

1. A patient diagnosed with focal tuberculosis of the upper lobe of the right lung had been taking isoniazid as a part of combination therapy. After some time, the patient reported of muscle weakness, decreased skin sensitivity, blurred vision, impaired motor coordination. Which vitamin preparation should be used to address these phenomena?

- A. Vitamin B_6
- B. Vitamin A
- C. Vitamin D
- D. Vitamin B_{12}
- E. Vitamin C

2. A 60-year-old male patient has a 9-year history of diabetes and takes insulin Semilente for the correction of hyperglycemia. 10 days ago he began taking anaprilin for hypertension. One hour after administration of the antihypertensive drug the patient developed hypoglycemic coma. What is the mechanism of hypoglycemia in case of anaprilin use?

- A. Inhibition of glycogenolysis
- B. Reduction of glucagon half-life
- C. Increase of insulin Semilente half-life
- D. Increase of bioavailability of insulin Semilente
- E. Decrease in glucose absorption

3. Pterin derivatives (aminopterin and methotrexate) are the inhibitors of dihydrofolate reductase, so that they inhibit the regeneration of tetrahydrofolic acid from dihydrofolate. These drugs inhibit the intermolecular transfer of monocarbon groups, thus suppressing the synthesis of the following polymer:

- A. DNA
- B. Protein
- C. Homopolysaccharides
- D. Gangliosides
- E. Glycosaminoglycans

4. A child with suspected tuberculosis was given Mantoux test. After 24 hours the site of the allergen injection got swollen, hyperemic and painful. What are the main components that determine such response of the body?

- A. Mononuclear cells, T-lymphocytes and lymphokines
- B. Granulocytes, T-lymphocytes and IgG
- C. Plasma cells, T-lymphocytes and lymphokines
- D. B-lymphocytes, IgM
- E. Macrophages, B-lymphocytes and monocytes

5. Hemoglobin catabolism results in release of iron which is transported to the bone marrow by a certain transfer protein and used again for the synthesis of hemoglobin. Specify this transfer protein:

- A. Transferrin (siderophilin)
- B. Transcobalamin
- C. Haptoglobin
- D. Ceruloplasmin
- E. Albumin

6. A 12-year-old boy has been hospitalized for suspected food poisoning. The fecal samples were inoculated on the Endo agar, which resulted in growth of a large number of colorless colonies. What microorganism is most likely to be **EXCLUDED** from the list of possible causative agents of the disease?

- A. *Escherichia coli*
- B. *Salmonella enteritidis*
- C. *Proteus vulgaris*
- D. *Pseudomonas aeruginosa*
- E. *Yersinia enterocolitica*

7. A 23-year-old patient has been admitted to a hospital with a craniocerebral injury. The patient is in a grave condition. Respiration is characterized by prolonged convulsive inspiration followed by a short expiration. What kind of respiration is it typical for?

- A. Apneustic
- B. Gasping breath
- C. Kussmaul's
- D. Cheyne-Stokes
- E. Biot's

8. It has been experimentally proven that the excitation of the motor neurons of flexor muscles is accompanied by the inhibition of the motor neurons of extensor muscles. What type of inhibition underlies this phenomenon?

- A. Reciprocal
- B. Inhibition after excitation
- C. Pessimal
- D. Feedback
- E. Lateral

9. A 3-year-old boy with pronounced hemorrhagic syndrome doesn't have anti-hemophilic globulin A (factor VIII) in the blood plasma. Hemostasis has been impaired at the following stage:

- A.** Internal mechanism of prothrombinase activation
- B.** External mechanism of prothrombinase activation
- C.** Conversion of prothrombin to thrombin
- D.** Conversion of fibrinogen to fibrin
- E.** Blood clot retraction

10. A patient got a gunshot wound of hip which damaged the sciatic nerve. Any impact on the affected limb causes severe, excruciating pain. What mechanism of pain is most likely in this case?

- A.** Causalgic
- B.** Reflex
- C.** Phantom
- D.** Endorphin hypofunction
- E.** Enkephalin hypofunction

11. A 60-year-old patient with a long history of stenocardia takes coronarodilator agents. He has also been administered acetylsalicylic acid to reduce platelet aggregation. What is the mechanism of antiplatelet action of acetylsalicylic acid?

- A.** It reduces the activity of cyclooxygenase
- B.** It reduces the activity of phosphodiesterase
- C.** It enhances the activity of platelet adenylate cyclase
- D.** It enhances the synthesis of prostacyclin
- E.** It has membrane stabilizing effect

12. A patient with bronchial asthma has developed acute respiratory failure. What kind of respiratory failure occurs in this case?

- A.** Obstructive disturbance of alveolar ventilation
- B.** Restrictive ventilatory defect
- C.** Perfusion
- D.** Diffusion
- E.** Dysregulation of alveolar ventilation

13. On the fifth day after the acute blood loss a patient has been diagnosed with hypochromic anemia. What is the main mechanism of hypochromia development?

- A.** Release of immature red blood cells from the bone marrow
- B.** Impaired iron absorption in the intestines
- C.** Increased destruction of red blood cells in the spleen
- D.** Impaired globin synthesis
- E.** Increased excretion of body iron

14. A patient with diabetes developed a diabetic coma due to the acid-base imbalance. Specify the kind of this imbalance:

- A.** Metabolic acidosis
- B.** Metabolic alkalosis
- C.** Respiratory acidosis
- D.** Gaseous alkalosis
- E.** Non-gaseous alkalosis

15. A girl receives antibiotics of the penicillin group for acute bronchitis. On the third day of treatment she developed allergic dermatitis. Which drug should be administered?

- A.** Loratadine
- B.** Cromolyn sodium
- C.** Beclomethasone
- D.** Ephedrine hydrochloride
- E.** Levamisole

16. A female patient has been diagnosed with cervical erosion, which is a precancerous pathology. What defense mechanism can prevent the development of a tumor?

- A.** Increase in natural killer level (NK-cells)
- B.** High-dose immunological tolerance
- C.** Increase in the activity of lysosomal enzymes
- D.** Simplification of the antigenic structure of tissues
- E.** Low-dose immunological tolerance

17. Microscopy of the coronary artery of a dead 53-year-old patient revealed luminal occlusion due to a fibrous plaque with some lipids. The most likely form of atherosclerosis in this case is:

- A.** Liposclerosis
- B.** Lipidosis
- C.** Prelipid stage
- D.** Atheromatosis
- E.** Ulceration

18. Autopsy of the patient revealed bone marrow hyperplasia of tubular and flat bones (pyoid marrow), splenomegaly (6 kg) and hepatomegaly (5 kg),

enlargement of all lymph node groups. What disease are the identified changes typical for?

- A. Chronic myelogenous leukemia
- B. Chronic lymphocytic leukemia
- C. Multiple myeloma
- D. Polycythemia vera
- E. Hodgkin's disease

19. As a result of an injury a patient cannot extend his arm at the elbow. This may cause abnormal functioning of the following muscle:

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

20. A man sitting with his eyes closed, undergoes electroencephalography. What rhythm will be recorded on the EEG if there is an audible signal?

- A. Beta rhythm
- B. Theta rhythm
- C. Delta rhythm
- D. Alpha rhythm
- E. Gamma rhythm

21. Electrophoretic study of a blood serum sample, taken from the patient with pneumonia, revealed an increase in one of the protein fractions. Specify this fraction:

- A. γ -globulins
- B. Albumins
- C. α_1 -globulins
- D. α_2 -globulins
- E. β -globulins

22. Examination of an 18-year-old girl revealed the following features: hypoplasia of the ovaries, broad shoulders, narrow pelvis, shortening of the lower extremities, "sphinx neck". Mental development is normal. The girl was diagnosed with Turner's syndrome. What kind of chromosome abnormality is it?

- A. Monosomy X
- B. Trisomy X
- C. Trisomy 13
- D. Trisomy 18
- E. Nullisomy X

23. Hypertrichosis is the Y-linked character. The father has hypertrichosis, and the mother is healthy. In this family, the probability of having a child with hypertrichosis is:

- A. 0,5
- B. 0,25
- C. 0,125
- D. 0,625
- E. 1

24. A casualty has a fracture in the region of the inner surface of the left ankle. What is the most likely site for the fracture?

- A. Medial malleolus
- B. Lower third of the fibula
- C. Astragalus
- D. Lateral malleolus
- E. Calcaneus

25. Some infectious diseases caused by bacteria are treated with sulfanilamides which block the synthesis of bacteria growth factor. What is the mechanism of their action?

