. Residual nitrogen

417. 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. Endocrine cells
- d. Lipocytes
- e. Pacemaker cells

418. The patient's ECG shows a shortened R-R interval. How will the cardiac activity change as the result?

- a. Force of cardiac contractions will decrease
- b. Force of cardiac contractions will increase
- c. Frequency and force of cardiac contractions will decrease
- d. Frequency of cardiac contractions will decrease
- e. Frequency of cardiac contractions will increase

419. A woman had a formation with a fibrous capsule at the tip of her tooth. The formation was surgically removed. Microscopy shows that the formation consists of fibroblasts, macrophages, a small number of lymphocytes, plasma and xanthoma cells, cholesterol crystals, isolated cells of foreign bodies, as well as bands of stratified epithelium. Name this formation.

- a. Follicular cyst of the jaw
- b. Simple granuloma
- c. Radicular cyst of the jaw
- d. Complex granuloma
- e. Cystogranuloma

420. The patient was prescribed Vicasol (Menadione) several days before the elective surgery for peptic ulcer disease of the stomach. What is the mechanism of action of this drug?

- a. Suppresses fibrinolysis
- b. Increases blood coagulability via intensified prothrombin synthesis
- c. Suppresses platelet aggregation
- d. Decreases vascular permeability
- e. Binds free calcium ions, removing calcium from coagulation reaction

421. In diabetes mellitus, the levels of ketone bodies in the blood increase, causing metabolic acidosis. From what substance are ketone bodies synthesized?

- a. Succinyl-CoA
- b. Malonyl-CoA
- c. Acetyl-CoA
- d. Propionyl-CoA
- e. Methylmalonyl-CoA

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

423. On an electronic microphotograph of epithelial tissue a certain structure can be identified. The structure is located under the epithelial cells and shaped like a three-dimensional reticulum. Name this structure:

- a. Desmosome
- b. Basement membrane
- c. Cytolemma

- d. Lamina propria
- e. Hemidesmosome

424. A patient was prescribed oral irrigation with hydrogen peroxide solution. It belongs to the following group of antiseptics:

- a. Nitrofurans
- b. Detergents
- c. Alcohols
- d. Oxidants**
- e. Dyes

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

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

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

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

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

430. A 52-year-old woman was injected with a local anesthetic before the tooth extraction. What mechanism of action underlies the analgesic effect of this drug?

- a. Disrupted anatomical intactness of the nerve fibers

- b. Disrupted isolated conduction of excitation in the nerve fibers
- c. Disrupted axonal transport in the nerve fibers
- d. Disrupted physiological intactness of the nerve fibers**
- e. Disrupted functioning of microtubules in the nerve fibers

431. During examination of the patients, a dentist noted that many of them have dull, non-glossy enamel with porcelain-like and pigmented spots. Some patients have single or multiple enamel defects that manifest as colorless or pigmented erosions. These changes in the teeth developed in the result of the excessive intake of a certain substance by the organism. Name this substance:

- a. Fluorine**
- b. Potassium
- c. Magnesium
- d. Calcium
- e. Sodium

432. Examination of a sick child detected partial absence of lingual papillae on the lateral surface of the tongue. What papillae are affected?

- a. Filiform
- b. Conoid
- c. Fungiform
- d. Vallate
- e. Folate**

433. Examination of a patient with disturbed process of saliva production in the parotid gland shows that the otic ganglion is likely to be damaged. This ganglion is formed by the following nerve:

- a. N. petrosus minor**
- b. N. hypoglossus
- c. N. vagus
- d. N. auricularis magnus
- e. N. petrosus major

434. A patient presents with disturbed patency of the respiratory tracts at the level of small and medium bronchi. What acid-base imbalance is likely to be detected in the patient's blood in this case?

- a. Respiratory alkalosis
- b. -
- c. Respiratory acidosis**
- d. Metabolic acidosis
- e. Metabolic alkalosis

435. Histological microslide shows a section of a vessel that can be characterized by regular round shape. The vessel is gaping; its wall consists of 3 layers. The middle layer is fenestrated with 30-40 elastic membranes. What vessel is exhibited in the microslide?

- a. Blood capillary
- b. Muscular vein
- c. Elastic artery**
- d. Muscular artery
- e. Mixed type artery

436. A man presents with suppurative wound in the area of mastoid bone, which resulted in development of cerebral meningitis in the patient. Specify the way of infection penetration into the patient's cranial cavity:

- a. V. auricularis
- b. V. emissariae mastoidea**
- c. V.v. tympanicae
- d. V. facialis
- e. V.v. labyrinthi

437. What drug belongs to the pharmacotherapeutic group of angiotensin-converting enzyme inhibitors?

- a. Enalapril
- b. Anaprilin (Propranolol)
- c. Verapamil
- d. Pentamin (Azamethonium bromide)
- e. Reserpine

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

- a. Basal cell ameloblastoma
- b. Granular cell ameloblastoma
- c. Follicular ameloblastoma
- d. Acanthomatous ameloblastoma
- e. Plexiform ameloblastoma

439. An experiment was conducted to study major indicators of hemodynamics. What hemodynamics indicator would be the same for both systemic and pulmonary circulation?

- a. Volumetric blood flow rate
- b. Mean arterial pressure
- c. Vascular resistance
- d. Linear blood flow velocity
- e. Dyastolic blood pressure

440. In an experiment, the common bile duct of a test animal was diverted outwards. What digestive processes become disturbed as a result?

- a. Hydrolysis and absorption of fats, proteins, and carbohydrates
- b. Hydrolysis and absorption of fats
- c. Hydrolysis and absorption of carbohydrates
- d. Water absorption
- e. Hydrolysis and absorption of proteins

441. On clinical examination a woman presents with excessive sweating, tachycardia, loss of weight, and tremor. What endocrine pathology can cause these signs?

- a. Hypothyroidism
- b. Hypoaldosteronism
- c. Hyperthyroidism
- d. Hypogonadism
- e. Hypergonadism

442. During a dental manipulation, the patient developed an angina pectoris attack. What group of drugs needs to be prescribed for the emergency aid in this case?

- a. Respiratory stimulants
- b. Antiarrhythmic drugs
- c. Antianginal drugs
- d. Antihypertensive drugs
- e. Cardiotonics

443. A patient with knife wound of the neck presents with hemorrhage. Initial wound management revealed damage to the vessel that is located along the lateral edge of the sternocleidomastoid muscle. Name this vessel:

- a. A) carotis interna
- b. V. jugularis interna
- c. V. jugularis externa
- d. A) carotis externa
- e. V. jugularis anterior

444. In an experiment, the internal layer of the enamel organ epithelium was destroyed in the tooth germ of a lab animal. It will disrupt the development of the following dental tissue:

- a. Periodontium
- b. Pulp
- c. Cement
- d. Enamel**
- e. Dentin

445. During dental manipulations in the oral cavity, a woman felt unwell: she developed headache and palpitations. Blood pressure measurement revealed a systolic pressure of 170 mm Hg. What is the normal value (mm Hg) of human systolic blood pressure?

- a. 90-100
- b. 140-160
- c. 100-120**
- d. 60-80
- e. 160-180

446. In the blood plasma of a healthy person there are several dozens of proteins. Illness leads to production of new proteins, in particular "acute-phase proteins". Name one such protein:

- a. Prothrombin
- b. Immunoglobulin G
- c. C-reactive protein**
- d. Immunoglobulin A
- e. Fibrinogen

447. What condition can develop as a result of infusing large volumes of isotonic solutions?

- a. Polycythemic hypovolemia
- b. Simple hypervolemia
- c. Oligocytemic hypervolemia**
- d. Polycythemic hypervolemia
- e. Oligocytemic hypovolemia

448. Influenza serology allows detecting the increase of antibody titer against the causative agent in the patient's blood serum. What antibody titer increase must be observed with paired serum samples, for the result to be considered valid?

- a. By one titer
- b. Triple increase
- c. By a half-titer
- d. Fourfold increase or more**
- e. Double increase

449. A patient with chronic caries of tooth 36 did not visit a dentist for a long time. The patient developed a sharp pain in the lower jaw and a cheek swelling. His body temperature increased up to 38°C. What changes in the blood test findings should be expected in this case?

- a. Leukopenia
- b. Neutrophilia**
- c. Monocytosis
- d. Eosinophilia
- e. Anemia

450. 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. Produce immunoglobulins
- b. Activate T killer cells
- c. Activate NK cells
- d. Ensure antigen processing and presentation to T helper cells**
- e. Ensure antigen processing and presentation to T killer cells

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

- a. Intensified function of the bone marrow
- b. Increased erythrocyte count**

- c. Increased albumin levels
- d. Increased blood volume
- e. Increased fibrinogen levels

452. A 5-year-old boy complains of intense headache and vomiting. Objectively, he has nuchal rigidity, vomiting without nausea, herpes rash on his face, and fever. What pathologic material should be obtained for bacteriology, to confirm the diagnosis of cerebrospinal meningitis?

- a. Urine culture of N.Meningitidis
- b. Spinal tap
- c. Fecal culture of N.Meningitidis
- d. Vomit content analysis
- e. A sample of N.Meningitidis bacteria from urogenital mucosa

453. Examination shows that tooth 47 touches a deep defect in the patient's buccal mucosa. The margins of the defect are dense and clear, the floor of the defect is gray. Microscopy of the biopsy material obtained from the wall of the defect detected a purulent exudate on the floor of the defect. Under the exudate there is an area of necrotized tissue with underlying granulation tissue that transforms into mature fibrous tissue. What pathology has developed in the patient's cheek?

- a. Chronic erosion
- b. Acute erosion
- c. Acute ulcer
- d. Cancer
- e. Chronic ulcer

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

- a. Autoimmune damage to nephron glomeruli
- b. Mechanical damage to the urinary tract
- c. Ischemic kidney damage
- d. Hyperproteinemia
- e. Glomerulosclerosis

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

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

456. A 45-year-old man had a cyst removed from the region of his gonial angle. The cyst was 1.5 cm in diameter and contained numerous keratinous masses. Histology shows that the cyst wall is thin and formed from mature connective tissue, cyst interior is lined with stratified squamous epithelium with marked parakeratosis and hyperkeratosis. Make the diagnosis:

- a. Follicular ameloblastoma
- b. Follicular cyst
- c. Radicular cyst
- d. Cherubism
- e. Primordial cyst

457. An odontogenic cyst, connected to the second premolar, was removed from the patient's maxillary alveolar process. Histologically, the cystic wall is lined with stratified squamous epithelium and a hard structure resembling a rudimentary tooth is located in the cystic cavity. Make the diagnosis:

- a. Primordial cyst
- b. Dermoid cyst
- c. Follicular cyst
- d. Teratoma

e. Radicular cyst

458. In a patient with chronic hepatitis, tooth extraction was complicated by prolonged bleeding.

What is the cause of the hemorrhagic syndrome in this case?

- a. Intensified fibrinolysis
- b. Increased fibrinogen synthesis
- c. Decreased fibrin formation
- d. Decreased thrombin formation**
- e. Increased thromboplastin formation

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

- a. Cambial cells
- b. Goblet cells
- c. Endocrine cells
- d. Clara cells**
- e. Cells without a border

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

- a. Acute stage**
- b. Prodromal stage
- c. Convalescence
- d. Microbial carriage
- e. Incubation

461. Enzyme cofactors include various derivatives of water-soluble vitamins. Which one of them is a component of aminotransferases?

- a. B1
- b. B6**
- c. PP
- d. B2
- e. B3

462. An examination of the oral cavity of a 50-year-old man, who is a long-term smoker, detected on the lingual mucosa an irregularly-shaped whitish plaque. Histologically, there are thickening of the stratified squamous epithelium, parakeratosis, hyperkeratosis, and acanthosis. Specify the type of the pathological process:

- a. Chronic stomatitis
- b. Keratoacanthoma
- c. Leukoplakia**
- d. Avitaminosis A
- e. Hypertrophic glossitis

463. A 65-year-old man presents with acute mandibular osteomyelitis. 3 days after the disease onset he developed marked edema of skin and soft submandibular cervical tissues. Microscopically there is a diffuse infiltration with neutrophils. What complication of the main disease occurred in the patient's skin tissues?

- a. Actinomycosis
- b. Phlegmon**
- c. Furuncle
- d. Abscess
- e. Carbuncle

464. Every diet includes products with dietary fiber. These fibers cannot be digested by gastrointestinal enzymes and cannot be absorbed by the body. What is the role of dietary fiber?

- a. Inhibits motor function of alimentary tract
- b. Inhibits secretion of enzymes in digestive juices**

- c. Inhibits absorptive function of alimentary tract
- d. Stimulates motor function of alimentary tract
- e. Inhibits secretory function of alimentary tract

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

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

466. Normal occlusion of the dental arches can be made more pronounced by pulling the lower jaw backwards. What muscle performs this action?

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

467. Examination of a patient shows base metabolism increased by 50%. This change is caused by increased secretion of the following hormone:

- a. Parathormone
- b. Insulin
- c. Prolactin
- d. Thyroxine
- e. Growth hormone

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

- a. Stimulating therapy
- b. Etiotropic therapy
- c. Symptomatic therapy
- d. Preventive therapy
- e. Replacement therapy

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

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

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

- a. Cyclooxygenase
- b. Phospholipase A2
- c. Phospholipase C
- d. Phosphodiesterase
- e. Lipoxygenase

471. A patient suffering from ciliary arrhythmia with anamnesis of bronchial asthma should be prescribed an antiarrhythmic drug. What antiarrhythmic drug is CONTRAINDICATED in this case?

- a. Novocainamide (Procainamide)
- b. Verapamil
- c. Anaprilin (Propranolol)
- d. Ajmaline

e. Nifedipine

472. 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. Pentazocine
- c. Codeine
- d. Nicotinamide
- e. Diphenine (Phenytoin)

473. A car accident victim presents with a spinal hematoma accompanied by retrosternal pain, tachycardia, and elevated blood pressure. The patient's condition results from the damage to the following segments of the spinal cord:

- a. Th1-Th5
- b. S1-S3
- c. -
- d. C6-C8
- e. L1- L3

474. A tourist, who had been to one of the Far East countries, was hospitalized into the therapeutics unit with suspected pneumonia. Examination of his sputum and feces detected there lung fluke eggs. What food products are the most likely cause of lung fluke infestation?

- a. Insufficiently thermally processed eggs
- b. Insufficiently thermally processed pork
- c. Insufficiently thermally processed freshwater crabs
- d. Raw fruits and vegetables
- e. Insufficiently thermally processed beef

475. A postmortem examination of the body of a 59-year-old woman, who died of acute heart failure, detected in the left ventricular wall an irregularly-shaped yellow area, 2.5x2 cm in size, with a doughy consistency. In the corresponding place on the endocardium a thrombus was formed, while on the epicardium there were fibrinous deposits. What was the localization of the infarction in relation to the cardiac wall in this case?

- a. Transmural
- b. -
- c. Subendocardial
- d. Subepicardial
- e. Intramural

476. 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. Submetacentric
- b. Acrocentric
- c. Polytene
- d. Telocentric
- e. Metacentric

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

- a. Columnar villous epitheliocytes
- b. Endocrinocytes
- c. Goblet cells
- d. Cells with acidophilic granules
- e. Poorly differentiated cells

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

- a. Histamine receptors

b. Serotonin receptors

c. Troponin

d. Adrenoceptors

e. Cholinergic receptors

479. A patient suffers from meningitis. He is prescribed a subarachnoid space puncture. Where is this space located?

a. Between arachnoid mater and pia mater

b. Between dura mater and arachnoid mater

c. Between periosteum and arachnoid mater

d. Between periosteum and dura mater

e. -

480. A patient complaining of polydipsia, polyphagia, and polyuria excretes glucose with urine. What disease can be suspected?

a. Addison disease

b. Insulinoma

c. Diabetes insipidus

d. Diabetes mellitus

e. Acromegalia

481. In what organ biotransformation (metabolic transformation) of most medicinal agents occurs upon their introduction into an organism?

a. Lungs

b. Kidneys

c. Intestine

d. Skin

e. Liver

482. A 67-year-old man suffers from cardiac and cerebral atherosclerosis. Examination detected hyperlipidemia. What class of blood plasma lipoproteins contributes the most to the pathogenesis of atherosclerosis?

a. -

b. Low-density lipoproteins

c. Chylomicrons

d. Alpha-lipoproteins

e. High-density lipoproteins

483. 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. Remission

c. Pathologic reaction

d. Recurrence

e. Complication

484. 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. Purkinje cells of the molecular layer

c. Golgi cells of the granular layer

d. Basket cells of the granular layer

e. Pear-shaped neurons of the Purkinje layer

485. A child with signs of rickets has been prescribed a certain liposoluble vitamin drug by the pediatrician and dentist. This drug affects the metabolism of phosphorus and calcium in the body and facilitates calcium accumulation in bone tissue and dentine. If its content in the body is insufficient, there develop disorders of ossification process, dental structure, and occlusion. Name this drug:

- a. Tocopherol acetate
- b. Retinol acetate
- c. Menadione (Vicasolum)
- d. Ergocalciferol**
- e. Thyroidin

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

- a. Mineral metabolism disorders
- b. Hereditary disorders of lipid metabolism
- c. Hereditary disorders of connective tissue metabolism
- d. Amino acid metabolism disorders**
- e. Carbohydrate metabolism disorders

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

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

488. A patient of tall stature with drooping lower lip, big nose, and large extremities has made an appointment with the doctor. What gland is likely to present with excessive secretion in this patient?

- a. Pineal gland
- b. Anterior lobe of the pituitary gland**
- c. Parathyroid glands
- d. Thyroid gland
- e. -

489. In some Ukrainian regions, local cases of malaria were detected. What insects take part in such outbreaks?

- a. Mosquitoes of Phlebotomus genus
- b. Flies of Simulium genus
- c. Flies of Ceratopogonidae family
- d. Gadflies of Tabanidae family
- e. Mosquitoes of Anopheles genus**

490. A patient was diagnosed with peptic ulcer disease of the stomach and prescribed an antibacterial treatment. This treatment will be aimed against the following causative agent:

- a. Cl. trachomatis
- b. H. pylori**
- c. Cl. perfringens
- d. St. aureus
- e. E. coli

491. A 25-year-old young man complains of general weakness, rapid fatigability, irritability, reduced working ability, and bleeding gums. What vitamin deficiency is the most likely cause of this condition?

- a. Folic acid
- b. Ascorbic acid**
- c. Riboflavin
- d. Retinol
- e. Thiamine

492. A man, who accidentally rinsed his mouth with vinegar essence instead of chlorhexidine solution, was brought to a dental clinic. He complains of burning pain during eating. Examination revealed a dense whitish-gray film on his oral mucosa. What keratoplastic drug was prescribed by the dentist in the course of treatment in this case?

- a. Vinylin (Polyvinox)**
- b. Anaesthesia (Benzocaine)

- c. Magnesia
- d. Diazolin (Mebhydrolin)
- e. Sodium bicarbonate

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

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

495. 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. Maxillary sinus
- b. Sphenoid sinus
- c. Middle air cells of the ethmoid sinus
- d. Posterior air cells of the ethmoid sinus
- e. Frontal sinus

496. A patient with trauma has an epidural hematoma in the temporal region. What artery was damaged?

- a. Posterior communicating artery
- b. Middle meningeal artery
- c. Anterior cerebral artery
- d. Medial cerebral artery
- e. Anterior meningeal artery

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

- a. Syndesmosis
- b. Hemiarthrosis
- c. Gomphosis
- d. Synchondrosis
- e. Synostosis

498. Microphotogram made with electron microscope shows alveolar cells that compose blood-air barrier. Name this cells:

- a. Villous epithelial cells
- b. Clara cells (club cells)
- c. Alveolar secretory epithelial cells
- d. Alveolar respiratory epithelial cells
- e. Alveolar macrophages

499. A patient developed burning sensation in the oral cavity and white fuzzy coating on the tongue. Oral thrush is diagnosed. What drug of those listed below should be used?

