

1. The infectious diseases department of a hospital admitted a patient with nausea, liquid stool with mucus and blood streaks, fever, weakness. Dysentery was suspected. What method of laboratory diagnostics should be applied to confirm the diagnosis?

- A. Bacteriological
- B. Serological
- C. Mycological
- D. Microscopic
- E. Protozoological

2. Malaria is treated with structural analogs of vitamin B_2 (riboflavin). These drugs disrupt the synthesis of the following enzymes in plasmodium:

- A. FAD-dependent dehydrogenase
- B. Cytochrome oxidase
- C. Peptidase
- D. NAD-dependent dehydrogenase
- E. Aminotransferase

3. A 6-year-old child with suspected active tuberculous process underwent the diagnostic Mantoux test. What immunobiological preparation was injected?

- A. Tuberculin
- B. BCG vaccine
- C. DTP vaccine
- D. Tularinum
- E. Td vaccine

4. In a young man during exercise, the minute oxygen uptake and carbon dioxide emission equalled to 1000 ml. What substrates are oxidized in the cells of his body?

- A. Carbohydrates
- B. Proteins
- C. Fats
- D. Carbohydrates and fats
- E. Carbohydrates and proteins

5. A sportsman spontaneously held breath for 40 seconds, which resulted in an increase in heart rate and systemic arterial pressure. Changes of these indicators are due to activation of the following regulatory mechanisms:

- A. Unconditioned sympathetic reflexes
- B. Unconditioned parasympathetic reflexes
- C. Conditioned sympathetic reflexes
- D. Conditioned parasympathetic reflexes
- E. -

6. A 53-year-old male patient is diagnosed with Paget's disease. The concentration of oxyproline in daily urine is sharply increased, which primarily means intensified disintegration of:

- A. Collagen
- B. Keratin
- C. Albumin
- D. Hemoglobin
- E. Fibrinogen

7. A patient has hoarseness of voice. During laryngoscopy a gray-white larynx tumor with papillary surface has been detected. Microscopic investigation has shown the following: growth of connective tissue covered with multilayer, strongly keratinized pavement epithelium, no cellular atypia. What is the most likely diagnosis?

- A. Papilloma
- B. Fibroma
- C. Polyp
- D. Angioma
- E. Angiofibroma

8. During autopsy approximately 2,0 liters of pus have been found in the abdominal cavity of the corpse. Peritoneum is lustreless and has grayish shade, serous tunic of intestines has grayish-colored coating that is easily removable. Specify the most likely type of peritonitis in the patient:

- A. Fibrinopurulent peritonitis
- B. Hemorrhagic peritonitis
- C. Serous peritonitis
- D. Tuberculous peritonitis
- E. -

9. Autopsy of a dead 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

10. Autopsy of the dead patient who died from pulmonary edema revealed a large yellow-grey nidus in the myocardium, and a fresh thrombus in the coronary artery. What is the most likely diagnosis?

- A. Myocardial infarction
- B. Cardiosclerosis
- C. Myocarditis
- D. Amyloidosis
- E. Cardiomyopathy

11. An animal experiment is aimed at studying the cardiac cycle. All the heart valves are closed. What phase of the cycle is characterized by this status?

- A. Isometric contraction
- B. Asynchronous contraction
- C. Protodiastolic period
- D. Rapid filling
- E. Reduced filling

12. Cyanide is a poison that causes instant death of the organism. What enzymes found in mitochondria are affected by cyanide?

- A. Cytochrome oxidase (aa3)
- B. Flavin enzymes
- C. Cytochrome B₅
- D. NAD⁺-dependent dehydrogenase
- E. Cytochrome P-450

13. Increased HDL levels decrease the risk of atherosclerosis. What is the mechanism of HDL anti-atherogenic action?

- A. They remove cholesterol from tissues
- B. They supply tissues with cholesterol
- C. They are involved in the breakdown of cholesterol
- D. They activate the conversion of cholesterol to bile acids
- E. They promote absorption of cholesterol in the intestine

14. It has been found out that one

of a pesticide components is sodium arsenate that blocks lipoic acid. Which enzyme activity is impaired by this pesticide?