- A. They are antivitamins of para-amino benzoic acid
- B. They inhibit the absorption of folic acid
- C. They are allosteric enzyme inhibitors
- D. They are involved in redox processes
- E. They are allosteric enzymes

26. A 42-year-old male patient with gout has an increased blood uric acid concentration. In order to reduce the level of uric acid the doctor administered him allopurinol. Allopurinol is the competitive inhibitor of the following enzyme:

- A. Xanthine oxidase
- B. Adenosine deaminase
- C. Adenine phosphoribosyltransferase
- D. Hypoxanthine-phosphoribosyltransferase
- E. Guanine deaminase

27. A 40-year-old female patient diagnosed with acute pancreatitis has been delivered to the admission department of a regional hospital. What drug should be administered the patient in the first place?

- A. Contrycal
- B. Platyphyllin
- C. Atropine
- D. Metacin
- E. Pirenzepine

28. A patient consulted a doctor about being unable to abduct his right arm after a past trauma. Examination revealed that the passive movements were not limited. The patient was found to have the atrophy of the deltoid muscle. What nerve is damaged?

- A. Axillary
- B. Radial
- C. Ulnar
- D. Median
- E. Suprascapular

29. After a trauma of the upper third of the anterior forearm a patient exhibits difficult pronation, weakening of palmar flexor muscles and impaired skin sensitivity of 1-3 fingers. Which nerve has been damaged?

- A. *n. medianus*
- B. *n. musculocutaneus*
- C. *n. ulnaris*
- D. *n. cutaneus antebrachii medialis*
- E. *n. radialis*

30. A 38-year-old female patient complains of general weakness, cardiac pain, increased appetite, no menstruation. Objectively: the height is 166 cm, weight 108 kg, the patient has moon-shaped face, subcutaneous fat is deposited mainly in the upper body, torso and hips. There are also blood-red streaks. Ps- 62/min, AP-160/105 mm Hg. Which of the following diseases is the described pattern of obesity most typical for?

- A. Cushing pituitary basophilism
- B. Alimentary obesity
- C. Myxedema
- D. Insulinoma
- E. Babinski-Frohlich syndrome

31. A 60-year-old patient with a long history of atherosclerosis and a previous myocardial infarction developed an attack of retrosternal pain. 3 days later the patient was hospitalized and then died of progressive cardiovascular insufficiency. At autopsy a white fibrous depressed area about 3 cm in diameter with clear boundaries was found in the posterior wall of the left ventricle and interventricular septum. The dissector evaluated these changes as:

- A. Focal cardiosclerosis
- B. Myocardial ischemia
- C. Myocardial infarction
- D. Myocarditis
- E. Myocardial degeneration

32. Measurements of the arterial pCO_2 and pO_2 during an attack of bronchial asthma revealed hypercapnia and hypoxemia respectively. What kind of hypoxia occurred in this case?

- A. Respiratory
- B. Hemic
- C. Circulatory
- D. Tissue
- E. Histotoxic

33. A female patient with bronchial asthma had taken prednisolone tablets (1 tablet 3 times a day) for 2 months. Due to a significant improvement of her condition the patient suddenly stopped taking it. What complication is likely to develop in this case?

- A. Withdrawal syndrome
- B. Cushing's syndrome
- C. Gastrorrhagia
- D. Upper body obesity
- E. Hypotension

34. A patient with suspected dysentery has been admitted to the infectious diseases hospital. Which basic method of laboratory diagnosis must be applied in the first place?

- A. Bacteriological
- B. Serological
- C. Allergic
- D. Biological
- E. Microscopic

35. During a surgery with the use of hygronium the patient had an abrupt fall in blood pressure. Blood pressure can be normalized by the representatives of the following drug group:

- A. α -adrenergic agonists
- B. α -blockers
- C. Ganglionic blockers
- D. *M*-cholinergic agents
- E. *N*-cholinergic agents

36. A patient with respiratory failure has blood pH of 7,35. pCO_2 test revealed hypercapnia. Urine pH test revealed an increase in the urine acidity. What form of acid-base imbalance is the case?

- A. Compensated respiratory acidosis
- B. Compensated metabolic acidosis
- C. Decompensated metabolic acidosis
- D. Compensated respiratory alkalosis
- E. Decompensated respiratory alkalosis

37. On examination a patient was found to have medial strabismus, the inward deviation of the eyeball and inability to abduct the eyeball outwards. What nerve is damaged?

- A. Abducent
- B. Oculomotor
- C. Ocular
- D. Trochlear
- E. Visual

38. A patient with a dislocated shoulder had been admitted to a hospital. With the purpose of skeletal muscle relaxation he was given an injection of relaxant dithylinum acting normally 5-7 minutes. However, the effect of dithylinum in this patient lasted up to 8 hours. What is the most likely cause of the prolonged effect of dithylinum in this patient?

- A. Genetic deficiency of blood cholinesterase
- B. Reduced activity of microsomal liver enzymes
- C. Reduced drug excretion
- D. Material accumulation of the drug
- E. Potentiation by another drug

39. As a result of an injury of the knee joint a patient shows a drawer sign, that is the anterior and posterior displacement of the tibia relative to the femur. What ligaments are damaged?

- A. Cruciate ligaments
- B. Arcuate popliteal ligaments
- C. Oblique popliteal ligament
- D. Interosseous membrane
- E. Collateral ligaments

40. The neurosurgical department has admitted a 54-year-old male complaining of no sensitivity in the lower eyelid skin, lateral surface of nose, upper lip. On examination the physician revealed the inflammation of the second branch of the trigeminal nerve. This branch comes out of the skull through the following foramen:

- A. Round foramen
- B. Lacerated foramen
- C. Oval foramen
- D. Spinous foramen
- E. Superior orbital fissure

41. Bacteriological examination of purulent discharges from the urethra revealed some gram-negative bean-shaped bacteria located in the leukocytes. They can be identified as the causative agent of the following disease:

- A. Gonorrhoea
- B. Syphilis
- C. Venereal lymphogranulomatosis
- D. Chancroid
- E. Trichomoniasis

42. A male patient is 28 years old. Histological study of a cervical lymph node revealed a change of its pattern due to the proliferation of epithelioid, lymphoid cells and macrophages having nuclei in form of a horseshoe. In the center of some cell clusters there were non-structured light-pink areas with fragments of nuclei. What disease are these changes typical for?

- A. Tuberculosis
- B. Hodgkin's disease
- C. Actinomycosis
- D. Tumor metastasis
- E. Syphilis

43. A 35-year-old male patient has been referred by an andrologist for the genetic counselling for the deviations of physical and mental development. Objectively: the patient is tall, has asthenic constitution, gynecomastia, mental retardation. Microscopy of the oral mucosa cells revealed sex chromatin (single Barr body) in 30% of cells. What is the most likely diagnosis?

- A. Klinefelter syndrome
- B. DiGeorge syndrome
- C. Down syndrome
- D. Recklinghausen's disease
- E. Cushing pituitary basophilism

44. A patient with jaundice has high total bilirubin that is mainly indirect (unconjugated), high concentration of stercobilin in the stool and urine. The level of direct (conjugated) bilirubin in the blood plasma is normal. What kind of jaundice can you think of?

- A. Hemolytic
- B. Parenchymal (hepatic)
- C. Mechanical
- D. Neonatal jaundice
- E. Gilbert's disease

45. A male with a lesion of one of the CNS parts has asthenia, muscular dystonia, balance disorder. Which CNS part has been affected?

- A. Cerebellum
- B. Black substance
- C. Reticular formation
- D. Red nuclei
- E. Vestibular nuclei

46. A 50-year-old patient has been administered laevomycetin for the treatment of typhoid fever, but on the next day the patient's condition worsened, the temperature rose to $39,6^{\circ}\text{C}$. The deterioration of the patient's condition can be explained by:

- A. Effects of endotoxins of the causative agent
- B. Allergic reaction
- C. Insensitivity of the pathogen to laevomycetin
- D. Secondary infection
- E. Re-infection

47. A 12-year-old patient has been admitted to a hospital for hemarthrosis of the knee joint. From early childhood he suffers from frequent bleedings. Diagnose the boy's disease:

- A. Hemophilia
- B. Hemorrhagic vasculitis
- C. Hemolytic anemia
- D. B_{12} (folic acid)-deficiency anemia
- E. Thrombocytopenic purpura

48. Examination of a patient with ischemic heart disease revealed the impaired venous blood flow in the territory of the cardiac vein running in the anterior interventricular sulcus of heart. What vein is it?