- a. Nystatin
- b. Tetracycline
- c. Griseofulvin
- d. Gentamicin

e. Amphotericin

500. A 56-year-old man with a valvular defect complains of lower limb edemas that lately increased in frequency. Name the local pathogenetic factor of edema development in this case:

- a. Decrease of hydrodynamic blood pressure
- b. Increase of hydrodynamic blood pressure**
- c. Decrease of vessel wall permeability
- d. Increase of interstitial pressure
- e. Increase of oncotic blood pressure

501. A patient has a parotid gland inflammation. What nerve is involved in the inflammatory process in this case?

- a. N. maxillaris
- b. N. linqualis
- c. N. tympanicus
- d. N. facialis**
- e. N. mandibularis

502. Examination of the patient's oral cavity shows a contact between the cutting edges of the upper and lower incisors. This type of teeth placement is characteristic of:

- a. Orthogenic occlusion**
- b. Progenia
- c. Closed occlusion
- d. Biprognathic occlusion
- e. Orthognathia

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

- a. N. vagus, n. accessorius, n. hypoglossus
- b. N. vestibulocochlearis, n. glossopharyngeus
- c. N. oculomotorius, n. trochlearis, n. abducens, r. ophthalmicus n. trigemini**
- d. N. olfactorius, n. opticus
- e. N. facialis, n. trochlearis, n. abducens

504. An inoculation of intestinal microorganisms on the Endo medium results in the growth of colonies that can be either colored or colorless. This process is based on the fermentation of a certain carbohydrate. Name this carbohydrate:

- a. Glucose
- b. Lactose**
- c. Maltose
- d. Sucrose
- e. Arabinose

505. A 4-year-old child has numerous carious cavities and yellow-colored teeth. It is known that during her pregnancy the child's mother was undergoing an antibiotic treatment. What medicine was likely being taken by the child's mother?

- a. Streptomycin sulfate
- b. Doxycycline**
- c. Cefazolin
- d. Erythromycin
- e. Ampicillin

506. After a traumatic brain injury the patient developed a urinary system dysfunction - polyuria.

What hormone secretion was disturbed, resulting in polyuria in this patient?

- a. Adrenaline
- b. Insulin
- c. Vasopressin**

- d. ACTH
- e. Mineralocorticoids

507. During a surgery on the right side of the neck, excursion of the right diaphragmatic dome was disturbed. This disturbance occurred because of the damage to the following nerve:

- a. Supraclavicular nerve
- b. Left phrenic nerve
- c. Left transverse cervical nerve
- d. Right transverse cervical nerve
- e. Right phrenic nerve

508. Autopsy of a patient, who died of heart failure, shows yellow spots and streaks in the the aortic and coronary intima, as well as gray-yellow plaque, protruding from the intima surface. The plaque is focally ulcerated and presents with hemorrhages, thrombi, and calcified foci. Such vascular alterations are characteristic of:

- a. Syphilitic mesaortitis
- b. -
- c. Periarteritis nodosa
- d. Essential hypertension
- e. Atherosclerosis

509. What types of excretory ducts are distinguished in the large salivary glands?

- a. Intralobular and extraglandular ducts
- b. Intralobular ducts, interlobular ducts, and the primary duct of the gland
- c. Intercalated ducts, striated ducts, and the common duct
- d. Intralobular ducts, striated ducts, and the common duct
- e. Intralobular and interlobular ducts

510. A woman gave birth to a child with toxoplasmosis. The woman thinks that she contracted toxoplasma from her friend, who recently gave birth to a child with the same disease. A human **CANNOT** be infected with toxoplasma through the following route:

- a. Contact with a cat
- b. Drinking water, contaminated with oocytes
- c. Contact with a sick person
- d. Eating unwashed vegetables
- e. Eating undercooked meat of an infected domesticated animal

511. A patient presents with disturbed blood supply to the medial surface of the right cerebral hemisphere. What artery is damaged in this case?

- a. A. cerebri anterior
- b. A. cerebri posterior
- c. A. chorioidea
- d. A. cerebri media
- e. A. communicans posterior

512. In human population some people throughout their life develop not two but three dentitions. It is the manifestation of the following law:

- a. Embryonic induction
- b. Independent assortment
- c. Homologous series of genetic variation
- d. Hardy-Weinberg principle
- e. Biogenetic law (recapitulation theory)

513. A patient with a head trauma was brought to the hospital. He was diagnosed with a fracture of the sphenoid bone at the base of the sphenoidal process. What canal is likely to be damaged in this case?

- a. Musculotubal canal
- b. Pterygoid canal
- c. Facial canal

- d. Carotid canal
- e. Tympanic canal

514. During an appointment, a patient developed atrioventricular block. What medicinal substance can be used as an emergency aid in this case?

- a. Anaprilin (Propranolol)
- b. Atenolol
- c. Pirenzepine
- d. Atropine**
- e. Platiphyllin

515. After examination of a 6-year-old girl with sore throat, the doctor suspected diphtheria. He obtained a swab from the child's tonsils. What microscopic presentation is characteristic of the causative agent of this disease?

- a. Gram-negative cocci, arranged in pairs
- b. Gram-negative bacilli, arranged chaotically
- c. Gram-positive bacilli, arranged at an angle to each other**
- d. Gram-positive cocci, arranged in chains
- e. -

516. What hormone stimulates the inclusion of calcium into the osteoblasts of dental bone tissues?

- a. Parathyroid hormone
- b. Thyroxine
- c. Cortisol
- d. Insulin
- e. Calcitonin**

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

- a. Reservoir
- b. Definitive**
- c. Intermediate
- d. Optional
- e. Additional

518. In hot weather the bus passengers asked to open the roof hatches. What way of heat transfer is activated in this situation?

- a. Convection**
- b. Radiation
- c. Sweat evaporation
- d. Conduction and radiation
- e. Conduction

519. The physiological properties of human cardiac muscle include all of the listed below except:

- a. Contractility
- b. Conductivity
- c. Automaticity
- d. Excitability
- e. Elasticity**

520. During a prolonged starvation, glucocorticoid secretion by the adrenal cortex increases. Glucocorticoids increase the synthesis of gluconeogenetic enzymes in the liver. Name the terminal enzyme of this process:

- a. Fructose-1,6-bisphosphatase
- b. Glucose-1-phosphatase**
- c. Fructose-2,6-bisphosphatase
- d. Glucose-6-phosphatase**
- e. Fructose-6-phosphatase

521. In the process of tooth extraction, the connection between the tooth cement and tooth socket is being destroyed. Name this connecting structure:

- a. Dentin
- b. Gums
- c. Enamel
- d. Cement
- e. Periodontium

522. A sputum sample obtained from a tuberculosis patient was sent to a bacteriological laboratory. Bacterioscopy of smear microslides for detection of the tubercle bacillus requires the following staining method:

- a. Ziehl-Neelsen
- b. Zdrodovskiy
- c. Romanovsky
- d. Gram
- e. Burri-Gins

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

- a. Systemic scleroderma
- b. Dermatomyositis
- c. Rheumatoid arthritis
- d. Gouty arthritis
- e. Systemic lupus erythematosus

524. Several hours after the dental trauma the tooth pulp presents with hyperemic vessels, marked tissue edema with isolated neutrophils, lymphocytes, and minor dystrophic changes of nerve fibers.

Make the diagnosis:

- a. Granulating pulpitis
- b. Suppurative pulpitis
- c. Serous pulpitis
- d. Fibrous pulpitis
- e. Gangrenous pulpitis

525. 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. Epidermis
- c. Elastic fiber
- d. Subcutaneous fat
- e. Amorphous substance

526. Presence of citrulline and high ammonia levels are detected in the urine of a newborn. This child is likely to present with disturbed production of the following substance:

- a. Ammonia
- b. Uric acid
- c. Creatinine
- d. Creatine
- e. Urea

527. A patient was diagnosed with thrombosis of the inferior mesenteric artery. What part of the intestine is affected in this case?

- a. Jejunum
- b. Vermiform appendix
- c. Sigmoid colon
- d. Ileum
- e. Duodenum

528. A patient is diagnosed with pneumonia of mycoplasmal etiology. What antibiotics, based on their mechanism of action, \textbf{SHOULD NOT} be used in the course of the treatment?

- a. Antibiotics that inhibit the synthesis of cell wall components
- b. Antibiotics that disturb the synthesis of nucleic acids
- c. Antibiotics that disturb the permeability of cytoplasmic membrane
- d. Antibiotics that disturb oxidative phosphorylation processes
- e. Antibiotics that disturb the protein synthesis

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

530. Among organic substances of a cell there is a polymer composed of dozens, hundreds, and thousands of monomers. This molecule is capable of self-reproduction and can be an information carrier. X-ray structure analysis shows this molecule to consist of two complementary spiral threads. Name this compound:

- a. Cellulose
- b. Hormone
- c. Carbohydrate
- d. RNA
- e. DNA

531. A girl presents with high fever and sore throat. Objectively the soft palate is swollen, the tonsils are covered with gray films that are firmly attached and leave deep bleeding lesions when removed. What is the most likely disease in this case?

- a. Pseudomembranous (Vincent's) tonsillitis
- b. Infectious mononucleosis
- c. Pharyngeal diphtheria
- d. Lacunar tonsillitis
- e. Necrotic tonsillitis

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

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

533. A patient with essential hypertension presents with circadian fluctuations in total peripheral vascular resistance to blood flow. What vessels will be the most affected in this case?

- a. Capillaries
- b. Arteriovenular anastomoses
- c. Arterioles
- d. Aorta
- e. Veins

534. Rotenone is known to inhibit respiratory chain. What complex of mitochondrial respiratory chain is inhibited by this substance?

- a. Adenosine triphosphate synthetase
- b. Coenzyme Q - cytochrome c reductase
- c. Cytochrome oxidase
- d. NADH-coenzyme Q reductase

e. Succinate-coenzyme Q reductase

535. Autopsy of a 2-year-old child, who died of meningitis, shows absence of thymus and T-dependent areas in the peripheral lymphoid tissue. What immunodeficiency syndrome can be characterized by these changes?

- a. Deficiency syndrome of monocytic phagocytes
- b. Combined immunodeficiency syndrome
- c. Humoral immunodeficiency syndrome
- d. Cellular immunodeficiency syndrome**
- e. Secondary immunodeficiency syndrome

536. Trying to lose weight, a woman has limited the amount of products in her diet. Three months later she developed edema and increased urine output, which indicates that her diet is low on the following type of nutrients:

- a. Vitamins
- b. Minerals
- c. Lipids
- d. Carbohydrates
- e. Proteins**

537. The investigation of the imprints obtained from the epidermal ridges on the fingers (dactyloscopy) is used by criminologists to identify people, as well as for diagnostics of a number of genetic anomalies, e.g., Down syndrome. What skin layer determines the uniqueness of the imprints?

- a. Basal layer
- b. Papillary layer**
- c. Translucent layer
- d. Cornified layer
- e. Reticular layer

538. The workers of a nuclear power plant undergo regular medical check-ups, during which primarily the system that is the most sensitive to ionizing radiation is examined. Name this system:

- a. Hematopoietic system**
- b. Nervous system
- c. Epithelial tissues
- d. Skeletal system
- e. Muscular system

539. A 45-year-old man with a history of left-sided croupous pneumonia died of multiple traumas received as the result of a car accident. On autopsy in the lower lobe of his left lung its posterolateral wall is attached to the chest wall with fibrous adhesions. The lobe is diminished, dense, fleshy on section, grayish-pink in color; its pieces sink, when placed in water. Histological analysis reveals diffuse excessive growth of fibrous connective tissue in these areas. Name this complication of croupous pneumonia:

- a. Carneous degeneration**
- b. Emphysema
- c. Gangrene
- d. Atelectasis
- e. Abscess

540. Curariform drugs are used to immobilize the patient during a surgery. Their mechanism of action is based on the blockade of:

- a. Nicotinic acetylcholine receptors of skeletal muscles**
- b. Noradrenaline release into the synaptic cleft
- c. Acetylcholine release into the synaptic cleft
- d. Muscarinic acetylcholine receptors of smooth muscles
- e. Conduction of excitation in the nerve fibers

541. During parodontosis, destruction of protein and polysaccharide components of connective tissue occurs. Which of the proteins listed below is a component of connective tissue?

- a. Antitrypsin
- b. Ceruloplasmin
- c. Collagen
- d. Transferrin
- e. Albumin

542. Prior to a complex surgery the patient developed skin pallor, rapid heart rate and respiration rate, elevated blood pressure, and dry mouth. These signs appeared due to activation of:

- a. Sympathetic nervous system
- b. Parasympathetic nervous system
- c. Somatic nervous system
- d. Metasympathetic nervous system
- e. -

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

544. Several patients with similar complaints came to the doctor. They all present with weakness, pain in the intestines, indigestion. Feces analysis revealed the need for urgent hospitalization of the patient, who had microbial cysts with four nuclei detected in his samples. Such cysts are characteristic of the following protozoon:

- a. Entamoeba coli
- b. Lamblia
- c. Entamoeba histolytica
- d. Trichomonad
- e. Balantidium

545. When divers quickly rise from the depths to the surface, they risk developing decompression sickness that can result in death caused by gas embolism. What gas is produced in this case?

- a. N₂
- b. NO₂
- c. CO₂
- d. CO
- e. O₂

546. A woman complains of pain in her left lower jaw and lower teeth. What nerves are likely to be damaged in this case, causing these signs?

- a. Motor fibers of the third branch of the V pair of cranial nerves
- b. The first branch of the V pair of cranial nerves
- c. Sensory fibers of the third branch of the V pair of cranial nerves
- d. The second branch of the V pair of cranial nerves
- e. The VII pair of cranial nerves

547. An ophthalmologist suspects blennorrhea (gonococcal conjunctivitis) in a child with signs of suppurative keratoconjunctivitis. What laboratory diagnostics should be conducted to confirm the diagnosis?

- a. Biological analysis and allergy test
- b. Microscopy and serum diagnostics
- c. Biological analysis and phagodiagnosis
- d. Microscopy and bacteriological analysis

e. Serum diagnostics and allergy test

548. On examination a woman was diagnosed with a retropharyngeal abscess. What cervical space should be accessed by the surgeon lancing this abscess?

- a. Prescalene space
- b. Interscalene space
- c. Retrovisceral space
- d. Previsceral space
- e. Suprasternal space

549. Cells of sensory spinal ganglions are a part of reflex arches. What type of neurons are these cells?

- a. Pseudounipolar
- b. Unipolar
- c. Bipolar
- d. -
- e. Multipolar

550. Two nucleotides have been lost in the sequence of DNA nucleotides due to the effect of radiation. What type of mutation occurred in the DNA strand?

- a. Duplication
- b. Inversion
- c. Replication
- d. Translocation
- e. Deletion

551. At the cementoenamel junction there are non-calcified areas, through which infection often penetrates into the tooth. Name these structures:

- a. Odontoblasts
- b. Ameloblasts
- c. Enamel tufts
- d. Tomes' dentinal fiber
- e. Enamel prisms

552. A patient needs to be prescribed a broad-spectrum fluoroquinolone. Select such drug from the list below:

- a. Chinoxydin
- b. Ciprofloxacin
- c. Amoxicillin
- d. Carbenicillin
- e. Azlocillin

553. Microscopy of an extracted tooth detected destruction of enamel and dentinoenamel junction; dentinal tubules are wide and filled with microbial masses. Odontoblastic processes are dystrophic and necrotic. There are foci of dentin demineralization. What is the most likely diagnosis?

- a. Superficial caries
- b. Fluorosis
- c. Cemental caries
- d. Deep caries
- e. Median caries

554. A patient with Cushing syndrome presents with persistent hyperglycemia and glucosuria. This patient is likely to have increased production and secretion of the following hormone:

- a. Thyroxine
- b. Cortisol
- c. Adrenaline
- d. Aldosterone
- e. Glucagon

555. A 34-year-old woman has a gastric ulcer. To describe the location of the ulcer, the doctor must know, into what parts the stomach can be divided:

- a. Body and fundus of the stomach, pyloric stomach and cardiac stomach
- b. Fundus of the stomach, greater and lesser curvatures of stomach, cardiac stomach
- c. Fundus and fornix of the stomach, pyloric stomach, pyloric antrum, cardiac stomach
- d. Anterior and posterior stomach walls, pyloric stomach and cardiac stomach
- e. Body and fundus of the stomach, greater and lesser curvatures of stomach

556. To determine functional state of the patient's liver, the analysis of animal indican excreted with urine was conducted. This substance is produced in the process of detoxification of putrefaction products of a certain amino acid, which takes place in the large intestine. Name this amino acid:

- a. Cysteine
- b. Tryptophan
- c. Valine
- d. Serine
- e. Glycine

557. A 35-year-old patient, who complains of heartburn and sharp pain in the epigastrium on an empty stomach, was prescribed an H₂-histamine blocker. What drug is it?

- a. Ranitidine
- b. Vicaline
- c. Atropine
- d. Almagel
- e. Methacin (metocininium iodide)

558. 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. Hydrogen peroxide
- c. Phenol
- d. Salicylic acid
- e. Boric acid

559. After a brain trauma, a person developed impaired perception of visual information. What cortical region was damaged?

- a. Occipital region of the cerebral cortex
- b. Parietal region of the cerebral cortex
- c. Precentral gyrus
- d. Postcentral gyrus
- e. Temporal region of the cerebral cortex

560. During kidney microscopy, the pathologist noticed crescent-shaped epithelial formations in the outer layer of the Bowman's capsule in 80% of the glomeruli. He concluded that such clinical presentation corresponds with:

- a. Intracapillary proliferative glomerulonephritis
- b. Rapidly progressive extracapillary proliferative glomerulonephritis
- c. Intracapillary exudative glomerulonephritis
- d. Extracapillary exudative glomerulonephritis
- e. Fibroplastic glomerulonephritis

561. A 16-year-old girl, who has been starving herself for a long time to lose weight, developed an edema. This phenomenon is mainly caused by:

- a. Deceleration of glomerular filtration rate
- b. Venous congestion and increased venous pressure
- c. Decreased production of vasopressin in the hypothalamus
- d. Hypoproteinemia due to protein synthesis disturbance
- e. Hypoglycemia due to glycogen synthesis disturbance

562. During the neurologist's examination, a patient presents with a sensory loss on the back surface

of the left hand. Name this phenomenon:

- a. Alexia
- b. Atony
- c. Ataxia
- d. Asthenia
- e. Anesthesia

563. It is necessary to decrease pumping ability of the patient's heart. What membrane cytoreceptors must be blocked to achieve this effect?

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

564. Blood sample was obtained for analysis. 30% of erythrocytes in the sample are abnormally shaped. Name this phenomenon:

- a. Anisocytosis
- b. Microcytosis
- c. Physiological poikilocytosis
- d. Pathological poikilocytosis
- e. Macrocytosis

565. A centrifugate of urine sample obtained from a patient with suspected renal tuberculosis was used to make a slide mount for microscopy. What method should be used to stain the slide and detect the causative agent?

- a. Aujeszky stain
- b. Loeffler stain
- c. Ziehl-Neelsen stain
- d. Burri stain
- e. Gram stain

566. A patient was diagnosed with caries complicated by chronic pulpitis. During an examination, the dentist found a proliferation of soft bright-pink tissue in the form of a polyp over the preserved part of the patient's dental crown. What disease can be characterized by these signs?

- a. Diffuse purulent pulpitis
- b. Granulating pulpitis
- c. Serous pulpitis
- d. Fibrous pulpitis
- e. Gangrenous pulpitis

567. In protein biosynthesis that occurs in a eukaryotic cell, one of the stages is the conversion of pro-mRNA into mRNA) As a result of this process, mRNA <<matures>>. Name this process.

- a. Transcription
- b. Replication
- c. Transduction
- d. Repair
- e. Processing

568. During their expedition to the Middle East, the students found a 7-centimeter-long arthropod. Its body consists of cephalothorax with 4 pairs of ambulatory legs and segmented abdomen with two venom glands in its last segment. The gland openings are located on the tip of the hook-shaped sting. The animal was identified as a nocturnal predator, its venom is dangerous for humans. It belongs to the following order:

- a. Aphaniptera
- b. Aranei
- c. Scorpiones
- d. Solpugae

e. Acarina

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

570. Disturbed endoderm differentiation was detected in an embryo material. This process can lead to developmental changes in the following organs:

- a. Aorta
- b. Heart
- c. Stomach**
- d. Kidneys
- e. Salivary glands

571. A slide mount of an ovary presents a rounded structure with glandular cells that contain lipid droplets. Name this structure:

- a. Primordial ovarian follicle
- b. Primary ovarian follicle
- c. Mature ovarian follicle
- d. Corpus albicans
- e. Corpus luteum**

572. A woman complains of headache, muscle pain during swallowing, chewing, and eyeball movement, elevated temperature, swollen face and eyelids. The signs developed 1.5-2 months after she had eaten pork without sanitary certificate. What helminth can cause these signs in a human?