- A. Pyruvate dehydrogenase complex
- B. Microsomal oxidation
- C. Methemoglobin reductase
- D. Glutathione peroxidase
- E. Glutathione reductase

15. Stool culture test revealed in a 6-month-old bottle-fed baby the strain of intestinal rod-shaped bacteria of antigen structure 0-111. What diagnosis can be made?

- A. Colienteritis
- B. Gastroenteritis
- C. Choleraform disease
- D. Food poisoning
- E. Dysentery-like disease

16. A boy referred to a genetics clinic was found to have 1 drumstick in blood neutrophils. The boy is likely to have the following syndrome:

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

17. A drycleaner's worker has been found to have hepatic steatosis. This pathology can be caused by the disruption of synthesis of the following substance:

- A. Phosphatidylcholine
- B. Tristearin
- C. Urea
- D. Phosphatidic acid
- E. Cholic acid

18. Ascarid eggs have been detected during stool analysis. What drug should be prescribed?

- A. Mebendazole
- B. Nystatin
- C. Chloramphenicol
- D. Tetracycline
- E. Furazolidone

19. Bacteriological examination of the urine of the patient with pyelonephritis revealed microorganisms that

produced yellow-green pigment and a characteristic odor in meat-peptone agar. What are they called?

- A. *Pseudomonas*
- B. *Escherichia*
- C. *Proteas*
- D. *Klebsiella*
- E. *Azotobacter*

20. Feces of a patient contain high amount of undissociated fats and have grayish-white color. Specify the cause of this phenomenon:

- A. Obturation of bile duct
- B. Hypoactivation of pepsin by hydrochloric acid
- C. Hypovitaminosis
- D. Enteritis
- E. Irritation of intestinal epithelium

21. A 46-year-old female patient consulted a doctor about pain in the small joints of the upper and lower limbs. The joints are enlarged and shaped like thickened nodes. Serum test revealed an increase in urate concentration. This might be caused by a disorder in metabolism of:

- A. Purines
- B. Carbohydrates
- C. Lipids
- D. Pyrimidines
- E. Amino acids

22. A 26-year-old female consulted a doctor about having stool with white flat moving organisms resembling noodles. Laboratory analysis revealed proglottids with the following characteristics: long, narrow, with a longitudinal channel of the uterus with 17-35 lateral branches on each side. What kind of intestinal parasite was found?

- A. *Taeniarhynchus saginatus*
- B. *Taenia solium*
- C. *Hymenolepis nana*
- D. *Diphyllobothrium latum*
- E. *Echinococcus granulosus*

23. 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 havi-

ng 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

24. A biochemical urine analysis has been performed for a patient with progressive muscular dystrophy. In the given case muscle disease can be confirmed by the high content of the following substance in urine:

- A. Creatine
- B. Porphyrin
- C. Urea
- D. Hippuric acid
- E. Creatinine

25. While examining foot blood supply a doctor checks the pulsation of a large artery running in the separate fibrous channel in front of articulation talocruralis between the tendons of long extensor muscles of hallux and toes. What artery is it?

- A. *A. dorsalis pedis*
- B. *A. tibialis anterior*
- C. *A. tarsea medialis*
- D. *A. tarsea lateralis*
- E. *A. fibularis*

26. A patient with chronic heart failure with edema has increased level of blood aldosterone. What diuretic would be most effective in this case?

- A. Spironolactone
- B. Triamterene
- C. Acetazolamide
- D. Hydrochlorothiazide
- E. Furosemide

27. During autopsy the following has been revealed: the meninges of the upper cerebral hemispheres are extremely plethoric, of yellow-green color and are soaked with purulent effluent. What kind of meningitis is characterised by such clinical presentations?