- A. *V. cordis magna*
- B. *V. cordis media*
- C. *V. cordis parva*
- D. *V. posterior ventriculi sinistri*
- E. *V. obliqua atrii sinistri*

49. For the direct injection of medications into the liver surgeons use the round ligament of liver. This manipulation involves bougienage (lumen dilatation) of the following vessel:

- A. *V. umbilicalis*
- B. *A. umbilicalis*
- C. *Ductus venosus*
- D. *V. porta*
- E. *A. hepatica propria*

50. A patient with lobar pneumonia has had body temperature of 39°C with daily temperature fluctuation of no more than 1°C for 9 days. This fever can be characterized by the following temperature curve:

- A. Persistent
- B. Hectic
- C. Remittent
- D. Hyperpyretic
- E. Recurrent

51. The temperature in a production room is 36°C . Relative air humidity is 80%. Under these conditions the human body transfers heat mainly through:

- A. Sweat evaporation
- B. Heat conduction
- C. Radiation
- D. Convection
- E. -

52. A hospitalized patient bitten by a rabid animal has an avulsive wound of shin. What kind of vaccine must be given to prevent rabies?

- A. Anti-rabies vaccine
- B. DTaP
- C. Td
- D. BCG
- E. TABte

53. At autopsy the occipital lobe of brain was found to have a cavity $2,5 \times 1,5$ cm large filled with a transparent liquid. The cavity had smooth brownish walls. What process had developed in the brain?

- A. Cyst on the site of a hemorrhage
- B. Softening of the cerebrocortical grey matter
- C. Brain abscess
- D. Paracephalia
- E. A cyst on the site of the softening of the cerebrocortical grey matter

54. A child entering the school for the first time was given Mantoux test in order to determine if there was a need for revaccination. The reaction was negative. What is the meaning of this test result?

- A. No cell-mediated immunity to tuberculosis
- B. Availability of cell-mediated immunity to tuberculosis
- C. No antibodies to the tuberculosis bacteria
- D. No anti-toxic immunity to tuberculosis
- E. Presence of antibodies to the tuberculosis bacteria

55. Study of the biopsy material revealed a granuloma consisting of lymphocytes, plasma cells, macrophages with foamy cytoplasm (Mikulicz cells), many hyaline globules. What disease can you think of?

- A. Rhinoscleroma
- B. Leprosy
- C. Syphilis
- D. Tuberculosis
- E. Actinomycosis

56. Autopsy of a 78-year-old patient revealed that retroperitoneal tissue was soaked with blood, the abdominal aorta had a saciform protrusion including a defect with irregular edges. The wall of the aorta was here and there of stone-like density. This is the complication of the following disease:

- A. Atherosclerosis
- B. Essential hypertension
- C. Systemic vasculitis
- D. Visceral syphilis
- E. Marfan syndrome

57. Glycogen polysaccharide is synthesized from the active form of glucose. The immediate donor of glucose residues during the glycogenesis is:

- A. UDP-glucose
- B. Glucose-1-phosphate
- C. ADP-glucose
- D. Glucose-6-phosphate
- E. Glucose-3-phosphate

58. After the diagnostic tests a 40-year-old male has been referred for the lymphography of the thoracic cavity. The surgeon revealed that the tumor had affected an organ whose lymphatic vessels drain directly into the thoracic duct. Specify this organ:

- A. Esophagus
- B. Trachea
- C. Left main bronchus
- D. Heart
- E. Pericardium

59. A patient with biliary dyskinesia and constipations has been prescribed a cholagogue having also a laxative effect. What drug has been administered?

- A. Magnesium sulfate
- B. Allochol
- C. Cholosas
- D. Cholenzyme
- E. Nicodinum

60. It is known that individuals with genetically caused deficiency of glucose-6-phosphate dehydrogenase may develop RBC hemolysis in response to the administration of some antimalarial drugs. Mani-

festation of adverse reactions to drugs is called:

- A. Idiosyncrasy
- B. Allergy
- C. Sensibilization
- D. Tachyphylaxis
- E. Tolerance

61. A 40-year-old patient with the progressing staphylococcal purulent periodontitis developed purulent inflammation of bone marrow spaces of the alveolar process, and then of the body of mandible. Microscopy revealed thinning of bone trabeculae, foci of necrosis, bone sequesters surrounded by the connective tissue capsule. What is the most likely diagnosis?

- A. Chronic osteomyelitis
- B. Acute osteomyelitis
- C. Parodontome
- D. Chronic fibrous periostitis
- E. Purulent abscess

62. Curariform substances introduced into a human body cause the relaxation of all skeletal muscles. What changes in the neuromuscular synapse cause this phenomenon?

- A. Blockade of N-cholinergic receptors of the synaptic membrane
- B. Impaired acetylcholine release
- C. Blockade of Ca^{2+} channels of the presynaptic membrane
- D. Impaired cholinesterase synthesis
- E. Depolarization of the postsynaptic membrane

63. A number of diseases can be diagnosed by evaluating activity of blood transaminases. What vitamin is one of cofactors of these enzymes?

- A. B_6
- B. B_2
- C. B_1
- D. B_8
- E. B_5

64. After a car accident a 23-year-old male presented to the hospital with a cut wound of the anteromedial region of shoulder and arterial bleeding. Which artery was damaged?

- A. *A. brachialis*
- B. *A. radialis*
- C. *A. axillaris*
- D. *A. subscapularis*
- E. *A. profunda brachii*

65. During the operation on the small intestine the surgeon revealed an area of the mucous membrane with a single longitudinal fold among the circular folds. Which portion of the small intestine is this structure typical for?

- A. *Pars descendens duodeni*
- B. *Pars horizontalis duodeni*
- C. *Pars ascendens duodeni*
- D. *jejunum*
- E. *Distal ileum*

66. 14 days after quinsy a 15-year-old child presented with morning facial swelling, high blood pressure, "meat slops" urine. Immunohistological study of a renal biopsy sample revealed deposition of immune complexes on the basement membranes of the capillaries and in the glomerular mesangium. What disease developed in the patient?

- A. Acute glomerulonephritis
- B. Acute interstitial nephritis
- C. Lipoid nephrosis
- D. Acute pyelonephritis
- E. Necrotizing nephrosis

67. A diseased child has a high fever, sore throat, swelling of submandibular lymph nodes. Objectively: pharyngeal mucosa is edematous, moderately hyperemic, the tonsils are enlarged, covered with grayish membrane tightly adhering to the tissues above. Attempts to remove the membrane produce the bleeding defects. What disease are these presentations typical for?

- A. Diphtheria
- B. Catarrhal tonsillitis
- C. Scarlet fever
- D. Meningococcal disease
- E. Measles

68. Study of the biopsy material of an embryo revealed a zone of developmental abnormality in a somite. The zone was located close to the endoderm and the notochord. What formations may have abnormal development in case of pregnancy continuation?

- A. Skeletal tissues
- B. Genito-urinary system
- C. Skeletal striated muscle tissue
- D. Cardiac striated muscle tissue
- E. Fibrous connective tissue of skin

69. A smear of sputum from the patient with suspected lobar pneumonia was stained with the use of the following stains and reagents: solution of gentian violet, Lugol's solution, 96° alcohol, water magenta. What staining method was applied in this case?

- A. Gram
- B. Ziehl-Nielsen
- C. Romanovsky
- D. Neisser
- E. Leffler

70. A patient has normally coloured stool including a large amount of free fatty acids. The reason for this is a disturbance of the following process:

- A. Fat absorption
- B. Fat hydrolysis
- C. Biliary excretion
- D. Choleresis
- E. Lipase secretion

71. Examination of the removed stomach revealed a deep roundish defect with regular edges at the lesser curvature of the antrum. The defect reached the muscular tunic and was 1,5 cm in diameter. Within the defect floor there was a translucent dense area resembling of a hyaline cartilage. What process had developed in the floor of the stomach defect?

- A. Local hyalinosis
- B. Amyloidosis
- C. Muroid swelling
- D. Fibrinoid alterations
- E. General hyalinosis

72. By the decarboxylation of glutamate in the CNS an inhibitory mediator is formed. Name it:

- A. GABA
- B. Glutathione
- C. Histamine
- D. Serotonin
- E. Asparagine

73. Thermometry revealed that the temperature of the exposed skin is by 1-1,5° lower than the temperature of the adjacent areas covered with clothing from natural fabrics. The reason for this is that the clothes reduce the heat loss through:

- A. Convection
- B. Radiation
- C. Conduction
- D. Evaporation
- E. -

74. A specimen of pia mater includes a vessel whose wall doesn't have the tunica media, the tunica externa is adherent to the surrounding tissues, the intima is composed of a basement membrane and endothelium. What vessel is it?