- a. Ascaris lumbricoides
- b. Ancylostoma
- c. Trichinella**
- d. Necator
- e. Enterobius

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

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

574. A patient needs his tongue to be amputated due to a malignant tumor located there. Where can one easily find the lingual artery and ligate it?

- a. Pirogov triangle**
- b. Omotrapezoid triangle
- c. Omoclavicular triangle
- d. Omotracheal triangle
- e. Carotid triangle

575. A patient presents with high content of vasopressin (antidiuretic hormone) in the blood. What changes in the patient's diuresis will occur?

- a. Natriuria
- b. Polyuria
- c. Glycosuria
- d. Oliguria**
- e. Anuria

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

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

577. A patient has received a trauma to the calvaria. What sinuses are likely to be damaged?

- a. Sigmoid sinus
- b. Superior petrosal sinus
- c. Inferior sagittal sinus
- d. Superior sagittal sinus
- e. Inferior petrosal sinus

578. An 84-year-old patient suffers from parkinsonism. One of the pathogenetic development elements of this disease is deficiency of a certain mediator in some of the brain structures. Name this mediator:

- a. Histamine
- b. Adrenaline
- c. Noradrenaline
- d. Dopamine
- e. Acetylcholine

579. A man complains of varicose veins on his left leg. Venous nodes are located on the posterior surface of the shin and on the posterior and anterior surfaces of the thigh. What superficial leg veins are damaged in this patient?

- a. Posterior tibial vein, great saphenous vein
- b. Small saphenous vein, deep femoral vein
- c. Great saphenous vein, small saphenous vein
- d. Femoral vein, great saphenous vein, small saphenous vein
- e. Popliteal vein, superficial saphenous vein

580. A man came to a doctor with complaints of excessive thirst (polydipsia) and frequent urination with a large amount of urine (polyuria). The patient's history states that 4 weeks ago he was diagnosed with necrosis of the posterior lobe of the pituitary gland caused by a craniocerebral injury. What pathology is observed in the patient?

- a. Diabetes insipidus
- b. Acromegaly
- c. Diabetes mellitus
- d. Cushing disease
- e. Cushing syndrome

581. 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. Primary
- b. Predentin
- c. Secondary
- d. Demineralized
- e. Tertiary

582. 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 E
- b. B lymphocytes
- c. Plasmacytes
- d. Immunoglobulins M

e. T lymphocytes

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

- a. Leiomyoma
- b. Pigmented nevus
- c. Lymphangioma
- d. Melanoma
- e. Hemangioma

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

- a. Glycogen
- b. Glycosaminoglycans
- c. Triglycerides
- d. Fructose
- e. Fatty acids

585. A patient with an angina pectoris attack was brought into the intensive care unit. What drug must be administered in this case to stop the angina pectoris attack?

- a. Vicasolum (Menadione)
- b. Calcium chloride
- c. Heparin
- d. Nitroglycerin
- e. Furosemide

586. The costal margin is an important topographic landmark of the human body. It is formed by the cartilage of the following vertebrae:

- a. From 11 to 12
- b. Only 12
- c. From 1 to 12
- d. From 1 to 7
- e. From 7 to 10

587. After exposure to radiation, a rabbit presents with the III stage of acute radiation sickness that manifests in bone marrow syndrome. Damage to what tissue is the leading link in the pathogenesis of radiation sickness-related disorders in this case?

- a. Gonadal epithelium
- b. Glandular epithelium
- c. Nerve tissue
- d. Bone tissue
- e. Hematopoietic tissue

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

- a. Trichuris trichiura
- b. Entamoeba histolytica
- c. Lamblia intestinalis
- d. Ascaris lumbricoides
- e. Enterobius vermicularis

589. A dentist was hospitalized into the infectious diseases unit with complaints of nausea, appetite loss, icteric sclerae, and subcostal pain on the right. Laboratory analysis confirmed the diagnosis of viral hepatitis, type B) What infection transmission route is the most likely in this case?

- a. Airborne droplets
- b. Vector-borne
- c. Alimentary

d. Parenteral

e. Airborne dust particles

590. Degenerative changes resulted in formation of mineralized foci in the tongue pulp. Some of these foci contain canalliculi. Name these formations:

- a. Fibrous bodies
- b. Ossification patches
- c. Cement
- d. Denticles**
- e. Bone tissue

591. A culture of Gram-positive cocci was isolated from the oral cavity of a clinically healthy 25-year-old person. These cocci have a slightly elongated shape, are arranged in pairs or short chains, form a capsule, and exhibit alpha hemolysis on blood agar. This person is a carrier of the following pathogen:

- a. Streptococcus pyogenes
- b. Streptococcus pneumoniae**
- c. Streptococcus salivarium
- d. Peptostreptococcus
- e. Streptococcus faecalis

592. Before the surgery for realignment of the fractured bone of the upper jaw, the patient received neuroleptanalgesia. Neuroleptic droperidol was administered along with analgesic fentanyl. What type of drug interaction was used?

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

593. 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. Microscopy
- c. Bacteriological analysis**
- d. Protozoan analysis
- e. Serological analysis

594. The presence of an allosteric center is a structural feature of regulatory enzymes. What is its role?

- a. Binds the substrate
- b. Binds the coenzyme
- c. Binds the regulatory effector**
- d. Changes the structure of the substrate
- e. Promotes the coenzyme dissociation

595. The leading role in the process of dentin and cementum mineralization belongs to osteocalcin protein that has a high ability to bind calcium ions due to the presence of residues of a certain modified amino acid in its polypeptide chain. Name this amino acid:

- a. gamma-aminobutyric amino acid
- b. beta-carboxyaspartic amino acid
- c. gamma-carboxyglutamic amino acid**
- d. beta-alanine
- e. beta-aminopropionic amino acid

596. Fatigability of masticatory muscles can result in their abnormally slow relaxation, which impairs mechanical processing of food. Name this condition:

- a. Tetanus**

- b. Hypodynamia
- c. Galvanism
- d. Galvanization
- e. Contracture

597. A man, who for a long time has been suffering from chronic mandibular osteomyelitis, died of renal failure. Autopsy shows enlarged yellow-white kidneys that are extremely dense and have a waxy sheen. Light microscopy detected deposits of homogeneous pink masses in the glomerular capillary loops, walls of arterioles and arteries, canalicular basement membrane, and stroma. These deposits color brick-red when stained with Congo red. What process developed in the kidneys?

- a. Primary amyloidosis
- b. Fibrinoid necrosis
- c. Secondary amyloidosis
- d. General hyalinosis
- e. Local hyalinosis

598. Fibrocartilaginous layer of trachea consists of C-shaped hyaline cartilage rings, with their open ends facing posteriorly. What tissue connects these open ends?

- a. Loose fibrous connective tissue
- b. Smooth muscular tissue
- c. Adipose connective tissue
- d. Dense unformed connective tissue
- e. Striated muscular tissue

599. Autopsy of a 46-year-old man, who had untreated enteric infection and died of sepsis, revealed the following: perirectal phlegmon, multiple ulcers of the rectum and sigmoid colon, some of which are perforated; mucosa of these intestinal segments is thickened and covered with firmly attached grayish films. What is the most likely disease in this case?

- a. Cholera
- b. Typhoid fever
- c. Dysentery
- d. Tuberculosis
- e. Amebiasis

600. A patient was diagnosed with xeroderma pigmentosum that manifested in skin keratinization, eye damage, and dilation of capillaries. In this disease, prolonged exposure to UV radiation results in skin tumors. What exogenous factor will significantly aggravate the condition of a patient with this diagnosis?

- a. Light
- b. Ultrasound
- c. High humidity
- d. High temperature
- e. Overexposure to cold

601. For differential diagnostics of meningitis, cerebrospinal fluid needs to be analyzed. Where is it safe to conduct a lumbar puncture?

- a. L1-L2
- b. L3-L4
- c. L4-L5
- d. L5-S1
- e. Th12-L1

602. The patient's masticatory muscles are paralyzed on the left. These muscles are innervated by the branches of the:

- a. Nasociliary nerve
- b. Supraorbital nerve and infratrocchlear nerve
- c. Zygomatic nerve
- d. Mandibular nerve

e. Maxillary nerve

603. During a brain surgery stimulation of the cerebral cortex resulted in tactile and thermal sensations in the patient. What gyrus was stimulated?

- a. Precentral gyrus
- b. Parahippocampal gyrus
- c. Superior temporal gyrus
- d. Cingulate convolution
- e. Postcentral gyrus**

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

- a. Perimetrium
- b. Inner layer of the myometrium
- c. Middle layer of the myometrium**
- d. Outer layer of the myometrium
- e. Endometrium

605. A newborn has well-developed jaws with tooth buds for both deciduous and permanent teeth in the each one. How many tooth buds are there in one jaw of the newborn?

- a. 10 deciduous teeth and 16 permanent teeth
- b. 10 deciduous teeth and 8 permanent teeth**
- c. 20 deciduous teeth
- d. 10 deciduous teeth and 10 permanent teeth
- e. 20 deciduous teeth and 10 permanent teeth

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

- a. Sago spleen
- b. Lardaceous spleen
- c. Septic spleen
- d. Miliary tuberculosis of the spleen**
- e. Porphyry spleen

607. A person in the state of nervous tension develops transverse wrinkles on the forehead. What muscle contracts to produce this result?

- a. M. procerus
- b. M. occipitofrontalis**
- c. M. temporoparietalis
- d. M. auricularis anterior
- e. M. corrugator supercilii

608. To treat tuberculosis, an antibiotic that colors urine red is prescribed. Name this antibiotic:

- a. Nitroxoline
- b. Amoxicillin
- c. Rifampicin**
- d. Cefotaxime
- e. Erythromycin

609. A dentist used a solution of potassium permanganate as an antiseptic. This preparation has a bactericidal effect because of:

- a. Atomic oxygen**
- b. Potassium oxide
- c. Potassium
- d. Potassium hydroxide
- e. Manganese oxide

610. A patient is diagnosed with deformed posterior portion of the nasal septum. What bone is deformed?

- a. Perpendicular plate of ethmoid bone
- b. Lateral pterygoid plate
- c. Vomer
- d. Medial pterygoid plate
- e. Vertical plate of palatine bone

611. A patient presents with acute onset of the disease: high fever and enlarged painful spleen. On the 10th day since the onset the patient developed a maculopapular rash on the abdomen. On the 21st day the patient died of peritonitis. Postmortem study of the body shows deep ulcers in the area of necrotic aggregate lymphoid follicles (Peyer's patches) in the ileum of the deceased. One of the ulcers is perforated and diffuse fibrinopurulent peritonitis is observed. What disease can be suspected in this case?

- a. Typhoid fever
- b. Salmonellosis
- c. Intestinal amebiasis
- d. Cholera
- e. Dysentery

612. During teeth examination on the lateral surface of the first upper molar there was detected a cone-shaped carious cavity with base oriented towards the tooth surface and apex - towards the tooth center. Softened dentin is visible at the floor of the carious cavity. Make the diagnosis:

- a. Enamel caries
- b. -
- c. Cement caries
- d. Tooth erosion
- e. Dentin caries

613. The third heart sound can be detected via phonocardiogram only in adult non-asthenic patients. It occurs during the following phase of a cardiac cycle:

- a. Asynchronous contraction
- b. Isovolumetric relaxation
- c. Reduced filling
- d. Rapid filling
- e. Rapid ejection

614. In the course of experiment it is necessary to detect muscle excitation. For this purpose the following measurement should be made:

- a. Mechanomyogram
- b. Contraction strength
- c. Ion concentration
- d. Electromyogram
- e. Contraction duration

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

- a. Rr. alveolares inferiores posteriores
- b. Rr. alveolares superiores anteriores
- c. Rr. alveolares inferiores anteriores
- d. Rr. alveolares superiores medii
- e. Rr. alveolares superiores posteriores

616. Blood stains were found on the clothes of a person accused of murder. What reaction can prove that it is human blood?

- a. Immunofluorescence assay
- b. Precipitation reaction
- c. Agglutination test

- d. Neutralization reaction
- e. Complement fixation test

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

618. A man is being examined in the maxillofacial surgery department and the doctor studies his mandibular buttresses. How many buttresses are there on the lower jaw?

- a. 5
- b. 3
- c. 4
- d. 1
- e. 2**

619. In an experiment, the vagus nerve was severed in a test animal. As the result, the animal developed elevated blood glucose due to:

- a. Increased secretion of glucagon
- b. Decreased secretion of glucagon
- c. Increased secretion of insulin
- d. Decreased secretion of insulin**
- e. Increased secretion of somatostatin

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

- a. Diarthrosis**
- b. Synostosis
- c. Syndesmosis
- d. Hemiarthrosis
- e. Synchondrosis

621. A structural gene - a segment of a DNA molecule - was damaged. However, it did not result in an amino acid replacement in the protein, because after a time the damage was corrected. It indicates such DNA ability as:

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

622. A 55-year-old man was diagnosed with acute glomerulonephritis. Name the main mechanism of anemia development in this case:

- a. Decreased glomerular filtration
- b. Decreased erythropoietin synthesis**
- c. Decreased synthesis of renal prostaglandins
- d. Renal azotemia
- e. Decreased tubular reabsorption

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

- a. Anatoxin
- b. Antitoxic serum**
- c. Native plasma
- d. Antibiotics
- e. Placental gamma globulin

624. A 49-year-old man presents with facial edema, significant proteinuria, hypoproteinemia, dysproteinemia, and hyperlipidemia. What provisional diagnosis can be made?

- a. Prostatitis
- b. Cystitis
- c. Pyelonephritis
- d. Nephrotic syndrome**
- e. Urolithiasis

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

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

626. Patients with ischemic heart disease are prescribed small doses of aspirin that inhibits the synthesis of platelet aggregation activator thromboxane A2. What substance is thromboxane A2 made of?

- a. Acetic acid
- b. Malonic acid
- c. Homogentisic acid
- d. Glutamic acid
- e. Arachidonic acid**

627. During a spinal surgery, the patient's vertebral arches and their connecting ligaments were removed. Name these ligaments:

- a. Anterior longitudinal ligament
- b. Yellow ligaments**
- c. -
- d. Posterior longitudinal ligament
- e. Interspinous ligaments

628. 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. 47
- b. 44
- c. 23
- d. 45
- e. 46**

629. 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. Antigen
- b. Serum
- c. Enzyme
- d. Hormone
- e. Antibody**

630. A patient died of a cardiopulmonary insufficiency. His heart is enlarged, the wall of his right ventricle is thickened on section, and the cavity is dilated. Characterize the pathological process:

- a. Metaplasia
- b. Hyperplasia
- c. Hypertrophy**
- d. Atrophy
- e. Sclerosis

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

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

632. A man has high levels of protein-bound thyroxine (T4) and normal levels of free T3. How would you describe the basal metabolic rate of this man?

- a. Decreased
- b. Normal
- c. -
- d. Extremely high
- e. Increased

633. Examination of a patient revealed increased pyruvate levels in the blood and a decrease in transketolase activity of erythrocytes. What vitamin is deficient in this case, as indicated by these biochemical parameters?

- a. Retinol
- b. Thiamine
- c. Tocopherol
- d. Folic acid
- e. Biotin

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

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

635. A woman came to a dental clinic with complaints of severe toothache and extreme sensitivity to sweet and sour foods and thermal stimuli. She has a history of frequent maxillary sinusitis on the right. Examination of her oral cavity detected a carious tooth - the maxillary right first premolar. The doctor suggested anesthetizing the tooth for further treatment. What nerve innervates this tooth?

- a. N. mandibularis
- b. N. infraorbitalis
- c. N. incisivus
- d. N. alveolaris superior medius
- e. N. petrosus major

636. A dental patient was prescribed a psychosedative for his fear of pain. What drug would be the most effective in this case?

- a. Diazepam
- b. Aminazine
- c. Sodium bromide
- d. Lithium carbonate
- e. Valerian tincture

637. A patient with skin burns was delivered to a hospital. To clean the wound from necrotic tissues and mucus the doctor prescribed an enzymatic drug for topical treatment. Name this drug:

- a. Asparaginase
- b. Tripsin
- c. Pancreatin
- d. Streptokinase
- e. Pepsin

638. 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 jugularis
- b. Paries membranaceus
- c. Paries labyrinthicus
- d. Paries tegmentalnis
- e. Paries mastoideus

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

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

640. Examination revealed a carious cavity on the masticatory surface of the patient's first upper left molar. The cavity has a conic shape, with its apex pointing towards the dental root. Between the cavity and the pulp there are areas of softened, transparent, and replacement dentin. What stage of caries was detected in the patient?

- a. Acute superficial caries
- b. Chronic superficial caries
- c. Acute deep caries
- d. Initial caries
- e. Acute median caries

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

642. A 35-year-old man had an acute onset of the disease. He developed temperature of 39^oC, rhinitis, cough, and lacrimation. Examination shows swollen and hyperemic nasopharyngeal mucosa with profuse mucus discharge. What type of inflammation developed in the nasopharynx?

- a. Catarrhal inflammation
- b. Suppurative inflammation
- c. Hemorrhagic inflammation
- d. Serous inflammation
- e. Fibrinous inflammation

643. 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. procerus
- b. M. masseter
- c. M. buccinator
- d. M. risorius
- e. M. orbicularis oris

644. 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. Golgi tendon organ
- d. Nociceptors
- e. Articular receptors

645. A 3-year-old child presents with facial deformation that was gradually developing over the

course of 6 months and manifests as symmetrical enlargement of both mandibular angles. Microscopy shows the space between the bone trabeculae to be filled with connective tissue that contains numerous blood vessels and smaller primitive bone trabeculae. What disease is the most likely in this case?

- a. Eosinophilic granuloma
- b. Osteosarcoma
- c. Cherubism
- d. Fibroma
- e. Giant-cell tumor of the bone

646. During experiment the processes of food and water hydrolysis products absorption were studied. It was determined that these processes mainly occur in the following gastrointestinal segment:

- a. Rectum
- b. Large intestine
- c. Stomach
- d. Small intestine
- e. Oral cavity

647. A trauma patient has wound in the temporal region, with trickle of bright-red blood streaming from it. What blood vessel is damaged?

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

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

- a. Antihistamines
- b. Antihypertensive drugs
- c. H2 blockers
- d. Antibiotics
- e. Glucocorticoids

649. The patient's salivary porphyrin concentration allowed diagnosing him with porphyria. This disease leads to disturbed synthesis of the following compound:

- a. Glycogen
- b. Creatine
- c. Uric acid
- d. Phospholipids
- e. Heme

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

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

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

- a. Upper canine and first premolar
- b. Upper central incisor
- c. Upper lateral and central incisors
- d. Upper first and second molars
- e. Second premolar and first molar

652. 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. Dimedrol (Diphenhydramine)
- b. Acetylsalicylic acid
- c. Codeine phosphate
- d. Paracetamol
- e. Analgin (Metamizole)

653. A patient with hypochromic anemia was prescribed an iron-containing drug for intravenous administration only. Name this drug:

- a. Fercoven
- b. Etacrynic acid
- c. Mannitol
- d. Dichlothiazide (Hydrochlorothiazide)
- e. Furosemide

654. A patient with urolithiasis was given a narcotic analgesic with antispasmodic effect. Name this drug:

- a. Analgin (Metamizole)
- b. Mefenamic acid
- c. Promedol (Trimeperidine)
- d. Ibuprofen
- e. Indomethacin

655. After administration of eyedrops, the patient developed mydriasis and paralysis of accommodation. What group of drugs can cause this effect?

- a. Muscarinic agonists
- b. Muscarinic antagonists
- c. Anticholinesterase drugs
- d. alpha-adrenergic blockers
- e. beta-adrenergic agonists

656. Because of chondrodysplasia (cartilage maldevelopment), fibrocartilage was damaged. Where can pathologic changes be observed in this case?

- a. Bronchi
- b. Auricle
- c. Intervertebral disks
- d. Larynx
- e. Trachea

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

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

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

- a. Ribosome
- b. Endoplasmic reticulum
- c. Golgi complex
- d. Lysosome
- e. Mitochondria

659. An older person presents with changes in the force of cardiac contractions and in the physical properties of the vasculature, which is clearly visible in the graphic recording of the pulse waves over

the carotid artery. What examination method was used?