- A. Meningococcal meningitis
- B. Tuberculous meningitis
- C. Grippal meningitis
- D. Anthrax-induced
- E. Epidemic typhus-induced

28. A 41-year-old male patient has a history of recurrent attacks of heartbeats (paroxysms), profuse sweating, headaches. Examination revealed hypertension, hyperglycemia, increased basal metabolic rate, and tachycardia. These clinical presentations are typical for the following adrenal pathology:

- A. Hyperfunction of the medulla
- B. Hypofunction of the medulla
- C. Hyperfunction of the adrenal cortex
- D. Hypofunction of the adrenal cortex
- E. Primary aldosteronism

29. A comminuted fracture of infraglenoid tubercle caused by shoulder joint injury has been detected during X-ray examination of a patient. What muscle tendon attached at this site has been damaged?

- A. Long head of *m. triceps brachii*
- B. Long head of *m. biceps brachii*
- C. Medial head of *m. triceps brachii*
- D. Lateral head of *m. triceps brachii*
- E. Short head of *m. biceps brachii*

30. A patient has increased thickness of alveolar-capillary membrane caused by a pathologic process. The direct consequence will be reduction of the following value:

- A. Diffusing lung capacity
- B. Oxygen capacity of blood
- C. Respiratory minute volume
- D. Alveolar ventilation of lungs
- E. Expiratory reserve volume

31. What drug will be most appropriate for the patient who has chronic gastritis with increased secretion?

- A. Pirenzepine
- B. Pancreatine
- C. Pepsin
- D. Aprotinin
- E. Chlorphentermine

32. As a result of careless handling of an iron, a 34-year-old female patient

has got acute pain, redness, swelling of her right index finger. A few minutes later, there appeared a blister filled with a transparent liquid of straw-yellow color. The described changes are a manifestation of the following pathological process:

- A. Exudative inflammation
- B. Traumatic edema
- C. Alternative inflammation
- D. Proliferative inflammation
- E. Vacuolar degeneration

33. A 42-year-old male with a lesion of the ulnar nerve is unable to flex the II and V fingers to the midline. Which muscle function is impaired in this case?

- A. Palmar interosseous muscles
- B. Dorsal interosseous muscle
- C. Fidicinales
- D. Short palmar muscle
- E. Abductor muscle of little finger

34. A smear from the tonsillar coating of a patient with suspected diphtheria was found to contain blue bacilli with a thickening at the poles. What method of smear staining was used?

- A. Leffler
- B. Burri
- C. Hins
- D. Gram
- E. Neisser

35. A child was born asphyxiated. What drug must be administered to the newborn to stimulate breathing?

- A. Aethimizolum
- B. Lobeline
- C. Prazosin
- D. Atropine
- E. Proserine

36. 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 sequestrs 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

37. Human red blood cells do not contain mitochondria. What is the main pathway for ATP production in these cells?

- A.** Anaerobic glycolysis
- B.** Aerobic glycolysis
- C.** Oxidative phosphorylation
- D.** Creatine kinase reaction
- E.** Cyclase reaction

38. A 40-year-old female patient has undergone thyroidectomy. Histological study of thyroid gland found the follicles to be of different size and contain foamy colloid, follicle epithelium is high and forms papillae, there is focal lymphocytic infiltration in stroma. Diagnose the thyroid gland disease:

- A.** Basedow's disease
- B.** Hashimoto's thyroiditis
- C.** Riedel's thyroiditis
- D.** De Quervain's disease
- E.** Nodular goiter

39. A 43-year-old-patient has arterial hypertension caused by an increase in cardiac output and general peripheral resistance. Specify the variant of hemodynamic development of arterial hypertension in the given case:

- A.** Eukinetic
- B.** Hyperkinetic
- C.** Hypokinetic
- D.** Combined
- E.** -

40. A patient has been hospitalised with provisional diagnosis of virus B hepatitis. Serological reaction based on complementation of antigen with antibody chemically bound to peroxidase or alkaline phosphatase has been used for disease diagnostics. What is the name of the applied serological reaction?

- A.** Immune-enzyme analysis
- B.** Radioimmunoassay technique
- C.** Immunofluorescence test
- D.** Bordet-Gengou test
- E.** Antigen-binding assay

41. A patient has been hospitalised with provisional diagnosis of botulism. What serological reaction should be used to reveal botulinum toxin?