- A. Nonmuscular vein
- B. Muscular vein with underdeveloped muscular elements
- C. Muscular artery
- D. Arteriole
- E. Artery of mixed type

75. A patient with extensive burns of torso skin exhibits signs of severe intoxication. What stage of the burn disease is this typical for?

- A. Burn toxemia
- B. Burn shock
- C. Burn infection
- D. Burn emaciation
- E. Terminal

76. As a result of a craniocerebral injury a patient has a decreased skin sensitivity. What area of the cerebral cortex may be damaged?

- A. Posterior central gyrus
- B. Occipital region
- C. Cingulate gyrus
- D. Frontal cortex
- E. Anterior central gyrus

77. A histological specimen of the eyeball shows a biconvex structure connected to the ciliary body by the fibers of the Zinn's zonule and covered with a transparent capsule. Name this structure:

- A. Crystalline lens
- B. Vitreous body
- C. Ciliary body
- D. Cornea
- E. Sclera

78. A comatose patient was taken to the hospital. He has a history of diabetes mellitus. Objectively: Kussmaul breathing, low blood pressure, acetone odor of breath. After the emergency treatment the patient's condition improved. What drug had been administered to the patient?

- A. Insulin
- B. Adrenaline
- C. Isadrinum
- D. Glibenclamide
- E. Furosemide

79. In order to stimulate breathing in a child born with asphyxia, the doctor gave him a drug injection into the umbilical vein. What drug might have been injected?

- A. Aethimizolum
- B. Corazolum
- C. Cordiaminum
- D. Sulfocamphocainum
- E. Coffeinum

80. A patient complains of pain in the right lateral abdomen. Palpation revealed a dense, immobile, tumor-like formation. A tumor is likely to be found in the following part of the digestive tube:

- A. *Colon ascendens*
- B. *Colon transversum*
- C. *Colon descendens*
- D. *Colon sigmoideum*
- E. *Caecum*

81. A patient underwent biopsy of the soft palate arches for a suspected tumor (macroscopy revealed an ulcer with a dense floor). Study of the biopsy material revealed mucosal necrosis with infiltration of lymphocytes, epithelioid cells, plasma cells, single neutrophils in the submucosa. There were also apparent signs of endovasculitis and perivasculitis. The described changes are typical for:

- A. Primary syphilis
- B. Aphthous stomatitis
- C. Ulcerative stomatitis
- D. Necrotizing ulcerative Vincent stomatitis
- E. Pharyngeal diphtheria

82. Healthy parents with unremarkable family history have the child with multiple developmental defects. Cytogenetic analysis revealed the trisomy 13 in the somatic cells (Patau syndrome). What phenomenon has caused the defects?

- A. Abnormal gametogenesis
- B. Somatic mutation
- C. Recessive mutation
- D. Dominant mutation
- E. Chromosomal mutation

83. A specimen shows an organ covered with the connective tissue capsule with

trabeculae radiating inward the organ. There is also cortex containing some lymph nodules, and medullary cords made of lymphoid cells. What organ is under study?

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

84. A 25-year-old patient consulted a doctor about dysmenorrhea and infertility. Examination revealed that the patient was 145 cm high and had underdeveloped secondary sex characteristics, alar folds on the neck. Cytological study didn't reveal any Barr bodies in the somatic cells. What diagnosis was made?

- A. Turner's syndrome
- B. Klinefelter syndrome
- C. Morris syndrome
- D. Trisomy X syndrome
- E. -

85. To prevent attacks of acute pancreatitis a doctor prescribed the patient trasylol (contrycal, gordox), which is an inhibitor of:

- A. Trypsin
- B. Elastase
- C. Carboxypeptidase
- D. Chymotrypsin
- E. Gastricsin

86. A patient died from progressive heart failure. Autopsy revealed that the heart was enlarged in diameter, flabby. The muscle section exhibited irregular blood supply. Histological study of myocardium revealed hyperemia, the stroma was found to have lymphohistiocytic infiltrates with degeneration of cardiomyocytes. The revealed morphological changes are indicative of:

- A. Non-purulent interstitial myocarditis
- B. Venous plethora
- C. Cardiomyoliposis
- D. Cardiosclerosis
- E. Myocardial infarction

87. A 13-year-old teenager underwent X-ray examination of the hip joint. Examination revealed a 3 mm wide radiolucent zone between the head and the shaft of femur. This situation should be evaluated as:

- A. Normal (incomplete process of ossification)
- B. Fracture of the femoral neck
- C. Fissured fracture of the femoral neck
- D. Dislocation of the femoral head
- E. Radiographic film artifact

88. A surgeon examined the patient and found the injury of the upper third of the kidney. Considering the syntopy of the left kidney, the intactness of the following organ should be checked at the same time:

- A. Stomach
- B. Liver
- C. Small intestine
- D. Transverse colon
- E. Descending colon

89. A patient with urolithiasis has unbearable spasmodic pain. To prevent pain shock, he has been given an injection of atropine along with a narcotic analgesic having antispasmodic effect. What drug was it?

- A. Promedol
- B. Nalorphine
- C. Tramadol
- D. Ethylmorphine hydrochloride
- E. Morphine hydrochloride

90. Despite the administration of cardiotonics and a thiazide diuretic a patient with chronic heart failure has persistent edemata, there is a risk of ascites. What medication should be administered in order to enhance the diuretic effect of the drugs used?

- A. Spironolactone
- B. Furosemide
- C. Amiloride
- D. Clopamide
- E. Manithol

91. A patient with a pathology of the cardiovascular system developed edemata of the lower extremities. What is the mechanism of cardiac edema development?

- A. Increased hydrostatic pressure at the venous end of the capillary
- B. Increased oncotic pressure
- C. Increased hydrostatic pressure at the arterial end of the capillary
- D. Reduced osmotic pressure
- E. Lymph efflux disorder

92. During the fight, a man had a cardiac arrest due to the strong blow to the upper region of the anterior abdominal

wall. Which of the following mechanisms has led to the cardiac arrest?

- A. Parasympathetic unconditioned reflexes
- B. Sympathetic unconditioned reflexes
- C. Parasympathetic conditioned reflexes
- D. Sympathetic conditioned reflexes
- E. Peripheral reflexes

93. A pregnant woman underwent ABO blood typing. Red blood cells were agglutinated with standard sera of the I and II blood groups, and were not agglutinated with the III group serum. What is the patient's blood group?

- A. B(III)
- B. 0(I)
- C. A(II)
- D. AB(IV)
- E. -

94. Amniocentesis revealed two sex chromatin bodies (Barr bodies) in each cell of the sample. What disease is this character typical for?

- A. Trisomy X
- B. Klinefelter syndrome
- C. Turner's syndrome
- D. Down's syndrome
- E. Patau syndrome

95. A hospital has admitted a patient complaining of abdominal bloating, diarrhea, flatulence after eating protein foods. These signs are indicative of the impaired digestion of proteins and their increased degradation. Which of the following compounds is the product of this process?

- A. Indole
- B. Bilirubin
- C. Cadaverine
- D. Agmatine
- E. Putrescine

96. An attack of tachycardia that occurred in a patient was stopped by pressing on his eyeballs. Which of the following reflexes underlies this phenomenon?

- A. Aschner
- B. Goltz
- C. Bainbridge
- D. Hering
- E. Bernard's

97. A male patient has been diagnosed with acute post-streptococcal glomerulonephritis. It is most likely that the lesion of the basement membrane

of renal corpuscles was caused by the following allergic reaction:

- A. Immune complex
- B. Anaphylactic
- C. Cytotoxic
- D. Delayed
- E. Stimulating

98. An unconscious patient was taken by ambulance to the hospital. On objective examination the patient was found to have no reflexes, periodical convulsions, irregular breathing. After laboratory examination the patient was diagnosed with hepatic coma. Disorders of the central nervous system develop due to the accumulation of the following metabolite:

- A. Ammonia
- B. Urea
- C. Glutamine
- D. Bilirubin
- E. Histamine

99. A 20-year-old male patient complains of general weakness, rapid fatigability, irritability, decreased performance, bleeding gums, petechiae on the skin. What vitamin deficiency may be a cause of these changes?

- A. Ascorbic acid
- B. Riboflavin
- C. Thiamine
- D. Retinol
- E. Folic acid

100. It is known that the monoamine oxidase (MAO) enzyme plays an important part in the metabolism of catecholamine neurotransmitters. In what way does the enzyme inactivate these neurotransmitters (norepinephrine, epinephrine, dopamine)?