- a. Rheography
- b. Myography
- c. Phlebography
- d. Sphygmography
- e. Plethysmography

660. A 25-year-old patient has marked muscle weakness. What electrolytes in the blood plasma should be measured first?

- a. Magnesium ions
- b. Chlorine ions
- c. Sodium ions
- d. Potassium ions
- e. Calcium ions

661. What microflora predominates at the beginning of dental plaque formation on the tooth surface?

- a. Fusobacteria
- b. Bacteroids, Candida
- c. Leptotrichia
- d. Streptococci, Veillonella
- e. Obligate anaerobes

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

663. An HIV-positive patient presents with suppressed activity of the immune system. In this case, the immunodeficiency is primarily caused by the damage to a certain group of cells. What cells are damaged?

- a. Helper T cells
- b. Killer T cells
- c. Plasma cells
- d. B lymphocytes
- e. Suppressor T cells

664. The patient's joints are enlarged and painful. The patient's blood urate levels are high. Name this pathology:

- a. Caries
- b. Pellagra
- c. Scurvy
- d. Gout
- e. Rickets

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

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

666. A person in a hot weather for a long time had no water, which resulted in a severe thirst. What indicator of blood homeostasis was affected, leading to the development of this sensation?

- a. Plasma osmotic pressure
- b. pH

- c. Glucose level
- d. Hematocrit
- e. Plasma oncotic pressure

667. When providing dental care, the dentist received a trauma of the index finger. The skin was breached and the wound is likely to be contaminated with the patient's blood. In such cases regulations require for the patient to be examined for HIV-infection and viral hepatitis. What type of examination is necessary in this case?

- a. Determine the causative agent by infecting cell culture
- b. Study the level of T helper cells
- c. Study blood for hepatitis markers and anti-HIV antibodies
- d. Inoculate blood sample on sugar broth
- e. Identify specific antibodies

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

669. Bacteriological examination of a group of patients with dental caries detected various microorganisms. What microorganism plays the leading role in caries development in these patients?

- a. Staphylococcus aureus
- b. Candida albicans
- c. Borellia buccalis
- d. St. salivarius
- e. Streptococcus mutans

670. 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. Lamblia intestinalis
- d. Entamoeba coli
- e. Entamoeba histolytica

671. During tooth extraction, novocaine (procaine) is administered to the area of a sensitive nerve, which results in an anesthetic effect because of disturbed:

- a. Formation of pain mediators
- b. Excitability of pain receptors
- c. Tissue pH
- d. Axonal transport
- e. Conduction of pain impulses

672. A 35-year-old man came to a hospital with complaints of pain in the right lower jaw, fever, chills, and a swelling. Examination detects detachment of the periosteum with accumulation of inflammatory exudate between the periosteum and the bone, perifocal edema of soft tissues, and partial liquefaction of the periosteum. What diagnosis can be suspected in this case?

- a. Parodontosis
- b. -
- c. Purulent periostitis
- d. Granulating periodontitis
- e. Local parodontitis

673. During microscopy of an embryo material, a yolk sac is visible in the microslide. What is the main function of this organ in the human body?

- a. Excretory
- b. Trophic
- c. Amniotic fluid production
- d. Protective
- e. Hemopoietic

674. A bacteriological laboratory conducts the analysis of potable water quality. Microbial number of the water sample is approximately 100. What microorganisms were accounted for in this case?

- a. Opportunistic pathogenic bacteria
- b. Human and animal pathogenic bacteria
- c. Colibacilli
- d. Enteropathogenic bacteria and viruses
- e. All bacteria that have grown on a nutrient medium

675. A smear specimen of human red bone marrow shows, among myeloid cells and adipocytes, certain stellate cells with oxyphilic cytoplasm that are connected with their cellular processes. Name these cells:

- a. Reticular cells
- b. Osteocytes
- c. Fibroblasts
- d. Macrophages
- e. Dendritic cells

676. A patient has chronic multiple bronchiectasis complicated with severe nephropathy with massive edematous syndrome. Laboratory tests detect marked proteinuria, cylindruria, significant decrease of the serum protein levels, hyperlipidemia, hypokalemia, and other abnormalities. Name the primary and the most significant pathogenetic link of edema development in this patient:

- a. Blocked lymphatic efflux
- b. Increase of extracellular fluid pressure
- c. Increase of hydrostatic blood pressure
- d. Increased microvascular permeability
- e. Decrease of oncotic blood pressure

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

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

678. A tumor is detected in one of the regions of the patient's brain, resulting in the patient's inability to maintain normal body temperature. What brain structure is damaged?

- a. Cerebellum
- b. Striatum
- c. Thalamus
- d. Substantia nigra
- e. Hypothalamus

679. People with diseases of internal organs often assume forced positions (e.g. with lower limbs flexed and pressed to the abdomen) due to the following reflex response:

- a. Viscerodermal
- b. Viscero-visceral
- c. Visceromotor
- d. Motor-visceral
- e. Dermatovisceral

680. After a prolonged isoniazid treatment, the patient developed polyneuritis, paresthesia, memory disorders, and convulsions. What is the likely mechanism of the described isoniazid side-effects?

- a. Disruption of cell membrane synthesis
- b. Para-aminobenzoic acid antagonism
- c. Inhibition of RNA synthesis
- d. Inhibition of protein synthesis
- e. Inhibition of pyridoxal phosphate formation

681. What drug is a beta-lactam antibiotic?

- a. Biseptol (Co-trimoxazole)
- b. Ofloxacin
- c. Erythromycin
- d. Benzylpenicillin
- e. Tetracycline

682. A patient was diagnosed with a monogenic hereditary disease. Name this disease:

- a. Hymenolepiasis
- b. Poliomyelitis
- c. Hypertension
- d. Hemophilia
- e. Peptic ulcer disease of the stomach

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

684. Glucose synthesis from non-carbohydrate components is an important biochemical process.

Gluconeogenesis from amino acids occurs most actively if a diet is rich in proteins. Which amino acid of those listed below is the most glucogenic?

- a. Valine
- b. Alanine
- c. Leucine
- d. Isoleucine
- e. Lysine

685. An excessive bone tissue loss is often observed in older people, which indicates osteoporosis development. What bone tissue cells are activated, resulting in the development of this disease?

- a. Osteoclasts
- b. Macrophages
- c. Tissue basophils
- d. Osteocytes
- e. Osteoblasts

686. To terminate hypertensive crisis the patient was administered solution of magnesium sulfate. What route of drug administration should be chosen?

- a. Rectal
- b. Intravenous
- c. Intra-arterial
- d. Duodenal
- e. Oral

687. After entering the body, bacteria undergo phagocytosis by macrophages. What role do macrophages play in the cooperation of immunocompetent cells at the first stage of immune response formation?

- a. They activate NK-cells
- b. They produce immunoglobulins
- c. They process antigens and present them to T-helpers

- d. They process antigens and present them to T-killers
- e. They activate T-killers

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

- a. Red nuclei
- b. Cerebellum
- c. Lateral vestibular nuclei
- d. Diencephalon
- e. Corpora quadrigemina**

689. Oral cavity examination reveals gingival retraction with exposed roots and cervices of the lower incisors. X-ray shows osteoporotic foci in the alveolar bone; smooth resorption of the bone tissue is prevalent. Microscopy of gingival tissues shows sclerosis and hyalinosis of the microvasculature, accompanied by luminal obliteration; the capillary network is reduced; connective tissue undergoes dystrophic changes. What pathological process was detected?

- a. Parodontosis**
- b. Osteomyelitis
- c. Parodontitis
- d. Periodontitis
- e. Periostitis

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

691. A deciduous second molar was extracted in a 13-year-old child. What permanent tooth will replace the extracted one?

- a. First molar
- b. Second premolar**
- c. Second molar
- d. First premolar
- e. Third molar

692. Glucosuria develops because of impaired renal function. What pathological process can cause the development of glucosuria?

- a. Decreased glucose filtration in the glomeruli
- b. Decreased glucose reabsorption in the proximal tubules**
- c. Increased glucose filtration in the glomeruli
- d. Decreased glucose reabsorption in the distal tubules
- e. Increased tubular secretion of glucose

693. Due to an accident on board a nuclear submarine, a soldier received a radiation dose of 5 Gy. He complains of headache, nausea, and vertigo. What changes in leukocyte number can be observed in this soldier after the irradiation?

- a. Eosinophilia**
- b. Agranulocytosis
- c. Leukopenia
- d. Lymphocytosis
- e. Neutrophilic leukocytosis**

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

695. A dentist prescribed the patient with maxillofacial arthritis diclofenac sodium. What is the mechanism of action of this drug?

- a. Phosphodiesterase activation
- b. Catalase inhibition
- c. Opiate receptors block
- d. Cyclooxygenase-2 inhibition
- e. Opiate receptors activation

696. Premature excitation that occurs in the ventricular myocardium:

- a. Reduces the speed of excitation conduction through working cardiomyocytes
- b. Has no effect on the automaticity of the sinoatrial node
- c. Increases the automaticity of the sinoatrial node
- d. Increases the speed of excitation conduction through working cardiomyocytes
- e. Reduces the automaticity of the sinoatrial node

697. A patient has torticollis. What muscle of the neck is damaged?

- a. M. Omohyoideus
- b. M. Platysma
- c. M. Sternohyoideus
- d. M. Mylohyoideus
- e. M. Sternocleidomastoideus

698. 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. Cemento-ossifying fibroma
- c. Cementoma
- d. Giant cementoma
- e. Odontogenic fibroma

699. A 32-year-old woman underwent removal of a brown fungiform gingival neoplasm.

Microscopically, it consists of connective tissue with numerous sinusoidal vessels, large multinucleated cells, and small mononuclear cells. There are small hemorrhages and hemosiderin deposits, as well. What type of neoplasm is it?

- a. Hypertrophic gingivitis
- b. Giant-cell epulis
- c. Angiomatous epulis
- d. Gingival fibromatosis
- e. Fibromatous epulis

700. A sick child is suspected to have tuberculosis and is referred for Mantoux test. 24 hours later the place of allergen injection became swollen, hyperemic, and tender. What main components determine the development of this reaction?

- a. Plasma cells, T-lymphocytes, and lymphokines
- b. Mononuclear cells, T-lymphocytes, and lymphokines
- c. Granulocytes, T-lymphocytes, and IgG
- d. B-lymphocytes and IgM
- e. Macrophages, B lymphocytes, and monocytes

701. A patient diagnosed with oral candidiasis was prescribed an antifungal drug. What drug was chosen for this patient?

- a. Fluconazole
- b. Levomycetin (Chloramphenicol)

- c. Ampicillin
- d. Erythromycin
- e. Biseptol (Co-trimoxazole)

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

- a. Wohlfahrtia magnifica
- b. Musca domestica
- c. Glossina palpalis
- d. Phlebotomus pappataci
- e. Stomoxys calcitrans

703. Blood test for diabetes mellitus shows lactic acid levels of 2.5 mmol/L. What complication is it?

- a. Hyperglycemic coma
- b. Lactacidemic coma
- c. Hyperketonemic coma
- d. Hyperosmolar coma
- e. Hypoglycemic coma

704. During examination of the patient's oral cavity a dentist noticed deformation of the teeth and a crescent indentation on the upper right incisor. The teeth are undersized, barrel-shaped - tooth cervix is wider than its edge. The patient uses a hearing aid, suffers from visual impairment. What type of syphilis affects teeth in such a way?

- a. Neurosyphilis
- b. Primary
- c. Late congenital
- d. Secondary
- e. Early congenital

705. A 5-month-old child was prescribed an antibacterial therapy for treatment of bronchopneumonia. What substance has a negative effect on teeth development?

- a. Levomycetin (Chloramphenicol)
- b. Nitroxoline
- c. Doxycycline
- d. Biseptol (Co-trimoxazole)
- e. Penicillin

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

- a. Right inferior nasal meatus
- b. Right superior nasal meatus
- c. Right common nasal meatus
- d. Right middle nasal meatus
- e. Right supreme nasal meatus

707. Autopsy of a man, who died suddenly with signs of acutely disturbed cerebral circulation, revealed aneurysm rupture of the medial cerebral artery and a round cavity 4 cm in diameter filled with blood in his frontal lobe. Name this type of hemorrhage:

- a. Petechiae
- b. Hemorrhagic infiltration
- c. -
- d. Contusion
- e. Hematoma

708. A patient has deep lacerated wound with uneven edges. The wound is suppurating; its edges

present with moist granulation tissue that does not protrude above the wound level. Name the type of wound healing:

- a. Healing under the scab
- b. Healing by primary intention
- c. Healing by secondary intention
- d. Direct closure of the epithelial defect
- e. Wound organization

709. After a ride in a car, with a side window open, the driver developed facial asymmetry because of one-sided paralysis of mimic muscles. The left eye cannot be fully closed. What cranial nerve is damaged?

- a. N. facialis
- b. N. accessorius
- c. N. olfactorius
- d. N. vagus
- e. N. hypoglossus

710. A patient consulted a doctor about an increased pain sensitivity of the ear skin and ear canal. Palpation behind the sternocleidomastoid muscle was painful. Such clinical presentations are typical of the irritation of the following nerve:

- a. N. vagus
- b. N. occipitalis minor
- c. N. transversus colli
- d. Nn. supraclavicularis
- e. N. auricularis magnus

711. 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. Recombinant vaccine
- b. Arbidol (Umifenovir)
- c. Live attenuated vaccine
- d. Interferon
- e. Inactivated vaccine

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

713. A histological specimen shows terminal secretory parts of glands made of conic cells with basophilic cytoplasm and a roundish nucleus in the centre. Specify the type of terminal secretory parts by the type of secretion:

- a. Combined
- b. Seromucous
- c. Mucous
- d. Serous
- e. Sebaceous

714. 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. Oxytocin and vasopressin
- b. Cortisol and aldosterone
- c. ACTH and growth hormone
- d. Insulin and glucagon
- e. Thyroxine and triiodothyronine

715. What hormone of parotid glands intensifies teeth mineralization by stimulating calcium supply to the calcified tissues?

- a. Glucagon
- b. Parathyrin
- c. Calcitonin
- d. Parotin
- e. Cortisol

716. Gene expression is regulated by various mechanisms and activates upon induction of certain DNA regions. Name these regions.

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

717. Mother with a 12-year-old child came to the gastroenterologist. She complains of loss of appetite and meteorism in her child. Endoscopically the child was diagnosed with biliary dyskinesia, in the duodenal contents there were pear-shaped protozoa with two nuclei and multiple flagella. What disease is the most likely in this child?

- a. Trichomoniasis
- b. Amebiasis
- c. Balantidiasis
- d. Toxoplasmosis
- e. Lambliasis

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

- a. Hydrocortisone
- b. Glucokinase
- c. Pepsin
- d. Glucose oxidase
- e. Insulin

719. A 42-year-old man fell ill one week after he had been preparing a fox pelt. The disease manifested as nervous excitement, hydrophobia, and convulsions. Autopsy of the man's body detected encephalitis with damage to the brain stem, walls of the third ventricle, and hippocampus. Signs of encephalitis included accumulation of lymphocytes and microglial cells around dead neurons and blood vessels. Eosinophilic inclusions (Babesh-Negri bodies) were detected in the hippocampal neurons. What disease was diagnosed in the deceased man?

- a. Rabies
- b. Anthrax
- c. Brucellosis
- d. Tularemia
- e. Plague

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

- a. Increased blood pressure
- b. Decreased heart weight
- c. Heterometric
- d. Myogenic dilation
- e. Homeometric

721. 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. Amnion
- b. Placenta

- c. Yolk sac
- d. Allantois
- e. Serous tunic

722. It is dangerous to eat plants and mushrooms harvested along the motorways due to high risk of lead poisoning. What is the main source of lead contamination in the environment?

- a. Exhaust gases
- b. Sewage
- c. Chemical fertilizers
- d. Acid rains
- e. Herbicides

723. 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. Cartilaginous
- b. Bone
- c. Hematopoietic
- d. Muscular
- e. Nerve

724. While waiting for tooth extraction, a patient developed a bronchial asthma attack. To stop the bronchospasm, the patient needs to be prescribed a drug that belongs to the following pharmacological group:

- a. Analeptics
- b. beta_2-adrenergic agonists
- c. Muscarinic agonists
- d. Psychostimulants
- e. Analgesics

725. A 6-month-old child has a flat node on the skin of the back. The node is 3 cm in diameter, red, but becomes pale when pressed. What is the most likely diagnosis?

- a. Hemangioma
- b. Lymphangioma
- c. Leiomyoma
- d. Pigmented nevus
- e. Melanoma

726. A child has a congenital immunodeficiency. The cell-mediated immunity is affected, causing frequent viral infections. It is likely to be caused by a disorder of the following organ:

- a. Thymus gland
- b. Red bone marrow
- c. Spleen
- d. Lymph nodes
- e. Palatine tonsils

727. After a cerebrocranial trauma during which the cerebellar region was damaged, the patient's movements became temporally and spatially disordinated. What pathology developed in the patient?

- a. Ataxia
- b. -
- c. Astasia
- d. Abasia
- e. Paresis

728. 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. Saltiness
- b. All gustatory sensations

- c. Bitterness
- d. Sweetness
- e. Sourness

729. A 10-day-old child has undergone a surgery to repair cleft upper lip ("hare-lip"). Cleft upper lip has resulted from the following in this case:

- a. Nonclosure of maxillary and mandibular processes of the first pharyngeal arch
- b. Nonclosure of palatine tori of maxillary processes of the first pharyngeal arch
- c. Nonclosure of frontal and maxillary processes of the first pharyngeal arch
- d. Nonclosure of the second pharyngeal arch
- e. Nonclosure of the third pharyngeal arch

730. A shepherd tended to the sheep with the help of his dogs. Gradually he developed pain in his chest and started coughing blood. X-ray shows a spherical structure in his lungs. Immunology testing confirmed the provisional diagnosis. What helminth is the likely cause of this condition?

- a. Hymenolepis nana
- b. Diphyllobothrium latum
- c. Echinococcus
- d. Liver fluke
- e. Taenia solium

731. 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. Acetylcysteine
- b. Rimantadine
- c. Laferon (recombinant human interferon alpha-2b)
- d. Acyclovir
- e. Oxolin (Dioxotetrahydroxytetrahydro-naphthaline)

732. Due to severe pain syndrome a patient has been prescribed a narcotic analgesic. Specify the prescribed drug:

- a. Nimesulid
- b. Analgin (Metamizole)
- c. Morphine
- d. Indometacin
- e. Dimexid

733. 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. Zn²⁺, pH=5.0-5.5
- b. Fe³⁺, pH=5.0-5.5
- c. Fe²⁺, pH=7.0-7.4
- d. Fe³⁺, pH=7.0-7.4
- e. Zn²⁺, pH=7.0-7.4

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

- a. Lupus erythematosus
- b. Lichen ruber planus
- c. Leukoplakia
- d. Chronic candidiasis
- e. Keratoacanthoma

735. Before extracting a tooth, the dentist recommended the patient a drug that should be taken to prevent bleeding. Name this drug:

- a. Heparin
- b. Vicasol (Menadione)
- c. Asparcam (potassium aspartate and magnesium aspartate)
- d. Dimedrol (Diphenhydramine)
- e. Magnesium sulfate

736. 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. Oleic acid
- b. Arachidonic acid
- c. Stearic acid
- d. Palmitic acid
- e. Linolenic acid

737. During a surgery on the parotid gland, the surgeon ligated a vein passing through the center of this gland. Name this vein:

- a. V. lingualis
- b. Vv. pharyngeae
- c. V. facialis
- d. Vv. thyroideae superiores
- e. V. retromandibularis

738. A 38-year-old woman developed an attack of bronchial asthma. What bronchial spasmolytic for emergency medical aid is a beta-2-adrenergic agonist?