- A.** Neutralization reaction
- B.** Agglutination reaction
- C.** Bordet-Gengou test
- D.** Precipitation reaction
- E.** Immunofluorescence test

42. Examination of a 52-year-old female patient has revealed a decrease in the amount of red blood cells and an increase in free hemoglobin in the blood plasma (hemoglobinemia). Color index is 0,85. What type of anemia is being observed in the patient?

- A.** Acquired hemolytic
- B.** Hereditary hemolytic
- C.** Acute hemorrhagic
- D.** Chronic hemorrhagic
- E.** Anemia due to diminished erythropoiesis

43. The processes of heat transfer in a naked person at room temperature have been studied. It was revealed that under these conditions the greatest amount of heat is transferred by:

- A.** Heat radiation
- B.** Heat conduction
- C.** Convection
- D.** Evaporation
- E.** -

44. Urine analysis has shown high levels of protein and erythrocytes in urine. This can be caused by the following:

- A.** Renal filter permeability
- B.** Effective filter pressure
- C.** Hydrostatic blood pressure in glomerular capillaries
- D.** Hydrostatic primary urine pressure in capsule
- E.** Oncotic pressure of blood plasma

45. The development of both immune

and allergic reactions is based upon the same mechanisms of the immune system response to an antigen. What is the main difference between the immune and allergic reactions?

- A. Development of tissue lesion
- B. Amount of released antigen
- C. Antigen structure
- D. Routes by which antigens are delivered into the body
- E. Hereditary predisposition

46. After a craniocerebral injury a patient is unable to recognize objects by touch. What part of brain has been damaged?

- A. Postcentral gyrus
- B. Occipital lobe
- C. Temporal lobe
- D. Precentral gyrus
- E. Cerebellum

47. A patient complaining of rapid pulse, dyspnea and bluish color of mucosa has been admitted to the cardiological department. The objective symptoms are as follows: edema of lower extremities, ascites. Which of the given medicines should be prescribed for intravenous administration to improve the patient's general state?

- A. Corglyconum
- B. Cordiamin
- C. Adrenalin hydrochloride
- D. Digitoxin
- E. Drotaverine

48. As a result of a continuous chronic encephalopathy, a patient has developed spontaneous motions and a disorder of torso muscle tone. These are the symptoms of the disorder of the following conduction tract:

- A. *Tractus rubrospinalis*
- B. *Tractus corticospinalis*
- C. *Tractus corticonuclearis*
- D. *Tractus spinothalamicus*
- E. *Tractus tectospinalis*

49. A 10-year-old child has painful swallowing, neck edema, temperature rise up to $39,0^{\circ}\text{C}$, the whole body is covered with bright-red petechial rash. Back of the throat and tonsils are hyperemic, the tongue is crimson-

colored. Tonsillar surface is covered with isolated grayish-colored necrosis foci. What disease is it?

- A. Scarlet fever
- B. Meningococcal nasopharyngitis
- C. Diphtheria
- D. Influenza
- E. Measles

50. In a patient elevation of body temperature takes turns with drops down to normal levels during the day. The rise in temperature is observed periodically once in four days. Specify the type of temperature curve:

- A. Febris intermittens
- B. Febris continua
- C. Febris recurrens
- D. Febris hectica
- E. Febris remitens

51. As a result of a craniocerebral injury, a patient has a decreased skin sensitivity. What area of the cerebral cortex is likely to be damaged?

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

52. Diabetic nephropathy with uremia has developed in a patient with pancreatic diabetes. The velocity of glomerular filtration is 9 ml/min. What mechanism of a decrease in glomerular filtration velocity and chronic renal failure development is most likely in the case of this patient?

- A. Reduction of active nephron mass
- B. Decrease in systemic arterial pressure
- C. Obstruction of nephron tubules with hyaline casts
- D. Tissue acidosis
- E. Arteriolar spasm

53. A 40-year-old patient has ulcer perforation in the posterior wall of stomach. What anatomical structure will blood and stomach content leak to?