- A. Oxidative deamination
- B. Addition of an amino group
- C. Removal of a methyl group
- D. Carboxylation
- E. Hydrolysis

101. The cellular composition of exudate largely depends on the etiological factor of inflammation. What leukocytes are the first to get into the focus of inflammation caused by pyogenic bacteria?

- A. Neutrophil granulocytes
- B. Monocytes
- C. Myelocytes
- D. Eosinophilic granulocytes
- E. Basophils

102. At the end of the working day a worker of a hot work shop has been delivered to a hospital. The patient complains of a headache, dizziness, nausea, general weakness. Objectively: the patient is conscious, his skin is hyperemic, dry, hot to the touch. Heart rate is of 130/min. Respiration is rapid, superficial. What disorder of thermoregulation is most likely to have occurred in this patient?

- A. Reduced heat transfer
- B. Increased heat transfer and reduced heat production
- C. Increased heat transfer and heat production
- D. Increased heat production with no changes to the heat transfer
- E. Reduced heat production with no changes to the heat transfer

103. Alveolar space of the acinus was invaded by some bacteria which interacted with the surfactant. This led to the activation of the cells that are localized in the alveolar walls and on the surface. What cells are these?

- A. Alveolar macrophages
- B. Alveolocytes type I
- C. Endothelial cells
- D. Clara cells
- E. Alveolocytes type II

104. A 35-year-old male developed acute heart failure while running for a long time. What changes in the ionic composition can be observed in the cardiac muscle?

- A. Accumulation of Na^+ and Ca^{2+} ions in the myocardium cells
- B. Accumulation of K^+ and Mg^{2+} ions in the myocardium cells
- C. Reduction of Na^+ and Ca^{2+} ions in the myocardium cells
- D. Reduction of K^+ and Mg^{2+} ions in the extracellular space
- E. Reduction of Na^+ and Ca^{2+} ions in the extracellular space

105. Workers of a conveyor workshop received recommendations for the effective organization of working time and higher working efficiency. What peculiarity of work in this workshop causes the greatest stress for the workers?

- A. Monotony of work
- B. State of "operating rest"
- C. Increased intellectual component
- D. Increased responsibility
- E. Social inefficiency of labor

106. Mother of a boy who had recently returned from a summer camp found some small whitish insects up to 3 mm long on the child's clothing. Specify the parasite:

- A. *Pediculus humanus humanus*
- B. *Phtirus pubis*
- C. *Pulex irritans*
- D. *Cimex lectularius*
- E. *Blattella germanica*

107. Histological examination of the removed skin neoplasm revealed clusters and cords of atypical cells of stratified squamous epithelium, growing into the underlying tissue. What diagnosis can be assumed?

- A. Non-keratinizing squamous cell carcinoma
- B. Keratinizing squamous cell carcinoma
- C. Carcinoma in situ
- D. Papilloma
- E. Adenoma

108. An 18-year-old male has been diagnosed with Marfan syndrome. Examination revealed a developmental disorder of connective tissue and eye lens structure, abnormalities of the cardiovascular system, arachnodactyilia. What genetic phenomenon has caused the development of this disease?

- A. Pleiotropy
- B. Complementarity
- C. Codominance
- D. Multiple allelism
- E. Incomplete dominance

109. A patient has severe catarrhal symptoms. Material growth on Bordet-Gengou agar showed mercury-drop-like colonies. Examination of the blood smears revealed some small ovoid gram-positive bacilli sized 1-3 microns. What microorganisms were isolated?

- A. *Bordetella*
- B. *Corynebacteria*
- C. *Mycobacteria*
- D. *Meningococcus*
- E. *Brucella*

110. A 66-year-old patient with Parki-

nson's disease shows an improvement in locomotor activity after prolonged use of a certain drug which is converted to dopamine by the decarboxylation. What drug has the patient taken?

- A. Levodopa
- B. Naloxone
- C. Celecoxib
- D. Droperidol
- E. Chlorpromazine

111. Enzymatic jaundices are accompanied by abnormal activity of UDP-glucuronyl transferase. What compound is accumulated in blood serum in case of these pathologies?

- A. Unconjugated bilirubin
- B. Conjugated bilirubin
- C. Dehydrobilirubin
- D. Hydrobilirubin
- E. Choleglobin

112. For the study of serum proteins various physical and physicochemical methods can be used. In particular, serum albumins and globulins can be separated by this method:

- A. Electrophoresis
- B. Polarography
- C. Dialysis
- D. Spectrography
- E. Refractometry

113. Negative environmental factors have caused the dysfunction of myosatellite cells. What function of the whole muscle fibre is likely to be changed in this case?

- A. Regeneration
- B. Contraction
- C. Trophism
- D. Contractile thermogenesis
- E. Relaxation

114. The laboratory for especially dangerous infections conducts microscopic examination of pathological material from a patient with suspected plague. The sample was stained by Burri-Gins technique. What property of the causative agent can be identified by this technique?

- A. Capsule formation
- B. Spore formation
- C. Acid resistance
- D. Alkali resistance
- E. Presence of volutin granules

115. Autopsy of a 62-year-old woman

revealed a dense well-circumscribed node of 6 cm in diameter in the cranial cavity. The node was attached to the dura mater and histologically consisted of clusters and micro-concentric structures of endothelial cells, psammoma bodies. What kind of tumor was found at autopsy?

- A. Meningioma
- B. Glioblastoma
- C. Medulloblastoma
- D. Melanoma
- E. Cancer metastasis

116. Inherited diseases, such as mucopolysaccharidoses, are manifested in metabolic disorders of connective tissue, bone and joint pathologies. The sign of this disease is the excessive urinary excretion of the following substance:

- A. Glycosaminoglycans
- B. Amino acids
- C. Glucose
- D. Lipids
- E. Urea

117. An animal has an increased tonus of extensor muscles. This is the result of enhanced information transmission to the motoneurons of the spinal cord through the following descending pathways:

- A. Vestibulospinal
- B. Medial corticospinal
- C. Reticulospinal
- D. Rubrospinal
- E. Lateral corticospinal

118. A specimen of a parenchymal organ shows poorly delineated hexagonal lobules surrounding a central vein, and the interlobular connective tissue contains embedded triads (an artery, a vein and an excretory duct). What organ is it?

- A. Liver
- B. Pancreas
- C. Thymus
- D. Spleen
- E. Thyroid

119. A patient has been admitted to the infectious diseases department for malaise, fever up to 38°C, jaundice. A few months ago, the patient underwent blood transfusion. The doctor suspected viral hepatitis B. What are the principal methods of laboratory diagnosis of hepatitis B?

- A. Serological and gene diagnostics
- B. Virus isolation in cell culture and its identification by the cytopathic effects
- C. Detection of virions in blood by electron microscopy
- D. Isolation of the virus in laboratory animals (neutralization reaction)
- E. Isolation of the virus in chicken embryos

120. After resection of the middle third of the femoral artery obliterated by a thrombus the limb is supplied with blood through the bypasses. What artery plays the main part in the restoration of the blood flow?

- A. Deep femoral artery
- B. Superficial iliac circumflex artery
- C. Descending genicular artery
- D. Superficial epigastric artery
- E. External pudendal artery

121. During the intravenous transfusion of the saline the patient's condition deteriorated dramatically, and the patient died from asphyxiation. Autopsy revealed acute venous congestion of internal organs with the dramatic right heart dilatation. When the right ventricle was punctured underwater, the bubbles escaped. What pathological process occurred in the patient?

- A. Air embolism
- B. Gaseous embolism
- C. Adipose embolism
- D. Tissue embolism
- E. Thromboembolism

122. At the post-mortem examination the stomach of a patient with renal failure was found to have a yellow-brown coating on the thickened mucosa. The coating was firmly adhering to its surface and had significant thickness. Microscopy revealed congestion and necrosis of mucosal and submucosal layers, fibrin presence. What is the most likely diagnosis?

- A. Fibrinous gastritis
- B. Croupous gastritis
- C. Gastric abscess
- D. Esogastritis
- E. Corrosive gastritis

123. Infectious diseases are treated with antibiotics (streptomycin, erythromycin, chloramphenicol). They inhibit the following stage of protein synthesis:

- A. Translation
- B. Transcription
- C. Replication
- D. Processing
- E. Splicing

124. Diseases of the respiratory system and circulatory disorders impair the transport of oxygen, thus leading to hypoxia. Under these conditions the energy metabolism is carried out by anaerobic glycolysis. As a result, the following substance is generated and accumulated in blood:

- A. Lactic acid
- B. Pyruvic acid
- C. Glutamic acid
- D. Citric acid
- E. Fumaric acid

125. A patient has been hospitalized for a suspected tumor of the prostate. During the surgery, it was revealed that the tumor invaded the bladder. Which part of the bladder was affected?