- a. Ipratropium bromide
- b. Platiphyllin
- c. Adrenaline
- d. Salbutamol
- e. Atropine

739. An autopsy of a person with malaria shows markedly icteric skin, sclerae, and mucosal tunics. The spleen is enlarged and colored slate-gray. Such color of the spleen is caused by the presence of:

- a. Hemomelanin (hemozoin)
- b. Lipofuscin
- c. Hematoporphyrin
- d. Hemosiderin
- e. Melanin

740. 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. Chronic glomerulonephritis
- b. Primary amyloidosis of the kidneys
- c. Pyelonephritis
- d. Hydronephrosis
- e. Secondary amyloidosis of the kidneys

741. A man with signs of intestinal obstruction was delivered to a hospital. In the process of treatment, roundworms 25-40 cm in size were extracted from the patient's intestine. Determine the species of this helminth:

- a. Trichocephalus trichiurus
- b. Enterobius vermicularis
- c. Ancylostoma duodenale
- d. Ascaris lumbricoides

e. *Strongyloides stercoralis*

742. In an experiment a peripheral segment of the sympathetic nerve that innervates the sublingual gland is being stimulated. In this case this gland will produce:

- a. A large amount of non-viscous saliva
- b. A small amount of viscous saliva
- c. No saliva
- d. A small amount of non-viscous saliva
- e. A large amount of viscous saliva

743. A man underwent a surgery for acute abdomen. His urine is brown, with indican levels over 93 mmol per 24 hours. What can be estimated based on urine indican levels?

- a. Decreased activity of ornithine cycle enzymes
- b. Oxidative deamination rate in aromatic amino acids
- c. Renal filtration ability
- d. Protein putrefaction rate in the intestine
- e. Ammonia neutralization rate

744. 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. Medial pterygoid muscle
- c. Masseter
- d. Temporal
- e. -

745. Chronic inflammation of gingiva resulted in excessive growth of connective tissue fibers. What cell elements are leading in the development of this condition?

- a. Osteoclasts
- b. Osteoblasts
- c. Macrophages
- d. Fibroblasts
- e. Fibrocytes

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

- a. Stimulation of GABA transferase enzyme activity
- b. Inhibition of Ca^{2+} -dependent ATPase activity
- c. Inhibition of monoamine oxidase
- d. Inhibition of GABA transferase enzyme activity
- e. Stimulation of Ca^{2+} -dependent ATPase activity

747. A 50-year-old patient, who recovered from a heart attack, five years later died of chronic heart failure. Autopsy detects a dense sac-like protrusion on the lateral surface of the wall of the left ventricle. The wall in this place is thinned out, dense, and gray. What cardiac pathology can be characterized by these changes?

- a. Cardiosclerosis
- b. Cardiomyopathy
- c. Myocarditis
- d. Chronic aneurysm
- e. Myocardial infarction

748. In 8 days after a surgery the patient developed tetanus. The surgeon suspects this condition to be caused by suture material contaminated by tetanus agent. The material is delivered to a bacteriological laboratory. What nutrient medium is required for primary inoculation of the suture material?

- a. Egg-yolk salt agar
- b. Sabouraud agar
- c. Kitt-Tarozzi medium

- d. Hiss medium
- e. Endo agar

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

750. A student uses percussion to determine the cardiac border that projects on the anterior thoracic wall at the level of the third costal cartilage. What cardiac border is being determined?

- a. Lower
- b. Apex
- c. Right
- d. Upper
- e. Left

751. A worker of a cattle farm is brought to the surgeon with fever up to 40^oC, headache, weakness. Objective examination of his back revealed hyperemia and a dark red infiltration up to 5 cm in diameter with black bottom in its center, which was surrounded with pustules. What disease are these presentations typical of?

- a. Abscess
- b. Anthrax
- c. Tularemia
- d. Furuncle
- e. Plague

752. Biochemical analysis of amino acid contents of freshly synthesized polypeptides shows that in the process of their translation the first amino acid in each of these proteins will be the same. Name this amino acid:

- a. Serine
- b. Methionine
- c. Histidine
- d. Isoleucine
- e. Phenylalanine

753. During tooth development, dentin is the first tissue to be laid down. What is the source of its development?

- a. Dental lamina
- b. Outer enamel epithelium
- c. Dental papilla
- d. Inner enamel epithelium
- e. Dental follicle

754. A 67-year-old man was delivered to a cardiology department with complaints of periodical pains in his heart, dyspnea caused by even slight exertion, cyanosis and edemas. ECG shows additional excitations of heart ventricles. Name this type of rhythm disturbance:

- a. Flutter
- b. Tachycardia
- c. Fibrillation
- d. Bradycardia
- e. Extrasystole

755. After a tooth extraction, the patient developed acute heart failure. What drug should be prescribed in this case?

- a. Convallaria majalis tincture

b. Strophanthin

c. Digitoxin

d. Cordigitum

e. Adonisid

756. The patient's blood pressure was measured by auscultation of the vascular sounds. What is the name of the researcher who proposed this method of blood pressure measuring?

a. Korotkov

b. Siechenov

c. Riva-Rocci

d. Ludwig

e. Goltz

757. A certain embryonic organ is being studied. In this organ the first blood corpuscles that make up blood as a tissue are being formed. Name this organ:

a. Liver

b. Spleen

c. Red bone marrow

d. Thymus

e. Yolk sac

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

a. Hypokalemia

b. Hypercalcemia

c. Hyperkalemia

d. -

e. Hypocalcemia

759. Various substances can be used as anticoagulants. Among them there is a certain naturally derived polysaccharide. Name this polysaccharide:

a. Dermatan sulfate

b. Heparin

c. Hyaluronic acid

d. Chondroitin sulfate

e. Dextran

760. A 38-year-old patient complains of a constant joint pain. Laboratory studies detect increased levels of proline and oxyproline in the patient's urine, which indicates problems with the metabolism of the following compound:

a. Chondroitin sulfate

b. Collagen

c. Heparin

d. Elastin

e. Hyaluronic acid

761. Various types of muscle contractions occurring in the alimentary canal of a test animal were studied and their different functional purposes were determined. It was noted that only one type of motor activity occurred in the circular and longitudinal muscles. Name this motor activity:

a. Nonpropulsive segmental activity

b. Tonic contraction of sphincters

c. Peristalsis

d. Pendular movements of intestine

e. Mastication

762. When examining a 1-month-old child, the doctor noted open posterior fontanelle. At what age does it close, if a child develops normally?

a. In the 4th month of life

b. In the 5th month of life

- c. In the 6th month of life
- d. In the 2nd year of life
- e. In the 2nd-3rd month of life

763. During an abdominal surgery, the patient developed a reflex cardiac arrest. Name the location of this reflex center:

- a. Midbrain
- b. Spinal cord
- c. Cerebral cortex
- d. Diencephalon
- e. Medulla oblongata

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

- a. Local renal hypoxia
- b. Hereditary defect
- c. Increased erythropoietin production
- d. Redistribution of erythrocytes
- e. Tumor damage to the progenitor cells of myelopoiesis

765. A patient complains of acute spastic abdominal pain, frequent urge to defecate, liquid bloody feces with mucus. Laboratory analysis of fecal smear revealed inconstant in shape organisms with erythrocytes. What is the most likely diagnosis?

- a. Lambliasis
- b. Amebiasis
- c. Intestinal trichomoniasis
- d. Schistosomiasis
- e. Balantidiasis

766. Formation of a large amount of immunoglobulins with various antigen specificity from a small number of genes occurs due to:

- a. Transcription
- b. Deletion
- c. Recombination
- d. Replication
- e. Translocation

767. After extraction of an upper premolar, the patient bleeds from the alveolar socket. What should be used to stop the bleeding in this case?

- a. Vicasol (Menadione)
- b. Heparin
- c. Neodicoumarin (Ethyl biscoumacetate)
- d. Thrombin topically
- e. Aminocaproic acid

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

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

769. After a traffic accident a man presents with severe blood loss, consciousness disturbance, low blood pressure, as well as compensatory activation of the renin-angiotensin system, which results in:

- a. Intensification of erythropoiesis
- b. Intensification of heart contractions
- c. Increased blood coagulation
- d. Hyperproduction of vasopressin
- e. Hyperproduction of aldosterone

770. During a class in molecular biology, the mutations resulting in production of abnormal hemoglobin are being studied. What amino acid substitution occurs when S-hemoglobin is being produced, resulting in the development of sickle-cell anemia?

- a. Glycine is substituted with asparagine
- b. Histidine is substituted with arginine
- c. Glutamic acid is substituted with valine
- d. Threonine is substituted with lysine
- e. Lysine is substituted with glutamine

771. It is known that calcium ions, along with other factors, enable contraction of the muscle tissue. In the process of muscle contraction, calcium interacts with the following structures:

- a. Troponin protein of thin fibrils
- b. Myosin protein of thick fibrils
- c. Calsequestrin protein
- d. Actin protein of thin fibrils
- e. Actomyosin complex of sarcolemma

772. A 1.5-year-old child on examination has deformed legs and foci of thickening in the area of the ribs and wrists. A dentist pointed out the late eruption of teeth, disturbed order of tooth eruption, uneven mineralization of the enamel and dentin, and horizontal configuration of the upper jaw that forms a high-arched palate. What disease developed in this child?

- a. Rickets
- b. Gout
- c. Osteoporosis
- d. Fluorosis
- e. Sialolithiasis

773. 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. 47
- b. 44
- c. 45
- d. 46
- e. 23

774. 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. C
- b. K
- c. A
- d. D
- e. B

775. A patient who had his lower second molar extracted presents with bleeding from the tooth socket. What vessel is the source of the bleeding in this case?

- a. Lingual artery
- b. Facial artery
- c. Ascending pharyngeal artery
- d. Ophthalmic artery
- e. Maxillary artery

776. Erythrocytes of the patient with hemolytic anemia present with significant decrease of pyruvate kinase activity. What metabolic process is disturbed in this case?

- a. Glycogen synthesis
- b. Glycolysis
- c. Glycogenolysis
- d. Pentose-phosphate pathway of glucose oxidation

e. Gluconeogenesis

777. Autopsy of the body of a man, who died during an abdominal surgery, revealed numerous thrombi in the veins of the lesser pelvis. Clinically, thromboembolic syndrome was detected. Where should the doctor search for the embolus?

- a. Left ventricle of heart
- b. Portal vein
- c. Veins of the lower extremities
- d. Brain
- e. Pulmonary arteries**

778. A patient complains of pain in the eyeballs. Examination detects an increase in the intraocular pressure. This condition has been caused by impaired outflow of a certain fluid. What fluid is it?

- a. Tears
- b. Perilymph
- c. Aqueous humour**
- d. Lymph
- e. Endolymph

779. During autopsy of the patient, who died of cardiovascular insufficiency, the patient's right foot is darkly colored. The vessels of the patient's thigh are partially obstructed by grayish-red clots. On the vessel walls there are yellowish-gray spots and fibrous plaques, some of which are of stony density. What clinicopathological type of atherosclerosis was complicated in the patient?

- a. Atherosclerosis of aorta
- b. Cerebral atherosclerosis
- c. Vascular intestinal atherosclerosis
- d. Renal atherosclerosis
- e. Atherosclerosis of lower extremities**

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

- a. Paracetamol**
- b. Butadiion (Phenylbutazone)
- c. Ibuprofen
- d. Acetylsalicylic acid
- e. Analgin (Metamizole sodium)

781. A 40-year-old woman after installation of artificial crowns on her upper incisors eventually developed a brownish gingival enlargement on the vestibular surface. The enlargement covers the crowns and is 15 mm in diameter. Open biopsy results: under the stratified squamous epithelium of the gums there is a neoplasm consisting of connective tissue with numerous sinusoid vessels, oval mononuclear cells that form osteoid substance, and multinucleated giant cells that destroy the maxillary alveolar ridge. Make the diagnosis:

- a. Angiomatous epulis
- b. Giant-cell epulis**
- c. Fibromatous epulis
- d. Gingival fibromatosis
- e. Eosinophilic granuloma

782. Dysfunction of the islets of Langerhans causes a decrease in the production of certain substances. Name these substances:

- a. Insulin and adrenaline
- b. Glucagon and insulin**
- c. Parathyroid hormone and cortisone
- d. Kallikrein and angiotensin
- e. Thyroxine and calcitonin

783. Vitamin D₃ in the human body undergoes a number of biochemical transformations with

formation of its most bioactive derivative - calcitriol. What hormone is needed to activate the enzymatic reactions of oxidative hydroxylation of this vitamin in the kidneys?

- a. Thyroxine
- b. Calcitonin
- c. Cortisol
- d. Aldosterone
- e. Parathyroid hormone

784. A patient has aspermia. What organ is dysfunctional in this case?

- a. Testicle
- b. Seminal vesicles
- c. Prostate
- d. Epididymis
- e. Bulbourethral (Cowper's) glands

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

- a. Para-aminosalicylic acid
- b. Oxacillin sodium
- c. Phthalazol (Phthalylsulfathiazole)
- d. Tinidazole
- e. Acyclovir

786. Autopsy of a man who died of ethylene glycol poisoning revealed that his kidneys are slightly enlarged, edematous; their capsule can be easily removed. Cortical substance is broad and light gray. Medullary substance is dark red. What pathology did this man develop?

- a. Necrotic nephrosis
- b. Acute pyelonephritis
- c. Lipoid nephrosis
- d. Acute tubular-interstitial nephritis
- e. Acute glomerulonephritis

787. Examination of the oral cavity revealed dark yellow and brown spots on the labial and lingual surfaces of the teeth. The spots cover more than half of the dental surface. Dentin and enamel are destroyed. What is the most likely diagnosis?

- a. Cuneiform defects
- b. Caries of enamel
- c. Fluorosis
- d. Deep caries
- e. Dental erosion

788. A hunter was drinking raw water from a pond. He risks infection with the following type of trematodiasis:

- a. Fascioliasis
- b. Dicroceliasis
- c. Clonorchiasis
- d. Paragonimiasis
- e. Opisthorchiasis

789. A man has developed downturned mouth and smoothed out nasolabial fold due to influenza complication. What nerve is damaged?

- a. Trochlear nerve
- b. Oculomotor nerve
- c. Facial nerve
- d. Mandibular nerve
- e. Maxillary nerve

790. Prior to tooth extraction the patient was given a local anesthetic, lidocaine. What is the mechanism of anesthetic action of this drug?

- a. Stimulation of GABA receptors
- b. Block of β_2 -adrenergic receptors
- c. Stimulation of muscarinic acetylcholine receptors
- d. Sodium channels block**
- e. Block of H1-histamine receptors

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

792. A 14-year-old patient presents with disturbed twilight vision. What vitamin is deficient in the body of this patient?

- a. C
- b. B₁
- c. A**
- d. B₁₂
- e. B₆

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

- a. Hemolysis of donor's erythrocytes
- b. Aggregation of donor's erythrocytes
- c. Platelet aggregation
- d. Erythrocytosis
- e. Hemolysis of recipient's erythrocytes**

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

- a. Nicotinamide
- b. Amiodarone**
- c. Verapamil
- d. Asparcam
- e. Metoprolol

795. 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. Acute viral hepatitis type C
- c. Chronic viral hepatitis type C
- d. Viral hepatitis type A
- e. Acute viral hepatitis type B

796. A sick child has signs of achondroplasia (dwarfism). It is known that this disease is monogenic and the gene that causes the development of this anomaly is dominant. The natural brother of this child has normal development. Genotypically, the healthy child is:

- a. aa**
- b. AaBb
- c. AA
- d. AABB
- e. Aa

797. 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 endovasculitis 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. Sarcoma
- b. Tuberculosis
- c. Syphilis
- d. Leprosy
- e. Scleroma

798. An examination of tooth 16 revealed a cavity on its masticatory surface. The cavity has a narrow opening and is filled with softened dentin. Microscopically, there are bacteria in the dilated dentinal canaliculi, some canaliculi are destroyed, the cavities merge together into caverns, decalcification of enamel and dentin occurs without formation of the replacement dentin. Make the diagnosis:

- a. Chronic deep dental caries
- b. Dental caries at the stage of white spot lesions
- c. Chronic superficial dental caries
- d. Acute deep dental caries
- e. Acute superficial dental caries

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

- a. Renal diabetes
- b. Steroid-induced diabetes
- c. Alimentary glucosuria
- d. Diabetes insipidus
- e. Diabetes mellitus

800. A patient with pulmonary tuberculosis is prescribed rifampicin that inhibits RNA-polymerase enzyme at the stage of initiation of the following process:

- a. Elongation
- b. Translation
- c. Transcription
- d. Termination
- e. Replication

801. It is known that in metabolism of catecholamine mediators the special role belongs to monoamine oxidase (MAO). How does this enzyme activate these mediators (noradrenaline, adrenaline, dopamine)?

- a. Amino group attachment
- b. Carboxylation
- c. Oxidative deaminization
- d. Hydrolysis
- e. Methyl group removal

802. Lysozyme is a hydrolyzing enzyme that provides protective function of saliva. Its antibacterial properties are based on its ability to break the structural integrity of a bacterial cell wall by inducing hydrolysis of the following:

- a. Peptide bonds of proteins
- b. Ester bonds of lipids
- c. Glycosidic bonds of nitrogen bases and pentoses
- d. Glycosidic bonds of mucopolysaccharides
- e. Cell wall antigens and endotoxins

803. The process of aging in humans is associated with decreased synthesis and secretion of pancreatic juice and its lower trypsin content. It results in disturbed breakdown of:

- a. Proteins
- b. Lipids
- c. Phospholipids
- d. Polysaccharides

e. Nucleic acids

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

- a. Left tubal tonsil
- b. Pharyngeal tonsil**
- c. Right tubal tonsil
- d. Lingual tonsil
- e. Palatine tonsil

805. A patient was hospitalized with the signs of acute blood loss. What is the leading component in the pathogenesis of posthemorrhagic shock?

- a. Hypovolemia**
- b. Hypoxia
- c. Decreased cardiac output
- d. Anemia
- e. Decreased vascular tone

806. During vascular-platelet hemostasis, platelet factor (PF-8) thrombostenin is released from destroyed platelets. What is its function?

- a. Erythrocyte hemolysis
- b. Platelet aggregation
- c. Platelet adhesion
- d. Thrombus retraction**
- e. Erythrocyte agglutination

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

- a. Levator veli palatini muscle
- b. Musculus uvulae
- c. Palatoglossus muscle
- d. Palatopharyngeus muscle
- e. Tensor veli palatini muscle**

808. A patient developed a tender red nodule in the lower jaw area. Histologically there is accumulation of purulent exudate in several hair follicles. What clinicopathological type of inflammation is observed?

- a. Hypostatic abscess
- b. Carbuncle**
- c. Furuncle
- d. Phlegmon
- e. Abscess

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

- a. Glossopharyngeal nerve and vagus**
- b. Vagus and accessory nerve
- c. Accessory nerve and hypoglossal nerve
- d. Glossopharyngeal nerve and facial nerve
- e. Glossopharyngeal nerve and accessory nerve

810. Sodium thiopental was administered to a patient as a pre-anesthetic, after which the patient developed hypersalivation and laryngospasm. What drug could have prevented these effects, if it had been administered in this case?

- a. Piracetam**

- b. Analgin (Metamizole sodium)
- c. Adrenaline hydrochloride
- d. Atropine sulfate**
- e. Ditylin (Suxamethonium)

811. A woman with the height of 1.70 m and the body weight of 94 kg presents with decreased carbohydrate tolerance. What hormone is likely to be deficient in this case, causing this condition?

- a. Glucagon
- b. Adrenaline
- c. Cortisol
- d. Insulin**
- e. Somatotropin

812. Serological diagnostics of infectious diseases is based on specific interaction between antibodies and antigens. When an antigen is sedimented from a solution, using an immune serum and an electrolyte, this reaction is called:

- a. -
- b. Precipitation reaction**
- c. Hemadsorption reaction
- d. Neutralization reaction
- e. Complement binding reaction

813. A surgeon must amputate the damaged part of the patient's foot along the line of Lisfranc joint. What ligament must be cut in this case?

- a. Bifurcated ligament
- b. Talonavicular ligament
- c. Calcaneonavicular ligament
- d. Talocalcaneal ligament
- e. Medial interosseous tarsometatarsal ligament**

814. A patient has high body temperature, increased basal metabolic rate, and tachycardia at rest, which can be caused by hyperfunction of the:

- a. Thyroid gland**
- b. Pancreas
- c. Neurohypophysis
- d. Gonads
- e. Adrenal cortex

815. A teenager with impaired visual acuity came to an ophthalmologist. The doctor explained that this condition was caused by a spasm of accommodation. What component of an eyeball is a part of accommodation apparatus?