- A. Bursa omentalis
- B. Bursa praegastrica
- C. Right lateral channel (canalis lateralis dexter)
- D. Left lateral channel (canalis lateralis sinister)
- E. Bursa hepatica

54. A patient is diagnosed with hereditary coagulopathy that is characterised by factor VIII deficiency. Specify the phase of blood clotting during which coagulation will be disrupted in the given case:

- A. Thromboplastin formation
- B. Thrombin formation
- C. Fibrin formation
- D. Clot retraction
- E. -

55. Angiocardiology of a 60-year-old male patient revealed constriction of a vessel located in the left coronary sulcus of the heart. What is the pathological vessel called?

- A. *Ramus circumflexus*
- B. *Ramus interventricularis posterior*
- C. *A. coronaria dextra*
- D. *V. cordis parva*
- E. *Ramus interventricularis anterior*

56. Those organisms which in the process of evolution failed to develop protection from H_2O_2 can exist only in anaerobic conditions. Which of the following enzymes can break hydrogen peroxide down?

- A. Peroxidase and catalase
- B. Oxygenase and hydroxylase
- C. Cytochrome oxidase, cytochrome B5
- D. Oxygenase and catalase
- E. Flavin-dependent oxidase

57. 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*

58. A patient complaining of pain in the left shoulder-blade region has been diagnosed with myocardial infarction. What kind of pain does the patient have?

- A. Radiating
- B. Visceral
- C. Phantom
- D. Protopathic
- E. Epicritic

59. A patient has a critical impairment of protein, fat and hydrocarbon digestion. Most likely it has been caused by low secretion of the following digestive juice:

- A. Pancreatic juice
- B. Saliva
- C. Gastric juice
- D. Bile
- E. Intestinal juice

60. A female patient has facial neuritis that has caused mimetic paralysis and hearing impairment. Hearing impairment results from the paralysis of the following muscle:

- A. Stapedius muscle
- B. Anterior auricular muscle
- C. Superior auricular muscle
- D. Posterior auricular muscle
- E. Nasal muscle

61. A 22-year-old female student consulted a physician about fever up to $38^{\circ}C$, weakness, sore throat. Objectively: there is white coating of the tongue. What histological structures of the tongue are involved in the formation of this coating?

- A. Epithelium of the filiform papillae
- B. Epithelium of the foliate papillae
- C. Epithelium of the fungiform papillae
- D. Epithelium of the circumvallate papillae
- E. Connective-tissue base of all the lingual papillae

62. A patient has a traumatic injury of sternocleidomastoid muscle. This has resulted in a decrease in the following value:

- A. Inspiratory reserve volume
- B. Expiratory reserve volume
- C. Respiratory volume
- D. Residual volume
- E. Functional residual lung capacity

63. The receptors under study provide transfer of information to the cortex without thalamic involvement. Specify these receptors:

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

64. Prolonged fasting causes hypoglycemia which is amplified by alcohol consumption, as the following process is inhibited:

- A. Gluconeogenesis
- B. Glycolysis
- C. Glycogenolysis
- D. Lipolysis
- E. Proteolysis

65. A 39-year-old female patient with a history of diabetes was hospitalized in a precomatose state for diabetic ketoacidosis. This condition had been caused by an increase in the following metabolite level:

- A. Acetoacetate
- B. Citrate
- C. Alpha-ketoglutarate
- D. Malonate
- E. Aspartate

66. A 37-year-old female patient complains of headache, vertigo, troubled sleep, numbness of limbs. For the last 6 years she has been working at the gas-discharge lamp-producing factory in the lead-processing shop. Blood test findings: low hemoglobin and RBC level, serum iron concentration exceeds the norm by several times. Specify the type of anemia:

- A. Iron refractory anemia
- B. Iron-deficiency anemia
- C. Minkowsky-Shauffard disease
- D. Hypoplastic anemia
- E. Metaplastic anemia

67. During an animal experiment,

surgical damage of certain brain structures has caused deep prolonged sleep. What structure is most likely to cause such condition, if damaged?