- A. Cervix
- B. Apex
- C. Bottom
- D. Body
- E. -

126. A casualty with an injury of the temporal region has been diagnosed with epidural hematoma. Which of the arteries is most likely to be damaged?

- A. Medial membranous artery
- B. Medial cerebral artery
- C. Superficial temporal artery
- D. Anterior membranous artery
- E. Posterior auricular artery

127. A 19-year-old male was found to have an elevated level of potassium in the secondary urine. These changes might have been caused by the increase in the following hormone level:

- A. Aldosterone
- B. Oxytocin
- C. Adrenaline
- D. Glucagon
- E. Testosterone

128. Analysis of the ECG revealed the missing of several PQRS cycles. The remaining waves and complexes are not changed. Specify the type of arrhythmia:

- A. Sinoatrial block
- B. Atrial fibrillation
- C. Atrioventricular block
- D. Atrial premature beat
- E. Intra-atrial block

129. ECG of a patient displays an abnormally long R wave (up to 0,18 s). This is caused by a decrease in the conduction velocity of the following heart structures:

- A. Ventricles
- B. Atria
- C. Atrio-ventricular node
- D. Right ventricle
- E. Left ventricle

130. 6 hours after the myocardial infarction a patient was found to have elevated level of lactate dehydrogenase in blood. What isoenzyme should be expected in this case?

- A. LDH_1
- B. LDH_2
- C. LDH_3
- D. LDH_4
- E. LDH_5

131. A 46-year-old female is scheduled for a maxillofacial surgery. It is known that the patient is prone to high blood coagulation. What natural anticoagulant can be used to prevent blood clotting?

- A. Heparin
- B. Hirudin
- C. Sodium citrate
- D. Fibrinolysin
- E. None of the above-listed substances

132. A 50-year-old patient with food poisoning is on a drip of 10% glucose solution. It not only provides the body with necessary energy, but also performs the function of detoxification by the production of a metabolite that participates in the following conjugation reaction:

- A. Glucuronidation
- B. Sulfation
- C. Methylation
- D. Glycosylation
- E. Hydroxylation

133. To assess the effectiveness of breathing in patients, the indicator of functional residual capacity is used. It includes the following volumes:

- A. Expiratory reserve volume and residual volume
- B. Inspiratory reserve volume and residual volume
- C. Inspiratory reserve volume, tidal volume, residual volume
- D. Expiratory reserve volume and tidal volume
- E. Inspiratory reserve volume and tidal volume

134. It is required to evaluate the level of tissue excitability. For this purpose one should determine:

- A. Depolarization threshold
- B. Resting potential
- C. Critical level of depolarization
- D. Action potential amplitude
- E. Action potential duration

135. Due to the use of poor-quality measles vaccine for preventive vaccination, a 1-year-old child developed an autoimmune renal injury. The urine was found to contain macromolecular proteins. What process of urine formation was disturbed?

- A. Filtration
- B. Reabsorption
- C. Secretion
- D. Reabsorption and secretion
- E. Secretion and filtration

136. A patient has been administered an anti-inflammatory drug that blocks the action of cyclooxygenase. Specify this anti-inflammatory agent:

- A. Aspirin
- B. Analgene
- C. Allopurinol
- D. Thiamin
- E. Creatine

137. A pneumonia patient has been administered acetylcysteine as a part of complex therapy. What principle of therapy was taken into consideration when applying this drug?

- A. Pathogenetic
- B. Symptomatic
- C. Etiotropic
- D. Antimicrobial
- E. Immunomodulatory

138. A 26-year-old female patient with bronchitis has been administered a broad spectrum antibiotic as a causal treatment drug. Specify this drug:

- A. Doxycycline
- B. Interferon
- C. BCG vaccine
- D. Ambroxol
- E. Dexamethasone

139. A 65-year-old male suddenly lost the vision in one eye due to the retinal detachment. The patient underwent enucleation. Histological examination of the removed eye retina and choroid revealed clusters of atypical cells with marked polymorphism of cells and nuclei, with a moderate number of mitoses including the pathological ones. The cell cytoplasm and intercellular medium contained brown pigment giving a positive DOPA reaction. Perls' reaction was negative. What is the most likely diagnosis?

- A. Melanoma
- B. Pigmented mole
- C. Hemorrhage
- D. Cysticercosis
- E. Wilson's disease

140. A child cut his leg with a piece of glass while playing and was brought to the clinic for the injection of tetanus toxoid. In order to prevent the development of anaphylactic shock the serum was administered by Bezredka method. What mechanism underlies this method of desensitization of the body?

- A. Binding of IgE fixed to the mast cells
- B. Blocking the mediator synthesis in the mast cells
- C. Stimulation of immune tolerance to the antigen
- D. Stimulation of the synthesis of antigen-specific IgG
- E. Binding of IgE receptors to the mast cells

141. Microscopy of the myocardium of a patient who had died from heart failure revealed foci of fibrinoid necrosis located diffusely in the interstitial stroma, and often around the vessels. Such foci were surrounded by lymphocytes, macrophages, histiocytes. Pericardium was found to have signs of sero-fibrinous pericarditis. What is the most likely diagnosis?

- A. Rheumatic heart disease
- B. Myocardial infarction
- C. Cardiomyopathy
- D. Cardiosclerosis
- E. -

142. One of the factors that cause obesity is the inhibition of fatty acids oxidation due to:

- A. Low level of carnitine
- B. Impaired phospholipid synthesis
- C. Excessive consumption of fatty foods
- D. Choline deficiency
- E. Lack of carbohydrates in the diet

143. The genetic defect of pyruvate carboxylase deficiency is the cause of delayed physical and mental development and early death in children. This defect is characterized by lacticemia, lactaciduria, disorder of a number of metabolic pathways. In particular, the following process is inhibited:

- A. Citric acid cycle and gluconeogenesis
- B. Glycolysis and glycogenolysis
- C. Glycogenesis and glycogenolysis
- D. Lipolysis and lipogenesis
- E. Pentose phosphate pathway and glycolysis

144. Deficiency of linoleic and linolenic acids in the body leads to the skin damage, hair loss, delayed wound healing, thrombocytopenia, low resistance to infections. These changes are most likely to be caused by the impaired synthesis of the following substances:

- A. Eicosanoids
- B. Interleukins
- C. Interferons
- D. Catecholamines
- E. Corticosteroids

145. During ventricular systole, the cardiac muscle does not respond to additional stimulation because it is in the phase of:

- A. Absolute refractoriness
- B. Relational refractoriness
- C. Hyperexcitability
- D. Subnormal excitability
- E. There is no correct answer

146. A mother had taken synthetic hormones during pregnancy. Her daughter was born with hirsutism formally resembling of adrenal syndrome. Such manifestation of variability is called:

- A. Phenocopy
- B. Mutation
- C. Recombination
- D. Heterosis
- E. Replication

147. Since a patient has had myocardial

infarction, atria and ventricles contract independently from each other with a frequency of 60-70 and 35-40 per minute. Specify the type of heart block in this case:

- A. Complete atrioventricular
- B. Partial atrioventricular
- C. Sino-atrial
- D. Intra-atrial
- E. Intraventricular

148. A 67-year-old male patient consumes eggs, pork fat, butter, milk and meat. Blood test results: cholesterol - 12,3 mmol/l, total lipids - 8,2 g/l, increased low-density lipoprotein fraction (LDL). What type of hyperlipoproteinemia is observed in the patient?

- A. Hyperlipoproteinemia type IIa
- B. Hyperlipoproteinemia type I
- C. Hyperlipoproteinemia type IIb
- D. Hyperlipoproteinemia type IV
- E. Cholesterol, hyperlipoproteinemia

149. A 12-year-old child has a viral infection complicated by obstructive bronchitis. Bronchospasm can be eliminated by inhalations of a drug from the following pharmacological group:

- A. β_2 -agonists
- B. M-anticholinergics
- C. N-cholinomimetics
- D. β_2 -adrenergic blockers
- E. Analeptics

150. In course of an experiment there has been an increase in the nerve conduction velocity. This may be caused by an increase in the concentration of the following ions that are present in the solution around the cell:

- A. Na^+
- B. K^+ and Cl^-
- C. K^+ and Na^+
- D. Ca^{2+} and Cl^-
- E. Ca^{2+}

151. A male working as a blacksmith has been tested for auditory acuity. The tests revealed 50% hearing loss in the low-frequency range and a near-normal auditory acuity in the high-frequency range. This condition has been caused by the damage to the following structures of the auditory system:

- A. Corti's organ - closer to helicotrema
- B. Corti's organ - closer to the oval foramen
- C. Median part of the Corti's organ
- D. Muscles of the middle ear
- E. Eardrum

152. In our country, routine preventive vaccinations against poliomyelitis involve using live vaccine that is administered orally. What immunoglobulins are responsible for the development of local post-vaccination immunity in this case?