- a. Ciliary muscle**
- b. Sclera
- c. Retina
- d. Vitreous body
- e. Cornea

816. In an experiment, an excitable cell was exposed to tetraethylammonium that blocks potassium-selective ion channels. What effect will it have on the membrane potential of the cell?

- a. Resting potential will remain unchanged
- b. Action potential will not occur
- c. Resting potential will increase
- d. Resting potential will disappear**
- e. Hyperpolarization will develop

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

- a. Adrenal glands**

- b. Parathyroid gland
- c. Thyroid gland
- d. Thymus gland
- e. Pineal glands

818. A 40-year-old patient with a poisoning caused by the chlorophos (metrifonate) insecticide was hospitalized into the toxicology department. What drug that blocks peripheral muscarinic acetylcholine receptors would be most effective in treatment of such poisoning?

- a. Atropine sulfate
- b. Scopolamine
- c. Platiphylline
- d. Benzohexonium (Hexamethonium)
- e. Amizylum (Benactyzine)

819. In an experiment, urethane poisoning was induced in a test animal. What type of hypoxia occurred as a result?

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

820. A patient undergoes a surgery for a knee joint injury. The surgical incision reveals formations that improve the congruence of articular surfaces. What are these formations called?

- a. Ligaments
- b. Folds
- c. Menisci
- d. Labia
- e. Discs

821. A 60-year-old woman with hepatocirrhosis developed hemorrhagic syndrome. What mechanism leads to the development of this condition?

- a. Reduction of hepatic glycogen stores
- b. Decreased blood oncotic pressure
- c. Emergence of neurotoxins in the blood
- d. Decreased synthesis of prothrombin and fibrinogen
- e. Increased portal venous pressure

822. 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. Appearance of neurotoxic substances in blood
- b. Increased pressure in the portal venous system
- c. Increased blood levels of low density and very low density lipoproteins
- d. Increased oncotic blood pressure
- e. Decreased hepatic synthesis of albumins and globulins

823. What hormone has a marked anti-inflammatory, antiallergic, and immunosuppressive effect?

- a. Aldosterone
- b. Somatotropin
- c. Thyroxine
- d. Hydrocortisone
- e. Adrenaline

824. A lancelet embryo is at the developmental stage during which its cells multiply, while its general volume remains practically unchanged. What developmental stage is it?

- a. Organogenesis
- b. Histogenesis
- c. Neurulation
- d. Gastrulation

e. Cleavage

825. A 37-year-old woman presents with fructosemia and fructosuria. Her blood glucose is 2.1 mmol/L. She is diagnosed with fructose intolerance. What congenital enzyme deficiency is the molecular basis of this disease?

- a. Triose-phosphate isomerase
- b. Fructose 1-phosphate aldolase
- c. Phosphoglucomutase
- d. Hexokinase
- e. Phosphofructokinase

826. A patient developed a keloid scar in the area of a purulent skin inflammation (carbuncle). At what stage of inflammation does it occur?

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

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

- a. Diphenin (Phenytoin)
- b. Sodium bromide
- c. Galantamine hydrobromide
- d. Valerian extract
- e. Aminazine (Chlorpromazine)

828. Neutrophils were detected in the histoslides of connective tissue. What function do these cells perform when they migrate from the blood to the tissues?

- a. Regulation of contraction of smooth myocytes
- b. Trophic function
- c. Support function
- d. Phagocytosis of microorganisms
- e. Blood vessel dilation

829. Histology of a tissue shows that it has no blood vessels and its cells tightly adhere to one another, forming layers. What tissue is it?

- a. Muscle tissue
- b. Bone tissue
- c. Cartilaginous tissue
- d. Epithelial tissue
- e. Nerve tissue

830. What type of hemophilia inheritance results in men being affected by hemophilia and in women being carriers of this disease?

- a. Autosomal dominant
- b. Autosomal recessive
- c. Holandric
- d. X-linked dominant
- e. X-linked recessive

831. 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. Functional residual lung capacity
- b. Inspiratory capacity
- c. Inspiratory reserve volume
- d. Vital capacity
- e. Total lung capacity

832. After introduction of adrenaline the patient's blood glucose level increased. It is caused by intensified:

- a. Glycogenolysis in the liver
- b. Glycolysis in the skeletal muscles
- c. Glycogen synthesis
- d. Glycogenolysis in the muscles
- e. Glycolysis in the liver

833. A patient diagnosed with atherosclerosis, ischemic heart disease, and rest angina pectoris was hospitalized into the cardiology department. Laboratory analysis shows high lipid levels in his blood plasma. What class of plasma lipids plays the main role in pathogenesis of atherosclerosis?

- a. Fatty acid-albumin complexes
- b. Low-density lipoproteins
- c. alpha-lipoproteins
- d. High-density lipoproteins
- e. Chylomicrons

834. Local anesthetics are used in dental practice. They block the following ion channels:

- a. Slow calcium channel
- b. Sodium channels
- c. Rapid calcium channels
- d. Chloride channels
- e. Potassium channels

835. Broad-spectrum antibiotics can cause various complications, including intestinal candidiasis.

What drug is used for treatment of this complication?

- a. Nystatin
- b. Amphotericin B
- c. Griseofulvin
- d. Undecyne
- e. Gramicidin

836. A 5-year-old child was diagnosed with Duchenne muscular dystrophy. The parents are healthy. The child's maternal uncle and the son of the child's maternal aunt have myopathy too. What is the type of inheritance of this disease?

- a. Y-linked
- b. X-linked dominant
- c. X-linked recessive
- d. Autosomal recessive
- e. Autosomal dominant

837. Cancer cells form in the human body due to the effect of environmental factors. What cells provide antitumor protection?

- a. Epitheliocytes
- b. Erythrocytes
- c. Neurocytes
- d. Platelets
- e. Lymphocytes

838. A student, who unexpectedly met his girlfriend, developed an increase in systemic arterial pressure. This pressure change was caused by the intensified realization of the following reflexes:

- a. Unconditional sympathetic
- b. Conditional sympathetic and parasympathetic
- c. Conditional sympathetic
- d. Unconditional parasympathetic
- e. Conditional parasympathetic

839. A child presents with a wound behind the mastoid bone. Bright red blood streams from the wound. Damage was sustained to the branches of the following artery:

- a. A) carotis interna
- b. A) temporalis superior
- c. A) maxillaris
- d. A) carotis externa
- e. A) occipitalis

840. 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 filiform papillae**
- d. Epithelium of foliate papillae
- e. Lingual tonsil

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

- a. Buccal
- b. Lingual
- c. **Parotid**
- d. Sublingual
- e. Submandibular

842. Gastroscopy of a patient revealed the lack of mucus in the coating of the mucous membrane. This can be caused by the dysfunction of the following cells of the gastric wall:

- a. Endocrinocytes
- b. Parietal cells of gastric glands
- c. Cervical cells
- d. Main exocrinocytes
- e. **Cells of prismatic glandular epithelium**

843. What nitrate drug would you recommend to a patient with ischemic heart disease for prevention of angina pectoris attacks?

- a. Lovastatin
- b. Nitroglycerine
- c. Isosorbide mononitrate
- d. Lisinopril
- e. Menthol

844. 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 ambiens
- b. Cisterna chiasmatis
- c. Cisterna pericallosa
- d. **Cisterna quadrigeminalis**
- e. Cisterna interpeduncularis

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

- a. Spatium interscalenum
- b. Trigonum omotracheale
- c. Trigonum caroticum
- d. Incisura jugularis
- e. **Spatium antescalenum**

846. A microslide shows a blood vessel. Its tunica intima is represented by endothelium and subendothelium. Its tunica media is represented by bundles of smooth myocytes, interlayered with loose fibrous connective tissue. Its tunica externa is well-developed and formed by loose connective tissue with separate smooth myocytes. What vessel has such morphological characteristics?

- a. Nonmuscular vein
- b. Elastic artery
- c. Muscular artery
- d. Muscular vein**
- e. Mixed type artery

847. Rectal microscopy shows large necrotic foci on the mucosa. Necrotic masses are saturated with fibrin, forming a film. Mucosa and submucosa on the periphery of the necrotic foci are hyperemic, swollen, and have hemorrhages and leukocyte infiltrations. What disease can be suspected?

- a. Cholera
- b. Salmonellosis
- c. Amebiasis
- d. Typhoid fever
- e. Dysentery**

848. A person has an upper jaw injury - one of the first premolars was knocked out. What maxillary process is damaged in this case?

- a. Alveolar**
- b. Zygomatic
- c. Palatine
- d. Frontal
- e. Orbital

849. X-ray detected pus accumulation in the sphenoidal sinus. The pus is being excreted into the following nasal meatus:

- a. Right inferior nasal meatus
- b. Left middle nasal meatus
- c. Right middle nasal meatus
- d. Left inferior nasal meatus
- e. Right and left superior nasal meatus**

850. A woman had been taking synthetic hormones during her pregnancy. Her newborn girl presents with excessive hairiness which has formal resemblance to adrenogenital syndrome. This sign of variability is called:

- a. Replication
- b. Mutation
- c. Recombination
- d. Phenocopy**
- e. Heterosis

851. Histologic specimen of endometrium demonstrates isolated epithelial cells with chromosomes that form a "plate" located in the equatorial plane of the cell. What stage of the cell cycle is it?

- a. Anaphase
- b. Interphase
- c. Telophase
- d. Metaphase**
- e. Prophase

852. A 26-year-old man presents with anemia against the background of chronic gastritis with intrinsic Castle factor deficiency. What type of anemia is characteristic of such cases?

- a. Hypoplastic
- b. Iron-deficiency
- c. Thalassemia
- d. B₁₂ and folate deficiency**
- e. Chronic posthemorrhagic

853. In the patient's blood there is a C-reactive protein that chemically can be classified as a glycoprotein. It indicates the following pathology:

- a. Rheumatism**

- b. Thrombocytopenia
- c. Porphyria
- d. Anemia
- e. Leucopenia

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

855. A sick child has gingivitis caused by anaerobic infection. The child needs to be prescribed an antimicrobial drug that belongs to the following class:

- a. Polymyxins
- b. Nitroimidazoles**
- c. Aminoglycosides
- d. Sulfonamides
- e. Nitrofurans

856. After the water supply system had been put into operation in a new residential area, the medical officers of sanitary and epidemiological station measured total microbial number in the water. Name the maximum permissible value of this indicator for potable water:

- a. 10
- b. 500
- c. 100**
- d. 400
- e. 1000

857. A microslide of the cerebral cortex shows large pyramidal cells. What is the name of the scientist who discovered these cells?

- a. Betz**
- b. Lenhossek
- c. Cajal
- d. Nissl
- e. Golgi

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

- a. Golgi complex
- b. Lysosomes**
- c. Ribosomes
- d. Mitochondria
- e. Centrosome

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

- a. Heart
- b. Kidneys
- c. Liver
- d. Brain**
- e. Intestine

860. A patient with severe poisoning caused by an unknown substance was brought into an admission room. The patient is in a state of acute cardiac insufficiency. What cardiac glycosides must be given to the patient as an emergency aid?

- a. Naphthyzin (Naphazoline)
- b. Cordiamin (Nikethamide)
- c. Anaprilin (Propranolol)**

d. Corglycon (Convallatoxin)

e. Salbutamol

861. In the microslide of a human embryo obtained from a spontaneous miscarriage, an embryonic shield is visible and has two cellular layers: endoderm and ectoderm. This embryo was at the following developmental stage:

a. Histogenesis

b. Gastrulation

c. Organogenesis

d. Progenesis

e. Neurulation

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

a. -

b. Bulbar receptors

c. Aortic receptors

d. Carotid sinus receptors

e. All of the listed

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

a. Parietal bone

b. Occipital bone

c. Temporal bone

d. Frontal bone

e. Palatine bone

864. A microspecimen of heart shows rectangular cells from 50 to 120 micrometer in size with central position of nucleus and developed myofibrils. The cells are connected by intercalated discs. These cells are responsible for the following function:

a. Function of heart contractions

b. Endocrine

c. Protective

d. Function of impulse conduction

e. Regeneratory

865. A patient developed a seizure attack during a tooth extraction. What first aid medicine must be used in this case?

a. Dimedrol (Diphenhydramine)

b. Sibazon (Diazepam)

c. Corvalol

d. Phenobarbital

e. Valerian tincture

866. Laboratory analysis confirmed the patient's diagnosis of gout. What analysis was conducted to make this diagnosis?

a. Measuring urea levels in the blood and urine

b. Measuring residual nitrogen in the blood

c. Measuring urine ammonia levels

d. Measuring uric acid levels in the blood and urine

e. Measuring urine creatinine levels

867. 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. Granular cell ameloblastoma

b. Angiomatous epulis

c. Gingival fibromatosis

d. Cavernous hemangioma

e. Giant cell epulis

868. During physical and emotional exertion a person is less sensitive to pain. This phenomenon occurs due to activation of the:

a. Nociceptive system

b. Thyroid function

c. Parasympathetic system

d. Antinociceptive system

e. Adrenal function

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

a. At the age of 1--2 months

b. During the second year of life

c. At the age of 3 months

d. At the age of 6-9 months

e. During the first year of life

870. 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. X

b. XII

c. VIII

d. V

e. IX

871. During heart ultrasound a 1.5-year-old child presents with non-closure of the foramen ovale, which is clinically confirmed. Where in the heart is this defect located?

a. Cardiac apex

b. Interventricular septum

c. Interatrial septum

d. Right atrioventricular valve

e. Left atrioventricular valve

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

a. ATP synthesis

b. Crossingover

c. Lipid synthesis

d. Nuclear division

e. Protein synthesis

873. To stimulate the labor activity of a woman, the doctor prescribed her prostaglandin E₂. What acid is used to synthesize this compound?

a. Stearic

b. Phosphatidic

c. Palmitic

d. Glutamic

e. Arachidonic

874. During cell analysis, their cytoplasm was determined to have high content of aminoacyl tRNA synthetase. This enzyme ensures the following process:

a. Elongation

b. Transcription

c. Repair

d. Amino acid activation

e. Replication

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

876. A patient with peptic ulcer disease of the stomach is prescribed a drug that blocks histamine H₂ receptors. Select this drug from the list:

- a. Famotidine
- b. Atropine sulfate
- c. Dithylin (Suxamethonium)
- d. Bisacodyl
- e. Omeprazole

877. A 53-year-old woman complains of painful swelling in her left parotid area. The swelling appeared 5 days ago. Objectively the skin in this area is slightly hyperemic and tender. Excretory duct of the salivary gland produces a small amount of viscous turbid yellow-green liquid. Microscopy detects a diffuse infiltration of the gland with segmented neutrophils. Make the diagnosis:

- a. Epidemic parotitis
- b. Glandular adenoma
- c. Sjogren syndrome
- d. Acute serous parotitis
- e. Acute suppurative parotitis

878. Histology of an extracted tooth detects a lower number and reduced size of odontoblasts and pulpocytes with sclerosis of the connective tissue base of the pulp. What diagnosis is likely in this case?

- a. Pulp necrosis
- b. Acute pulpitis
- c. Pulp hyalinosis
- d. Pulp dystrophy
- e. Pulp atrophy

879. Electric current has affected skeletal muscle fiber resulting in depolarization of the membrane. Depolarization develops due to the following ions penetrating the membrane:

- a. Ca²⁺
- b. Cl⁻
- c. Na⁺
- d. HCO³⁻
- e. K⁺

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

881. 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. Blood pressure gradient in the veins
- c. Cardiac residual pumping force

- d. Diaphragmatic piston effect on the abdominal organs
- e. Thoracic pump effect

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

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

883. A surgeon accidentally damaged a nerve that innervates mylohyoid muscle. Name this nerve:

- a. N. hypoglossus
- b. N. accessorius
- c. N. trigeminus
- d. N. facialis
- e. N. glossopharyngeus

884. A patient has a head trauma in the area of the suture between two parietal bones. What sinus of dura mater is likely to be damaged in this case?

- a. Sigmoid sinus
- b. Superior sagittal sinus
- c. Inferior sagittal sinus
- d. Occipital sinus
- e. Transverse sinus

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

- a. Muscle tissue of neural origin
- b. Cardiac muscle tissue
- c. Skeletal muscle tissue
- d. Muscle tissue of epidermal origin
- e. Smooth muscle tissue

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

887. A 1.5-year-old child with signs of nitrate poisoning was brought to the admission department with persistent cyanosis, dyspnea, and convulsions. What form of hemoglobin causes these signs?

- a. Methemoglobin
- b. Carboxyhemoglobin
- c. Reduced hemoglobin
- d. Carbhemoglobin
- e. Oxyhemoglobin

888. A proteolytic enzyme was prescribed for the treatment of abscessing parodontosis. Name this drug:

- a. Contrykal (Aprotinin)
- b. Streptoliase
- c. Lidase
- d. Crystalline trypsin
- e. Actilyse (Alteplase)

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

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

890. Microscopy of a sputum sample obtained from a patient who has been suffering from pneumonia for a week detected helminth larvae. Eosinophilia is observed in the patient's blood. What diagnosis can be suspected in this case?

- a. Ascariasis
- b. Echinococcosis
- c. Taeniasis
- d. Paragonimiasis
- e. Fasciolasis

891. A patient with infiltrative pulmonary tuberculosis, who was undergoing treatment with isoniazid, developed signs of B6 hypovitaminosis. What is the cause of this condition?

- a. Vitamin absorption slows down
- b. A strong connection forms between vitamin and blood plasma proteins
- c. Isoniazid is a vitamin B6 antagonist
- d. Vitamin elimination speeds up
- e. Vitamin biotransformation speeds up

892. Examination shows that the patient has disturbed secretory function of a parotid gland due to pathology of the nerve that carries parasympathetic postganglionic nerve fibers from the otic ganglion to the affected gland. What nerve is it?

- a. N. auriculotemporalis
- b. N. petrosus major
- c. N. lingualis
- d. N. buccalis
- e. N. facialis

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

- a. Rapid dyastolic repolarization
- b. Slow repolarization (plateau)
- c. Slow dyastolic repolarization
- d. Rapid systolic repolarization
- e. Systolic repolarization

894. Holocrine secretion is characteristic of sebaceous glands. What structural components ensure renewal of the cells of these glands?

- a. Myoepithelial cells
- b. Stratified squamous epithelium of the excretory duct
- c. Nonstratified cuboidal epithelium of the excretory duct
- d. Sebocytes
- e. Germinative layer cells

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

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

896. A victim of a traffic accident has lost thoracic respiration but retains diaphragmal. The spinal

cord is most likely to be damaged at:

- a. I-II sacral segments
- b. I-II lumbar segments
- c. XI-XII cervical segments
- d. I-II cervical segments
- e. VI-VII cervical segments

897. A patient was diagnosed with a genetic disorder leading to lipoprotein lipase deficiency. What finding will be characteristic of biochemical blood analysis in this case?

- a. Hypertriacylglycerolemia
- b. Hypotriacylglycerolemia
- c. Hyperglycemia
- d. Hypochylomicronemia
- e. Hypoglycemia

898. A patient was diagnosed with ischemic heart disease and prescribed a calcium channel blocker agent. What drug is it?

- a. Nitroglycerin
- b. Carvedilol
- c. Thiotriazoline
- d. Amlodipine
- e. Eldepryl (Selegiline)

899. Differentiation of B-lymphocytes into plasma cells leads to synthesis of immunoglobulins that ensure specific immune response of the body. Differentiation of B-lymphocytes takes place in the following organ of immune system:

- a. Tonsils
- b. Red bone marrow
- c. Thyroid gland
- d. Liver
- e. Thymus

900. A patient diagnosed with hepatic abscess was brought into the surgery department. He has a history of recurrent gastrointestinal disorders. Laboratory stool analysis detected round cells with 4 nuclei. What protozoal invasion can be detected in this case?

- a. Trichomonas hominis
- b. Entamoeba gingivalis
- c. Trichomonas vaginalis
- d. Entamoeba histolytica
- e. Balantidium coli

901. Longitudinal tooth section shows a tissue that makes up the tooth basis and consists of collagen fibers, mineralized matrix, and tubules that hold dentinal fibers. This tissue develops from:

- a. External cells of enamel organ
- b. Intermediate cells of enamel organ
- c. Dental saccule
- d. Peripheral part of dental papilla
- e. Internal cells of enamel organ

902. A 32-year-old woman with asymptomatic progression of the disease for the second time gave birth to a stillborn baby with marked microcephaly. What disease can be suspected in this case?

- a. Toxoplasmosis
- b. Listeriosis
- c. Brucellosis
- d. Histoplasmosis
- e. Syphilis

903. An outbreak of intestinal infection was registered at a kindergarten. Bacteriology of the patient's feces detected no pathogenic bacteria. Electron microscopy revealed round formations with clear

margins and a thick sleeve, resembling a wheel. What is the most likely causative agent of this infection?

- a. Rotavirus
- b. P. vulgaris
- c. E) coli
- d. Adenovirus
- e. Coxsackievirus

904. 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. Glycosaminoglycans
- b. Simple proteins
- c. Triacylglycerols
- d. Phospholipids
- e. Hemeoproteins

905. 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 lysosomes
- c. Golgi complex and mitochondria
- d. Granular endoplasmic reticulum and Golgi complex
- e. Granular and agranular endoplasmic reticula

906. The molecules of mature mRNA in a cell are the carriers of genetic information about the sequence, in which certain amino acids must attach to each other. What is coded within the mRNA molecules?

- a. Primary structure of lipids
- b. Secondary structure of carbohydrates
- c. Primary structure of polynucleotides
- d. Primary structure of a protein
- e. Primary structure of carbohydrates

907. Synovial fluid is known to reduce friction of the joint surfaces. In rheumatism or arthritis its viscosity reduces because of depolymerization of the following substance:

- a. Heparin
- b. Collagen
- c. Glycogen
- d. Albumin
- e. Hyaluronic acid

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

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

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

- a. Genealogy
- b. Population statistics
- c. Biochemistry
- d. Cytogenetics
- e. Twin method

910. A 6-year-old girl exhibits marked signs of hemolytic anemia. Biochemical analysis of her erythrocytes shows deficiency of glucose 6-phosphate dehydrogenase enzyme. What metabolic

process is disturbed in this patient and has leading role in the development of this pathology?

- a. Pentose-phosphate pathway
- b. Anaerobic glycolysis
- c. Oxidative phosphorylation
- d. Gluconeogenesis
- e. Tissue respiration

911. A histological specimen of decalcified lower jaw shows bundles of thick collagen fibers around the root of a tooth. Between these fibers, loose fibrous connective tissue with blood vessels can be identified. What structure is it?

- a. Periodontium
- b. Gums
- c. Dental alveolus
- d. Dentin
- e. Cellular cementum

912. Iron is released in the process of hemoglobin catabolism. Then, as a part of a special transport protein, it arrives into the bone marrow and is used again for hemoglobin synthesis. Name this transport protein:

- a. Transcobalamin
- b. Ceruloplasmin
- c. Transferrin
- d. Albumin
- e. Haptoglobin

913. A child presents with caries development and disturbed osteogenesis due to an insufficient intake of a certain microelement. Name this microelement:

- a. Iodine
- b. Iron
- c. Fluorine
- d. Potassium
- e. Cobalt

914. A child was born with numerous maldevelopments: cleft lip and palate, microphthalmia, syndactyly, heart and kidney diseases. The child died at the age of one month. The child's karyotype was 47, 13+. What type of mutation caused this condition?

- a. Polyploidy
- b. Inversion
- c. Translocation
- d. Duplication
- e. Trisomy

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

- a. Non-overlapping
- b. Redundancy
- c. Triplet code
- d. Colinearity
- e. Universality

916. Mother of a newborn has made an appointment with a neonatologist. The neonatologist determined that the child has brain maldevelopments. What has likely been damaged in the process of embryonic development?

- a. Ectoderm
- b. Endoderm
- c. Mesenchyme
- d. -
- e. Mesoderm

917. A 27-year-old patient with neck wound has lost over 30% of blood volume. The patient is in severe condition: blood pressure - 60/40 mm Hg, heart rate - 140/min., respirations - 30/min., conscious. Characterize the patient's condition:

- a. Hypovolemic shock
- b. Coma
- c. Cardiogenic shock
- d. Arterial hypertension
- e. Collapse

918. 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. Thymic atrophy
- b. -
- c. Thymomegaly
- d. Thymic hyperplasia
- e. Thymic dysplasia

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

- a. Opening of the inferior vena cava
- b. Lumbocostal triangle
- c. Sternocostal triangle
- d. Central tendon of the diaphragm
- e. Medial and lateral arcuate ligaments

920. Fetal malformations can be caused by such maternal diseases as rubella, syphilis, toxoplasmosis, cytomegaly, herpes, and chlamydiosis. These malformations belong to the following type of variability:

- a. Genomic imprinting
- b. Combinative
- c. Mutational
- d. Modification
- e. Epimutational

921. According to the data collected by WHO researchers, every year there are approximately 250 million malaria cases occur in the world. This disease can be encountered predominantly in tropical and subtropical areas. The spread of this disease matches the natural habitat of the following genus of mosquitoes:

- a. Culiseta
- b. Anopheles
- c. Mansonia
- d. Aedes
- e. Culex

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

- a. 6-12 hours
- b. 5-10 minutes
- c. 24-72 hours
- d. 3-6 hours
- e. 12-24 hours

923. The patient's ciliary body is damaged. What ocular apparatus is likely to be dysfunctional in this case?

- a. Trophic apparatus
- b. Accommodation apparatus

- c. Protective apparatus
- d. Photosensitive apparatus
- e. Light-conducting apparatus

924. To facilitate teeth mineralization in the course of caries treatment, certain substances are used. These substances are the source from which minerals are supplied to the hard dental tissues. Name these substances:

- a. Sodium chloride
- b. Copper sulfate
- c. Calcium glycerophosphate
- d. Potassium sulfate
- e. Magnesium sulfate

925. Dependence of blood pressure from vascular resistance was studied in an experiment on a test animal. In what vessel will the resistance be the highest?

- a. Arteries
- b. Arterioles
- c. Veins
- d. Aorta
- e. Capillaries

926. A patient with damaged muscles of the lower limbs has been delivered to a first-aid center. What cells enable reparative regeneration of muscle fibers and restoration of muscle function?

- a. Plasmocytes
- b. Myosatellitocytes
- c. Adipocytes
- d. Fibroblasts
- e. Endotheliocytes

927. Membrane-acting protein/peptide hormones regulate metabolism in the cells, using intracellular mediators (messengers) for this purpose. ACTH causes intracellular effects by forming:

- a. Inositol trisphosphate
- b. -
- c. Cyclic guanosine monophosphate
- d. Cyclic adenosine monophosphate
- e. Calcium/calmodulin

928. An inoculation of pus, obtained from a furuncle, revealed spheric microorganisms arranged in "grape clusters". What microbes were detected?

- a. Streptococci
- b. Micrococci
- c. Tetracocci
- d. Staphylococci
- e. Diplococci

929. During experiment, the myotome was destroyed in the rabbit fetus. This manipulation will result in malformation of the following structure:

- a. Serous membranes
- b. Smooth muscles
- c. Skeletal muscles
- d. Dermal connective tissue
- e. Axial skeleton

930. A woman was diagnosed with purulent stomatitis. What complete blood count finding is characteristic of this disease?

- a. Monocytosis
- b. Anemia
- c. Thrombocytosis
- d. Leukocytosis

e. Lymphocytosis

931. A patient being treated for viral B hepatitis developed signs of hepatic failure. What changes in the blood test that indicate a protein metabolism disorder will most likely be observed in this case?

- a. Absolute hyperfibrinogenemia
- b. Absolute hyperalbuminemia
- c. Absolute hypoalbuminemia
- d. Blood protein composition is unchanged
- e. Absolute hyperglobulinemia

932. Microscopy of the samples obtained from the patient's pharynx and stained according to Neisser shows bacilli with thickened poles situated at an angle to each other. Name the likely species of these microorganisms:

- a. Corynebacterium diphtheriae
- b. Streptococcus pyogenes
- c. Leptospira interrhogans
- d. Neisseria gonorrhoeae
- e. Mycobacterium tuberculosis

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

- a. Salmonella
- b. Staphylococci
- c. Escherichia
- d. Streptococci
- e. Shigella

934. After a cold the patient developed impaired perception of pain and thermal stimuli in the front 2/3 of the tongue. What nerve was damaged in this case?

- a. Trigeminal
- b. Phrenic
- c. Chorda tympani
- d. Vagus
- e. Hypoglossal

935. A patient with megaloblastic anemia was taking a water-soluble vitamin. Name this substance:

- a. Ascorbic acid
- b. Thiamine chloride
- c. Tocopherol acetate
- d. Pyridoxine
- e. Cyanocobalamin

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

937. A certain antibiotic has low toxicity, relatively rarely causes side effects, and is a reserve antibiotic from the group of macrolides. Its mechanism of action consists of protein synthesis inhibition in bacterial ribosomes by inhibiting the peptide translocase enzyme. What antibiotic is it?

- a. Tetracycline
- b. Levomycetin (Chloramphenicol)
- c. Ampicillin
- d. Sisomicin
- e. Azithromycin

938. A patient has high levels of blood aldosterone. What physiologically active substance is likely to have contributed to this condition?

- a. Angiotensin II
- b. Prostaglandin E2
- c. Cyclic adenosine monophosphate
- d. Natriuretic factor
- e. Cyclic guanosine monophosphate

939. A patient with trigeminal neuralgia was given parenterally a non-narcotic analgesic with rapid onset and short action. This analgesic is manufactured in tablets and ampoules. What drug was the patient administered?

- a. Mefenamic acid
- b. Analgin (Metamizole)
- c. Indometacin
- d. Piroxicam
- e. Ibuprofen

940. For the treatment of gingivitis, a dentist prescribed the patient a drug with an antiprotozoal and antibacterial effect, which can cause an aversion to alcohol. What drug did the doctor prescribe?

- a. Ceftriaxone
- b. Metronidazole
- c. Tetracycline
- d. Levomycetin (Chloramphenicol)
- e. Lincomycin hydrochloride

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

- a. Lymph node
- b. Thymus
- c. Red bone marrow
- d. Spleen
- e. Palatine tonsil

942. A patient, who works in underground mining, developed pulmonary fibrosis. In this case spirometry shows the following:

- a. Decreased vital capacity of lungs
- b. Normal airway resistance
- c. Decreased airway resistance
- d. Increased vital capacity of lungs
- e. Increased airway resistance

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

944. An AIDS patient presents with revertase enzyme activity in the cells affected by HIV infection. This enzyme takes part in the synthesis of the following nucleic acid:

- a. Pre-mRNA
- b. rRNA
- c. DNA
- d. mRNA
- e. tRNA

945. A 50-year-old man declined anaesthesia during dental manipulations. Due to severe pain he developed anuria caused by acute increase in production of:

- a. Glucagon
- b. Renin
- c. Thyroxin
- d. Adrenaline**
- e. Thymosin

946. After spinal trauma the patient presents with absence of voluntary movements and tendon reflexes; sensitivity is retained only in the lower extremities. What is the mechanism of these disturbances and what part of the spine was injured?

- a. Central paralysis, coccyx
- b. Peripheral paralysis, cervical spine
- c. Spinal shock, thoracic spine**
- d. -
- e. Spinal shock, cervical spine

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

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

948. To take a sample of cerebrospinal fluid for analysis, a doctor makes a puncture into subarachnoid space. To prevent damage to the spinal cord, the needle must be inserted between the two following vertebrae:

- a. I and II lumbar
- b. XII thoracic and I lumbar
- c. III and IV lumbar**
- d. IV and V thoracic
- e. XI and XII thoracic

949. A 28-year-old patient presented with elevated blood pressure, hematuria, and facial edemas. Despite the treatment, the signs of renal failure were exacerbating. 6 months later the patient died of uremia. Microscopy of the kidneys shows proliferation of nephrothelium in the glomerular capsules and proliferation of podocytes that contributes to crescent formation. Sclerosis and hyalinosis of the glomeruli is observed. Make the diagnosis:

- a. Acute glomerulonephritis
- b. Subacute glomerulonephritis**
- c. Acute pyelonephritis
- d. Nephrotic syndrome
- e. Chronic glomerulonephritis

950. In an experiment, ribosomes were destroyed in polychromatophilic erythroblasts of human red bone marrow. In this case, the synthesis of a certain specific protein will be disturbed. Name this protein.

- a. Collagen
- b. Elastin
- c. Fibrinogen
- d. Globin**
- e. Laminin

951. Bacteriology of dental plaque from the oral cavity of a 10-year-old child detects numerous *Streptococcus mutans*. This microorganism plays the leading role in the development of:

- a. Parodontosis
- b. Chronic pulpitis
- c. Ulcerative gangrenous stomatitis
- d. Vesicular stomatitis

e. Caries

952. A patient with parodontosis was prescribed a fat-soluble vitamin that actively participates in redox processes in the organism. This antioxidant is a growth factor, has antixerophthalmic action, and contributes to maintenance of normal vision. In dental practice it is used to accelerate mucosal re-epithelialization during parodontosis. Name this substance:

- a. Tocopherol acetate
- b. Retinol acetate
- c. Menadione (Vicasolum)
- d. Ergocalciferol
- e. Cyanocobalamin

953. Most epithelial cells sampled from the oral mucosa of a man contained one X chromatin body. It is characteristic of:

- a. Down syndrome
- b. Turner syndrome
- c. Triple X syndrome
- d. Klinefelter syndrome
- e. Triple Y syndrome

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

- a. Oral candidiasis
- b. Squamous cell carcinoma
- c. Leukoplakia
- d. Ulcer
- e. Gingivitis

955. A patient presents with dysfunction of the cerebral cortex accompanied by epileptic seizures. He has been administered a biogenic amine synthetized from glutamate and responsible for central inhibition. What substance is it?

- a. γ -aminobutyric acid
- b. Serotonin
- c. Histamine
- d. Dopamine
- e. Acetylcholine

956. The patient's blood group is being determined using monoclonal test reagents. Agglutination reaction is positive with anti-A and anti-B reagents and negative with anti-D reagents. Name the blood group of this patient:

- a. O (I) Rh (+)
- b. AB (IV) Rh (-)
- c. A (II) Rh (+)
- d. AB (IV) Rh (+)
- e. B (III) Rh (-)

957. A patient presents with disturbed patency of the airways at the level of small and medium bronchial tubes. What acid-base imbalance can the patient develop?

- a. Respiratory acidosis
- b. Acid-base balance remains unchanged
- c. Respiratory alkalosis
- d. Metabolic alkalosis
- e. Metabolic acidosis

958. People of various nationalities, who live in the Arctic climate, develop a number of features to adapt to their environment. Representatives of the Arctic adaptive type compared to the natives of the Central Africa have the following characteristic feature:

- a. Increased layer of subcutaneous fat

- b. Hyperhidrosis
- c. Lean stature
- d. Lower need for fat intake
- e. Elongated legs and shorter arms

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

960. Autopsy of the body of a woman who died of uremia revealed the kidneys 7x3.5x2 cm in size, with an evenly fine-grained surface and a pale medullary layer thinned down to 0.3 cm. Histology shows sclerosis and hyalinosis of the majority of glomeruli, hyalinosis of the arterioles, sclerosis of artery walls with concentric narrowing of the lumen, and atrophic changes in the tubules. What pathology can be characterized by such macro- and microscopic changes in the kidneys?

- a. Pyelonephritic contracted kidney
- b. Amyloid contracted kidney
- c. Secondary contracted kidney
- d. Atherosclerotic nephrosclerosis
- e. Primary contracted kidney

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

- a. Parenchymatous
- b. Shunt
- c. Ketoacidotic
- d. Mixed
- e. Hepatocellular

962. An autopsy of a 42-year-old man, who suffered from chronic diffuse bronchitis and died of cardiopulmonary failure, shows large hyperinflated lungs that cover mediastinum with their edges. The lungs do not deflate, are colored pale gray, crunch on section; lung surface does not straighten out when pressed with a finger, resulting in a permanent depression. Mucopurulent exudate is produced from the bronchial lumen. What is the most likely diagnosis?

- a. Chronic focal emphysema
- b. Vicarious compensatory emphysema
- c. Interstitial emphysema
- d. Chronic diffuse obstructive emphysema
- e. Primary idiopathic emphysema

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

- a. Valve of the superior vena cava
- b. Aortic valve
- c. Bicuspid valve
- d. Valve of the pulmonary trunk
- e. Tricuspid valve

964. A patient with alcoholism has hepatic cirrhosis. Within the last half a year he developed varicose abdominal veins, splenomegaly, and ascites (portal hypertension syndrome). What complication is the most likely cause of the patient's death?

- a. Hepatorenal syndrome
- b. Hypoproteinemia
- c. Hemorrhage from the gastrointestinal varices

- d. Hepatic encephalopathy
- e. Accelerated hemolysis

965. A patient diagnosed with renal failure shows signs of renal osteodystrophy accompanied by resorption of periodontal bone tissue. This condition is caused by disturbed formation of:

- a. 1,25(OH)₂D₃
- b. D₃
- c. 25(OH)D₃
- d. 24, 25(OH)₂D₃
- e. D₂

966. A histological slide shows a hematopoietic organ that consists of lobes of varying shape. Each lobe has its cortical and medullary substances. Such structure is characteristic of the following organ:

- a. Lymph node
- b. Vermiform appendix
- c. Thymus
- d. Spleen
- e. Tonsils

967. In an experiment the vagus is being stimulated, which results in increased acetylcholine entry to the synaptic cleft, and that in turn results in the decreased heart rate due to the following mechanism:

- a. Increase in AV nodal conduction velocity
- b. Hyperpolarization of cardiomyocyte membrane
- c. Increase of action potential duration
- d. Depolarization of cardiomyocyte membrane
- e. Decrease of action potential duration

968. A patient suffers from disturbed ocular accommodation. What muscle is damaged?

- a. Musculus rectus superior
- b. Musculus sphincter pupillae
- c. Musculus ciliaris
- d. Musculus dilatator pupillae
- e. Musculus rectus inferior

969. To study the blood flow, a doctor placed the sensor in the area of the sulcus bicipitalis medialis. What vessel is being studied by the doctor?

- a. A) axillaris
- b. A) profunda brahii
- c. A) radialis
- d. A) ulnaris
- e. A) brachialis

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

- a. Diaphysis of the ulna
- b. Epiphysis of the radius
- c. Epiphysis of the ulna
- d. Diaphysis of the radius
- e. Metaphysis of the ulna

971. The doctor observes a disturbed process of lacrimation in the patient due to irritation of one of the branches of the VII pair of cranial nerves. What branch is irritated?

- a. N. petrosus major
- b. Chorda tympani
- c. N. auricularis posterior
- d. R. colli
- e. N. stapedius

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

973. A patient is diagnosed with parathyroid tumor. He presents with generalized fibrous osteodystrophy and periodical renal colic attacks. US detects small nephroliths in the kidneys. What is the most likely cause of nephrolithiasis in this case?

- a. Hypocalcemia
- b. Hyperphosphatemia
- c. Hypercholesterolemia
- d. Hyperuricemia
- e. Hypercalcemia**

974. A patient is undergoing a surgery for a trauma of the temporomandibular joint. An incision revealed a structure that improves the congruence of joint surfaces. Name this structure:

- a. Fold
- b. Disc**
- c. Meniscus
- d. Ligament
- e. Lip

975. A 3-year-old girl has rubella. Her 10-year-old sister was not infected, despite both girls constantly remaining in contact. The pediatrician determined that the elder girl had rubella 5 years ago. What type of immunity does the elder sister have?

- a. Artificial active
- b. Natural active**
- c. Natural passive
- d. Innate
- e. Artificial passive

976. A patient with wrist wound started to develop an edema. At what stage of local circulatory disturbance does it usually occur?

- a. Stasis
- b. Arteriolar spasm
- c. Venous hyperemia
- d. Prestasis
- e. Arterial hyperemia**

977. What antimicrobial drug is not a cephalosporin antibiotic?

- a. Cefepime
- b. Cefalexin**
- c. Cefazolin
- d. Ceftriaxone
- e. Ciprofloxacin

978. A tooth has been extracted. Its crown is chisel-shaped, wide, with narrow edge. The root is cone-shaped and flattened from the sides. What tooth was extracted?