- A. Secretory IgA
- B. IgM
- C. IgG
- D. Serum IgA
- E. IgE

153. An experiment proved that UV-irradiated skin cells of patients with xeroderma pigmentosum restore the native structure of DNA slower than the cells of healthy people due to the defect in repair enzyme. What enzyme takes part in this process?

- A. Endonuclease
- B. RNA ligase
- C. Primase
- D. DNA polymerase
- E. DNA gyrase

154. A patient who has recently come from an endemic area presents with elevated body temperature, headache, chills, malaise, that is with the symptoms which are typical for a common cold. What laboratory tests are necessary to confirm or to refute the diagnosis of malaria?

- A. Microscopy of blood smears
- B. Study of lymph node punctate
- C. Urinalysis
- D. Study of cerebrospinal fluid
- E. Microscopy of bone marrow punctate

155. What condition may develop 15-30 minutes after re-administration of the antigen as a result of the increased level of antibodies, mainly IgE, that are adsorbed on the surface of target cells, namely tissue basophils (mast cells) and blood basophils?

- A. Anaphylaxis
- B. Antibody-dependent cytotoxicity
- C. Delayed-type hypersensitivity
- D. Immune complex hyperresponsiveness
- E. Serum sickness

156. 10 days after having quinsy caused by beta-hemolytic streptococcus a 6-year-old child exhibited symptoms of glomerulonephritis. What mechanism of glomerular lesion is most likely in this case?

- A. Immunocomplex
- B. Cellular cytotoxicity
- C. Anaphylaxis
- D. Atopy
- E. Antibody-dependent cell-mediated cytotoxicity

157. A 22-year-old woman ate some seafood. 5 hours later the trunk and the distal parts of limbs got covered with small itchy papules which were partially fused together. After one day, the rash disappeared spontaneously. Specify the hypersensitivity mechanism underlying these changes:

- A. Atopy (local anaphylaxis)
- B. Systemic anaphylaxis
- C. Cellular cytotoxicity
- D. Immune complex hypersensitivity
- E. Antibody-dependent cell-mediated cytotoxicity

158. A hypertensive patient had been keeping to a salt-free diet and taking antihypertensive drugs together with hydrochlorothiazide for a long time. This resulted in electrolyte imbalance. What disorder of the internal environment occurred in the patient?

- A. Hypochloremic alkalosis
- B. Metabolic acidosis
- C. Hyperkalemia
- D. Hypermagnesemia
- E. Increase in circulating blood volume

159. A miner consulted a physician about the appearance of body rash followed by a loss of appetite, bloating, duodenal pain, frequent bowel movements, dizziness. Ovosopic probes of feces and duodenal contents revealed some eggs covered with a transparent membrane through which 4-8 germinal cells could be seen. What disease is likely to have occurred in the patient?

- A. Ancylostomiasis
- B. Strongyloidiasis
- C. Trichocephaliasis
- D. Hymenolepiasis
- E. Enterobiasis

160. Children with Lesch-Nyhan syndrome have a severe form of hyperuri-

cemia accompanied by the formation of tophi, urate calculi in the urinary tracts, as well as serious neuro-psychiatric disorders. The cause of this disease is the reduced activity of the following enzyme:

- A. Hypoxanthine-guanine phosphoribosyltransferase
- B. Xanthine oxidase
- C. Dihydrofolate reductase
- D. Thymidylate synthase
- E. Carbamoyl phosphate synthetase

161. In a car accident a man got injured and lost a lot of blood. What changes in peripheral blood are most likely to occur on the 2nd day after the injury?

- A. Erythropenia
- B. Hypochromia
- C. Anisocytosis
- D. Microplania
- E. Significant reticulocytosis

162. In the surgical ward, the dressing material was undergoing sterilization in an autoclave. Through an oversight of a nurse the mode of sterilization was changed and the temperature in the autoclave reached only 100°C instead of the due 120°C. What microorganisms can stay viable under these conditions?

- A. Bacilli and clostridia
- B. Staphylococci and streptococci
- C. Mold and yeast fungi
- D. Salmonella and klebsiella
- E. Corynebacteria and mycobacteria

163. As a result of a mechanical injury an over 10 cm long portion of a peripheral nerve was damaged. This led to the impairment of the upper limb activity. The patient was offered nerve transplantation. What glial cells will participate in regeneration and provide the trophism of the injured limb?

- A. Schwann cells
- B. Fibrous cells
- C. Protoplasmic cells
- D. Microglia
- E. Ependymal cells

164. A 26-year-old woman at 40 weeks pregnant has been delivered to the maternity ward. Objectively: the uterine cervix is opened, but the contractions are absent. The doctor has administered her a hormonal drug to stimulate the labor. Name this drug:

- A. Oxytocin
- B. Hydrocortisone
- C. Estrone
- D. Testosterone
- E. ACTH

165. A patient has recurrent attacks of epileptic seizures and stays unconscious between them. In order to stop convulsions the drugs of the following group should be used in the first place:

- A. Tranquilizers
- B. Neuroleptics
- C. Muscle relaxants
- D. Sedatives
- E. Analeptics

166. A patient with arthritis and varicose veins has been taking a non-steroidal anti-inflammatory drug for a long time, which caused thrombosis of skin veins. Which of the following drugs might have caused this complication?

- A. Celecoxib
- B. Indomethacin
- C. Aspirin
- D. Phenylbutazone
- E. Ibuprofen

167. Students study the stages of gametogenesis. They analyze a cell having a haploid number of chromosomes, and each chromosome consists of two chromatids. The chromosomes are located in the equatorial plane of the cell. Such situation is typical for the following stage of meiosis:

- A. Metaphase of the second division
- B. Metaphase of the first division
- C. Anaphase of the first division
- D. Anaphase of the second division
- E. Prophase of the first division

168. A 35-year-old female patient underwent biopsy of the breast nodules. Histological examination revealed enhanced proliferation of the small duct epithelial cells and acini, accompanied by the formation of glandular structures of various shapes and sizes, which were located in the fibrous stroma. What is the most likely diagnosis?

- A. Fibroadenoma
- B. Adenocarcinoma
- C. Cystic breast
- D. Invasive ductal carcinoma
- E. Mastitis

169. Examination of the duodenal

contents revealed some pear-shaped protozoa with two nuclei and four pairs of flagella. The organisms had also two axostyles between the nuclei and a ventral adhesive disc. What protozoan representative was found in the patient?

- A. *Lamblia*
- B. *Toxoplasma*
- C. *Leishmania*
- D. Intestinal trichomonad
- E. Trypanosome

170. A specimen of an onion rootlet includes a cell in which the fully condensed chromosomes are located in the equatorial plane making the monaster. What phase of the mitotic cycle is the cell in?

- A. Metaphase
- B. Early telophase
- C. Prophase
- D. Interphase
- E. Late telophase

171. When examining a patient, the doctor revealed a tumor of the bronchus which borders on the aorta. Which bronchus is affected?

- A. Left principal
- B. Right principal
- C. Right upper lobar
- D. Left upper lobar
- E. Middle lobar

172. A 54-year-old female was brought to the casualty department after a car accident. A traumatologist diagnosed her with multiple fractures of the lower extremities. What kind of embolism is most likely to develop in this case?

- A. Adipose
- B. Tissue
- C. Thromboembolism
- D. Gaseous
- E. Air

173. Microscopy of the bronchial wall revealed atrophy of the mucosa, metaplastic change from columnar to squamous epithelium, an increase in the number of goblet cells, diffuse infiltration of the bronchial wall with lymphoplasmacytic elements with a large number of neutrophilic granulocytes, pronounced sclerosis. Specify the morphological form of bronchitis:

- A. Chronic purulent bronchitis
- B. Acute bronchitis
- C. Polypoid chronic bronchitis
- D. Acute purulent bronchitis
- E. Chronic bronchitis

174. Due to the blockage of the common bile duct (which was radiographically confirmed), the biliary flow to the duodenum was stopped. We should expect the impairment of:

- A. Fat emulsification
- B. Protein absorption
- C. Carbohydrate hydrolysis
- D. Secretion of hydrochloric acid
- E. Salivation inhibition

175. Typical manifestations of food poisoning caused by *C. botulinum* are double vision, abnormal functioning of the swallowing and breathing. These symptoms develop as a result of:

- A. Exotoxin effects
- B. Enterotoxin effects
- C. Enterotoxic shock development
- D. Activation of adenylate cyclase
- E. Pathogen adhesion to the enterocyte receptors

176. At the stage of translation in the rough endoplasmic reticulum, the ribosome moves along the mRNA. Amino acids are joined together by peptide bonds in a specific sequence, and thus polypeptide synthesis takes place. The sequence of amino acids in a polypeptide corresponds to the sequence of:

- A. mRNA codons
- B. tRNA nucleotides
- C. tRNA anticodons
- D. rRNA nucleotides
- E. rRNA anticodons

177. After the prolonged vomiting a pregnant 26-year-old woman was found to have the reduced volume of circulating blood. What change in the total blood volume can be the case?

- A. Polycythemic hypovolemia
- B. Simple hypovolemia
- C. Oligocythemic hypovolemia
- D. Polycythemic hypervolemia
- E. Oligocythemic hypervolemia

178. On allergological examination a patient has been diagnosed with pollinosis. Specific desensitization can be performed by:

- A. Intermittent administration of allergen
- B. Antihistamines
- C. Glucocorticoids
- D. Administration of saline
- E. -

179. A patient consulted a physician about chest pain, cough, fever. Roentgenography of lungs revealed eosinophilic infiltrates which were found to contain the larvae. What kind of helminthiasis are these presentations typical for?

- A. Ascariasis
- B. Echinococcosis
- C. Fascioliasis
- D. Cysticercosis
- E. Trichinosis

180. A patient with signs of osteoporosis and urolithiasis has been admitted to the endocrinology department. Blood test revealed hypercalcemia and hypophosphatemia. These changes are associated with abnormal synthesis of the following hormone:

- A. Parathyroid hormone
- B. Calcitonin
- C. Cortisol
- D. Aldosterone
- E. Calcitriol

181. Histological examination of the biopsy material obtained from the lower third of the esophagus of a 57-year-old male with the symptoms of continuous reflux revealed the change of the stratified squamous epithelium to the single-layer columnar glandular epithelium with signs of mucus production. Specify the pathological process in the mucous membrane:

- A. Metaplasia
- B. Hyperplasia
- C. Hypertrophy
- D. Organization
- E. Regeneration

182. A 30-year-old female exhibits signs of virilism (growth of body hair, balding temples, menstrual disorders). This condition can be caused by the overproduction of the following hormone:

- A. Testosterone
- B. Oestriol
- C. Relaxin
- D. Oxytocin
- E. Prolactin

183. A patient with bacterial periodontitis has been administered iontophoresis with the use of iodine solution. Specify the mechanism of therapeutic action of this agent:

- A.** Substitution of hydrogen atoms when the protein amino group contains a nitrogen atom
- B.** Reduction of the nitro group under the effect of nitroreductase
- C.** Albumin formation
- D.** Changing the surface tension of the bacterial cell membrane
- E.** Inhibition of the cell wall formation

184. A patient with extensive myocardial infarction has developed heart failure. What pathogenetic mechanism contributed to the development of heart failure in the patient?

- A.** Reduction in the mass of functioning myocytes
- B.** Pressure overload
- C.** Volume overload
- D.** Acute cardiac tamponade
- E.** Myocardial reperfusion injury

185. A patient who had been continuously taking drugs blocking the production of angiotensin II developed bradycardia and arrhythmia. A likely cause of these disorders is:

- A.** Hyperkalemia
- B.** Hypokalemia
- C.** Hyponatremia
- D.** Hypocalcemia
- E.** Hypercalcemia

186. A patient has arterial hypertension. What long-acting drug from the group of calcium channel blockers should be prescribed?

- A.** Amlodipine
- B.** Octadine
- C.** Pyrroxanum
- D.** Atenolol
- E.** Reserpine

187. Human skin has a high breaking strength. It is known that the skin consists of epithelial tissue and two kinds of connective tissue. Which of the following tissues provides the skin strength?

- A.** Unformed dense connective tissue
- B.** Stratified squamous epithelium
- C.** Loose connective tissue
- D.** Single-layer epithelium
- E.** Transitional epithelium

188. As a result of a home injury, a patient suffered a significant blood loss, which led to a fall in blood pressure. Rapid blood pressure recovery after the blood loss is provided by the following hormones:

- A.** Adrenaline, vasopressin
- B.** Cortisol
- C.** Sex hormones
- D.** Oxytocin
- E.** Aldosterone

189. A patient with constant headaches, pain in the occipital region, tinnitus, dizziness has been admitted to the cardiology department. Objectively: AP- 180/110 mm Hg, heart rate - 95/min. Radiographically, there is a stenosis of one of the renal arteries. Hypertensive condition in this patient has been caused by the activation of the following system:

- A.** Renin-angiotensin
- B.** Hemostatic
- C.** Sympathoadrenal
- D.** Kinin
- E.** Immune

190. A patient complains that at the bare mention of the tragic events that once occurred in his life he experiences tachycardia, dyspnea and an abrupt rise in blood pressure. What structures of the CNS are responsible for these cardiorespiratory reactions in this patient?

- A.** Cerebral cortex
- B.** Cerebellum
- C.** Lateral hypothalamic nuclei
- D.** Specific thalamic nuclei
- E.** Quadrigemina of mesencephalon

191. A patient consulted a dentist about limited mouth opening (trismus). He has a history of a stab wound of the lower extremity. What infection may cause these symptoms?

- A.** Tetanus
- B.** Brucellosis
- C.** Whooping cough
- D.** Wound anaerobic infection
- E.** Tularemia

192. Anatomical dead space is the portion of the air that is left in the airways after expiration. The reduction of the anatomical dead space is typical for the following situation:

- A. Tracheostomy
- B. Forward flexion of head
- C. Turning the lying patient on his left side
- D. Turning the lying patient on his right side
- E. Breathing through the mouth

193. Analysis of the experimental spirogram of a 55-year-old person revealed a decrease in tidal volume and respiratory amplitude compared to the situation of ten years ago. The change in these indicators is caused by:

- A. Decreased force of respiratory muscle contraction
- B. Gas composition of the air
- C. Physical build of a person
- D. Height of a person
- E. Body mass of a person

194. A patient underwent a course of treatment for atherosclerosis. Laboratory tests revealed an increase in the anti-atherogenic lipoprotein fraction in the blood plasma. The treatment efficacy is confirmed by the increase in:

- A. HDL
- B. VLDL
- C. IDL
- D. LDL
- E. Chylomicrons

195. A 65-year-old female patient has chronic constipations due to the colon hypotonia. What drug should be chosen in this case?

- A. Bisacodyl
- B. Castor oil
- C. Magnesium sulfate
- D. Neostigmine methylsulfate
- E. Metoclopramide

196. A female patient complains of vision impairment. On examination she was found to have obesity, fasting hyperglycemia. What complication of diabetes can cause vision impairment?

- A. Microangiopathy
- B. Macroangiopathy
- C. Atherosclerosis
- D. Neuropathy
- E. Glomerulopathy

197. Analysis of the family history of children with Van der Woude syndrome revealed that in their families one of the parents had the typical for this syndrome defects (cleft lip and palate, lip pits regardless of gender). What is the type of inheritance of this syndrome?

- A. Autosomal dominant
- B. X-linked recessive
- C. X-linked dominant
- D. Autosomal recessive
- E. Multifactorial

198. Administration of doxycycline hydrochloride caused an imbalance of the symbiotic intestinal microflora. Specify the kind of imbalance caused by the antibiotic therapy:

- A. Dysbacteriosis
- B. Sensibilization
- C. Idiosyncrasy
- D. Superimposed infection
- E. Bacteriosis

199. A 3-year-old child had eaten some strawberries. Soon he developed a rash and itching. What was found in the child's leukogram?

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

200. A 12-year-old patient was found to have blood serum cholesterol at the rate of 25 mmol/l. The boy has a history of hereditary familial hypercholesterolemia, which is caused by the impaired synthesis of the following protein receptors:

- A. Low density lipoproteins
- B. High density lipoproteins
- C. Chylomicrons
- D. Very low density lipoproteins
- E. Intermediate density lipoproteins