- a. Lower canine
- b. Upper incisor**
- c. Lower premolar
- d. Upper premolar
- e. Lower incisor

979. Examination of the oral cavity detects enamel damage in the form of isolated and multiple erosions of various shapes and varying in color from yellow-brown to black. The teeth are fragile,

some of them are destroyed. What disease corresponds with such pathological changes?

- a. Median caries
- b. Enamel atrophy
- c. Dental erosions
- d. Deep caries
- e. Fluorosis

980. 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 proteins
- c. Filtration
- d. Reabsorption of sodium and glucose
- e. Reabsorption of electrolytes and water

981. A man is waiting to be invited into the dentist's office. While waiting, he developed palpitations caused by nervousness. What heart rate is normal for a healthy adult?

- a. 60-80/min.
- b. 90-110/min.
- c. 110-120/min.
- d. 150-160/min.
- e. 40-60/min.

982. A fixed-run taxi passenger has a severe attack of tachycardia. A doctor travelling by the same taxi has managed to slow down his heart rate by pressing upon the eyeballs and thus inducing the following reflex:

- a. Hering-Breuer reflex
- b. Holtz reflex
- c. Bainbridge reflex
- d. Aschner-Dagnini reflex
- e. Frank-Starling mechanism

983. A 66-year-old man was given a magnesium sulfate solution intravenously for hypertensive crisis relief. However, his blood pressure did not decrease. After a repeated administration of this medicine he developed inertness, sluggishness, and depressed consciousness and respiration. What drug is a magnesium sulfate antagonist and removes the signs of its overdosage?

- a. Calcium chloride
- b. Activated charcoal
- c. Potassium permanganate
- d. Sodium chloride
- e. Potassium chloride

984. A patient with glossitis presents with disappearance of lingual papillae, reddening and burning pain in the tongue. Blood test: erythrocytes - $2.2 \cdot 10^{12}/l$, hemoglobin - 103 g/l, color index - 1.4. What type of anemia is it?

- a. alpha-thalassemia
- b. Iron refractory
- c. B₁₂ folate-deficiency
- d. beta-thalassemia
- e. Iron deficiency

985. Auscultation detects a murmur in the projection of the patient's cardiac apex. What heart valve is likely to have a defect in this case?

- a. Pulmonary trunk valve
- b. Mitral valve
- c. Aortic valve
- d. Tricuspid valve

e. -

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

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

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

- a. Monocytosis
- b. Lymphocytosis**
- c. Eosinophilia**
- d. Lymphocytopenia
- e. Neutrophilic leukocytosis

988. What is the heart rate of a patient diagnosed with paroxysmal tachycardia?

- a. <140/min.**
- b. 120-130/min.
- c. 100-110/min.
- d. 90-100/min.
- e. 110-120/min.

989. 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. Platelets**
- b. Neutrophils
- c. Lymphocytes
- d. Erythrocytes
- e. Monocytes

990. A patient came to the dentist for tooth extraction. After the tooth had been extracted, the bleeding from the socket persisted for 15 minutes. The patient has a history of active chronic hepatitis. What is the likely cause of the prolonged bleeding time?

- a. Decreased albumin blood count
- b. Decreased blood level of fibrinogen**
- c. Thrombocytopenia
- d. Increased activity of anticoagulation system
- e. Hypocalcemia

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

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

992. A patient with syphilis developed pale spots on the skin of his neck. What disturbance of pigment metabolism is it?

- a. Lentigo**
- b. Xeroderma
- c. Melanoderma
- d. Porphyria
- e. Leukoderma**

993. What structure in the cell becomes the main target, when exposed to ionizing radiation?

- a. DNA
- b. Mitochondria
- c. Sarcoplasmic reticulum
- d. Cytoplasmic membrane
- e. Ribosomes

994. For the treatment of gingivitis, the dentist prescribed the patient a drug with an antiprotozoal and antibacterial effect. This drug can cause an aversion to alcohol. What drug was prescribed by the dentist?

- a. Levomycetin (Chloramphenicol)
- b. Tetracycline
- c. Ceftriaxone
- d. Lincomycin hydrochloride
- e. Metronidazole

995. A 5-year-old boy suffers from severe headache, nuchal rigidity, vomiting without nausea, herpetic rash on his face, and fever. Bacteriology of what pathological material must be performed to confirm the provisional diagnosis of cerebrospinal meningitis?

- a. Urine culture of N. meningitidis
- b. Obtaining N. meningitidis bacteria from the mucosa of the genitourinary system
- c. Vomitus analysis
- d. Stool culture of N. meningitidis
- e. Cerebrospinal fluid

996. Autopsy of the body of a 43-year-old man, who died of cardiopulmonary failure, shows a cavity 3 cm in diameter, filled with viscous green-gray content, in the lower lobe of the right lung. Histology shows that the wall of this structure is made of connective tissue and immature granulation tissue, while the lumen contains neutrophilic leukocytes and products of their breakdown. What type of inflammation is it?

- a. Chronic abscess
- b. Empyema
- c. Carbuncle
- d. Acute abscess
- e. Furuncle

997. A 35-year-old woman is diagnosed with faecal diphtheria. The patient died with signs of acute heart failure. On autopsy: heart cavities are enlarged in the diameter, heart muscle is dull, flaccid, striped on section, with yellowish areas under the endocardium. What type of degeneration was detected in cardiac histiocytes?

- a. Fatty
- b. Hydropic
- c. Hyaline droplet
- d. Carbohydrate
- e. Ballooning

998. Cells of basal layer of epidermis were damaged due to exposure to radiation. What function of epidermis will be impaired or inhibited first?

- a. Barrier
- b. Absorption
- c. Regenerative
- d. Dielectric
- e. Protective

999. Specify the concentration of ethyl alcohol that has the most active antimicrobial action in a protein-containing medium:

- a. 70%
- b. 60%
- c. 15%

- d. 40%
- e. 96%

1000. To improve tooth mineralization, dentists prescribe Ca²⁺ preparations. This substance **HAS NO EFFECT** on the following processes in an organism:

- a. Hemostasis
- b. Oncotic pressure generation
- c. Muscle contraction
- d. Synaptic transmission of excitation
- e. Development of myocardial depolarization

1001. A woman complains of painful chewing, especially when she moves her lower jaw backwards. What muscles are affected?

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

1002. A woman with allergic dermatitis has been taking an antiallergic drug for a week. As the result of taking this drug, she developed marked somnolence. Name this drug:
A) Dimedrol (Diphenhydramine)

- a. Aminazine (Chlorpromazine)
- b. Loratadine
- c. Cromolyn sodium (Cromoglicic acid)
- d. Adrenaline hydrochloride

1003. Microslide of a cardiac tissue shows rectangular cells with central location of the nucleus and well-developed myofibrils connected with Z-disks. These cells perform the following cardiac function:

- a. Contraction
- b. Impulse conduction
- c. Endocrine
- d. Protective
- e. Regenerative

1004. In an experiment, a dog was trained to develop a conditioned reflex in response to a flash of light. For this reflex to occur, a certain part of the cerebral cortex must be intact. What part of the cerebral cortex is it?

- a. Occipital lobe
- b. Precentral gyrus
- c. Temporal lobe
- d. Frontal lobe
- e. Postcentral gyrus

1005. Glutamate decarboxylation produces an inhibitory neurotransmitter in the central nervous system. What neurotransmitter is it?

- a. Serotonin
- b. Histamine
- c. Glutathione
- d. GABA
- e. Asparagine

1006. Autopsy of the body of a woman, who died of acute myocardial infarction, detected a thrombus in a vein of her left shin. Microscopy of the thrombus shows that it is substituted with a connective tissue with diffuse deposits of calcium salts. Name this type of thrombosis outcome:

- a. Petrification
- b. Septic autolysis
- c. Aseptic autolysis
- d. Organization and canalization

e. Organization

1007. A scar made up of connective tissue has formed at the site of a healed wound. What substance is the main component of this type of connective tissue?

- a. Hyaluronic acid
- b. Keratan sulfate
- c. Collagen
- d. Chondroitin sulfate
- e. Elastin

1008. 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. Calcitonin
- c. Parathyroid
- d. Aldosterone
- e. Thyroxine

1009. Examination of histological specimen of oral mucosa reveals non-keratinized stratified squamous epithelium with lymphocyte infiltrations. What structure of oral cavity is the most likely to be represented by this mucosa specimen?

- a. Lip
- b. Hard palate
- c. Tonsil
- d. Cheek
- e. Gums

1010. A patient with an incised wound in the area of the middle part of the sternocleidomastoid muscle presents with impaired skin sensitivity in the front part of the neck. What nerve is damaged in this case?

- a. N. occipitalis minor
- b. N. auricularis magnus
- c. N. phrenicus
- d. Nn. supraclavicularis
- e. N. transversus colli

1011. The levels of Ca^{2+} ions in the blood decreased as a result of a special diet, which will in turn cause increased secretion of a certain hormone. Name this hormone.

- a. Parathormone
- b. Vasopressin
- c. Thyroxine
- d. Thyrocalcitonin
- e. Somatotropin

1012. Auscultation reveals that in the patient's II intercostal space along the parasternal line on the right the II heart sound is better heard than the I heart sound. What valve produces this sound when closing?

- a. Tricuspid valve
- b. Bicuspid valve
- c. Semilunar pulmonary valve
- d. Bicuspid and tricuspid valves
- e. Semilunar aortic valve

1013. 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. Facial nerve
- c. Chorda tympani
- d. Vagus nerve

e. Glossopharyngeal nerve

1014. A 20-year-old woman came to the doctor with complaints of general weight loss, loss of appetite, weakness, skin discoloration resembling bronze tan. In addition to hyperpigmentation, examination in the hospital revealed bilateral adrenal tuberculosis. What substance leads to skin hyperpigmentation, when accumulated excessively?

- a. Adrenochrome
- b. Lipofuscin
- c. Bilirubin
- d. Melanin**
- e. Hemozoin

1015. Histologic specimen of renal cortex shows renal corpuscle and renal tubules. It is known that reabsorption of substances occurs in the renal tubules. What nephron tissue takes part in this process?

- a. Reticular tissue
- b. Mucous tissue
- c. Cartilaginous tissue
- d. Epithelial tissue**
- e. Connective tissue proper

1016. During an outbreak of a hospital-acquired infection, pure cultures of *S. aureus* were grown after inoculation of the samples obtained from the nasopharynxes of the medical personnel and from wound drainage of the surgical patients. What tests are necessary to determine the likely source of infection?

- a. Phage typing of the obtained cultures**
- b. Sero-identification
- c. Biochemical profiles
- d. Antibiotic sensitivity testing
- e. Repeated inoculations

1017. A patient has suffered a head injury. On examination there is a subcutaneous hematoma in the temporal area. What vessel was damaged, thus resulting in the hematoma development?

- a. A. auricularis posterior
- b. A. maxillaris
- c. A. buccalis
- d. A. temporalis superficialis**
- e. A. occipitalis

1018. 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. Hospitalize the patient and continue to monitor his condition
- b. Begin immunization with antirabic vaccine**
- c. Immediately administer DPT vaccine
- d. Prescribe combined vitamin therapy
- e. Immediately administer normal gamma globulin

1019. Histology of the internal organs of a deceased woman, who in life was diagnosed with systemic collagenosis, revealed widespread vascular damage in the form of mucoid and fibrinoid swelling, fibrinoid necrosis of arteriolar walls, and perivascular lymphoplasmacytic infiltrations. What type of inflammation can be characterized by these symptoms?

- a. -
- b. Chronic immune inflammation
- c. Granulomatous inflammation
- d. Acute immune inflammation**
- e. Interstitial diffuse inflammation

1020. Formation of dental bone tissue requires calcium. The active form of vitamin D plays a large role in calcium metabolism and is produced in:

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

1021. Detoxification of bilirubin occurs in the membranes of endoplasmic reticulum of hepatocytes. Bilirubin is secreted by hepatocytes into bile for the most part as:

- a. Bilirubin diglucuronide**
- b. Unconjugated bilirubin
- c. Indirect reacting bilirubin
- d. Bilirubin monoglucuronide
- e. -

1022. Breakdown of cyclic adenosine monophosphate (cAMP) and cyclic guanosine monophosphate (cGMP) into simple, non-cyclic nucleoside monophosphates is catalyzed by the following enzyme:

- a. Glycogen phosphorylase
- b. Protein kinase
- c. Adenylate cyclase
- d. Phosphodiesterase**
- e. Glucose 6-phosphatase

1023. 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. Scar formation with thinning of the left ventricular wall
- b. Autolytic processes of myocardial softening (myomalacia)**
- c. Replacement of the infarct site with connective tissue (organization)
- d. -
- e. Increased pressure in the pulmonary circulation

1024. A patient diagnosed with chronic myelogenous leukemia developed signs of necrotizing ulcerative stomatitis. Mucosal biopsy detected leukemic cells. In this case, oral cavity damage is associated with a certain link of tumor pathogenesis. Name this link.

- a. Tumor progression**
- b. Promotion
- c. Initiation
- d. Mutational mechanism of transformation
- e. Epigenomic mechanism of transformation

1025. A 20-year-old young man was preventively given an anatoxin. It was an immunization against the following disease:

- a. Meningitis
- b. Pertussis
- c. Scarlet fever
- d. Diphtheria**
- e. Tuberculosis

1026. Acid resistance of human teeth depends on the ratio of calcium to phosphorus in the enamel. What is the normal calcium to phosphorus ratio?

- a. 0.8
- b. 1.1
- c. 0.5
- d. 1.67**
- e. 0.9

1027. A patient loses his equilibrium, when in an upright position with his eyes closed. What brain structures are the most likely to be damaged in this patient?

- a. Cerebellum**

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

1028. A patient was hospitalized on the fifth day after the onset of the disease that manifests as jaundice, muscle pain, chills, and nosebleeds. During laboratory diagnostics, dark-field microscopy of a drop of the patient's blood was performed. Name the causative agents of this disease.

- a. Rickettsia mooseri
- b. Leptospira interrogans**
- c. Calymmatobacterium granulomatis
- d. Bartonella bacilliformis
- e. Borrelia duttonii

1029. A 66-year-old man was diagnosed with a malignant epithelial tumor, originating from a middle-sized bronchus. What epithelium is the source of tumor development in this case?

- a. Stratified cornified epithelium
- b. Simple columnar epithelium
- c. Simple pseudostratified transitional epithelium
- d. Simple pseudostratified ciliated epithelium**
- e. Stratified non-cornified epithelium

1030. A patient was brought to the hospital with a lacerated wound of the maxillofacial area. Profuse bleeding from the wound could not be stopped for a long time. What disturbance of total blood volume will be observed within the first hour after the blood loss occurred?

- a. Oligocytic hypovolemia
- b. Normocytic hypovolemia**
- c. No disturbances in blood volume
- d. Hypervolemia
- e. Polycytic hypovolemia

1031. A 30-year-old breastfeeding woman keeps to the diet that daily provides her with 1000 mg of calcium, 1300 mg of phosphorus, and 20 mg of iron. How should the daily dosages of minerals in this diet be adjusted?

- a. Increase phosphorus intake**
- b. Decrease iron intake
- c. Increase iron intake
- d. Decrease fluorine intake
- e. Increase calcium intake

1032. Autopsy of the body of a patient, who died of cardiovascular failure, shows stenosing coronary atherosclerosis, complicated with thrombosis. Histologically, the thrombus consists of platelets, leukocytes, and fibrin. What type of thrombus can be observed in this case?

- a. -
- b. Hyaline thrombus
- c. Mixed thrombus
- d. Red thrombus
- e. White thrombus**

1033. After a mechanical injury a tourniquet was applied to the patient's arm to stop the bleeding. Below the tourniquet the arm became pale and numb. This condition is caused by:

- a. Obstruction ischemia
- b. Thrombosis
- c. Venous congestion
- d. Compression ischemia**
- e. Angiospastic ischemia

1034. A patient has a deep incised wound on the back of his neck. What muscle is damaged in this case?

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

1035. A 42-year-old man with an incised wound on the lower anterior surface of his shoulder came to the medical station. Objectively he presents with impaired forearm flexion. What muscles are likely to be damaged in this patient?

- a. M. brachialis, m. biceps brachii
- b. M. biceps brachii, m. anconeus
- c. M. deltoideus, m. biceps brachii
- d. M. coracobrachialis, m. supraspinatus
- e. M. deltoideus, m. infraspinatus

1036. When studying chemical composition of a tooth tissue, it is determined that 95-97% of this tissue consists of mineral substances (hydroxyapatite, carbonate apatite, fluorapatite), 1-2% consists of organic compounds, and 3% consists of water. What type of dental tissue is it?

- a. Periodontium
- b. Pulp
- c. Dentin
- d. Cement
- e. Enamel

1037. During an appointment with the dentist, a patient developed hypersalivation. What group of drugs can decrease this phenomenon?

- a. Astringent agents
- b. Cholinergic antagonists
- c. Cholinergic agonists
- d. Adrenergic antagonist
- e. Adrenergic agonist

1038. A patient with diabetes mellitus developed a pain in the right leg. The tissues of the big toe became black and edematous, desquamation of the epidermis is observed and a foul-smelling discharge is produced. Specify the pathological process:

- a. Infarction
- b. Sequestrum
- c. Coagulative necrosis
- d. Dry gangrene
- e. Wet gangrene

1039. Two weeks after the recovery from tonsillitis, a 17-year-old young man developed acute diffuse glomerulonephritis. What is the most common cause of this complication?

- a. Streptococci
- b. Candida fungi
- c. Mycobacterium tuberculosis
- d. Staphylococci
- e. Viruses

1040. Erythrocyte needs energy in the form of ATP for its vital functions. What process supplies erythrocytes with necessary amount of ATP?

- a. Anaerobic glycolysis
- b. Tricarboxylic acid cycle
- c. beta-oxidation of fatty acids
- d. Aerobic oxidation of glucose
- e. Pentose phosphate pathway

1041. Dentists have high risk of contracting viral hepatitis type B in the course of their duties and therefore are subject to mandatory vaccination. What vaccine is used in such cases?

- a. Inactivated vaccine
- b. Recombinant vaccine**
- c. Live vaccine
- d. Anatoxin
- e. Chemical vaccine

1042. 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. Talus
- b. Femur
- c. Patella
- d. Fibula
- e. Tibia**

1043. 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. Transcription
- b. Replication
- c. Reverse transcription
- d. Repair**
- e. Mutation

1044. A patient was diagnosed with a damaged intervertebral disk in the lumbar spine. What type of joint is it?

- a. Diarthrosis
- b. Synostosis
- c. Synchondrosis**
- d. Symphysis
- e. Syndesmosis

1045. Examination of a child detected dense painless nodules 5–7 mm in size within the skin of the occipital region. Similar formations were detected around the knee joints and along the tendons of the lower limbs. Pathohistological conclusion of the biopsy material studies: macrophage granuloma. Clinical diagnosis: rheumatism. Specify the clinical and morphological form of rheumatism observed in this case.

- a. Erythema nodosum**
- b. Muscular rheumatism
- c. Cerebral rheumatism
- d. Cardiovascular rheumatism
- e. Polyarthritic rheumatism

1046. Premature newborns have impaired surfactant synthesis. What is the function of a surfactant in the lungs?

- a. Increases alveolar surface tension
- b. Reduces alveolar surface tension**
- c. Inhibits O₂ diffusion through the blood-air barrier
- d. Facilitates diaphragmatic excursion
- e. Increases airway resistance

1047. Due to sustained trauma the patient presents with unevenly dilated pupils (anisocoria). What muscle is blocked?

- a. Musculus ciliaris
- b. Musculus rectus lateralis
- c. Musculus rectus inferior
- d. Musculus sphincter pupillae**

e. Musculus rectus superior

1048. In the wall of a blood vessel there is a large number of elastic fibers in all the layers. The middle layer contains elastic fenestrated membranes. Such characteristics of the vessel wall structure are caused by the following factors:

- a. Low blood pressure
- b. High blood pressure**
- c. High blood flow velocity
- d. Osmotic pressure
- e. Low blood flow velocity

1049. A microslide shows a section of a bean-shaped organ with cortical and medullary substances. Its cortical substance contains separate spheric nodules 0.5-1 mm in diameter; its medullary substance consists of medullary cords. This histological section demonstrates the following organ:

- a. Kidney
- b. Spleen**
- c. Adrenal gland
- d. Thymus
- e. Lymph node**