- A. Reticular formation
- B. Basal ganglion
- C. Red nuclei
- D. Hippocampus
- E. Cerebral cortex

68. A patient takes cholagogues. What other process besides biliary excretion will be stimulated?

- A. Intestinal motility
- B. Gastric juice secretion
- C. Pancreatic juice secretion
- D. Gastric motor activity
- E. Water absorption

69. A 3-year-old child with meningeal symptoms died. Postmortem macroscopy of the pia matter revealed miliary nodules which were microscopically represented by a focus of caseous necrosis with masses of epithelioid and lymphoid cells with some crescent-shaped large cells inbetween having peripheral nuclei. Specify the type of meningitis in the child:

- A. Tuberculous
- B. Syphilitic
- C. Brucellar
- D. Grippal
- E. Meningococcal

70. A patient with homogentisuria has signs of arthritis, ochronosis. In this case, the pain in the joints is associated with the deposition of:

- A. Homogentisates
- B. Urates
- C. Phosphates
- D. Oxalates
- E. Carbonates

71. A patient with hereditary hyperammonemia due to a disorder of ornithine cycle has developed secondary orotaciduria. The increased synthesis of orotic acid is caused by an increase in the following metabolite of ornithine cycle:

- A. Carbamoyl phosphate
- B. Citrulline
- C. Ornithine
- D. Urea
- E. Argininosuccinate

72. 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

73. A 49-year-old male patient with acute pancreatitis was likely to develop pancreatic necrosis, while active pancreatic proteases were absorbed into the blood stream and tissue proteins broke up. What protective factors of the body can inhibit these processes?

- A. α_2 -macroglobulin, α_1 -antitrypsin
- B. Immunoglobulin
- C. Cryoglobulin, interferon
- D. Ceruloplasmin, transferrin
- E. Hemoplexin, haptoglobin

74. A 16-year-old female patient has fainted after quickly changing her body position from horizontal to vertical one. Which process from the ones listed below has caused the loss of consciousness in the first place?

- A. Decreasing venous return
- B. Increasing venous return
- C. Increasing central venous pressure
- D. Decreasing oncotic pressure of blood plasma
- E. Increasing arterial pressure

75. A 53-year-old male patient complains of acute pain in the right hypochondrium. Objective examination revealed scleral icterus. Laboratory tests revealed increased ALT activity, and stercobilin was not detected in the stool. What disease is characterized by these symptoms?

- A. Cholelithiasis
- B. Hemolytic jaundice
- C. Hepatitis
- D. Chronic colitis
- E. Chronic gastritis

76. A child patient has dry cough. What non-narcotic antitussive drug will relieve the patient's condition?

- A. Glauicine hydrochloride
- B. Codeine phosphate
- C. Morphine hydrochloride
- D. Potassium iodide
- E. Althaea officinalis root extract

77. A patient complains of acute pain attacks in the right lumbar region. During examination the nephrolithic obturation of the right ureter in the region between its abdominal and pelvic segments has been detected. What anatomical boundary exists between those two segments?

- A. Linea terminalis
- B. Linea semilunaris
- C. Linea arcuata
- D. Linea transversa
- E. Linea inguinalis

78. When measuring total muscle action potential it was revealed that it was subject to the power-law relationship. The reason for this is that individual muscle fibers differ in:

- A. Depolarization threshold
- B. Diameter
- C. Conduction velocity
- D. Resting potential
- E. Critical level of depolarization

79. A patient has insufficient blood supply to the kidneys, which has caused the development of pressor effect due to the constriction of arterial resistance vessels. This is the result of the vessels being greatly affected by the following substance:

- A. Angiotensin II
- B. Angiotensinogen
- C. Renin
- D. Catecholamines
- E. Norepinephrine

80. A patient is diagnosed with iron-deficiency sideroachrestic anemia,

progression of which is characterised by skin hyperpigmentation, pigmentary cirrhosis, heart and pancreas affection. Iron level in the blood serum is increased. What disorder of iron metabolism causes this disease?

- A. Failure to assimilate iron leading to iron accumulation in tissues
- B. Excessive iron intake with food
- C. Disorder of iron absorption in bowels
- D. Increased iron assimilation by body
- E. -

81. In a village, a case of anthrax had been registered. Medical services began epidemiologically indicated specific prophylaxis of population against anthrax. What preparation was used for this purpose?

- A. Live vaccine
- B. Inactivated vaccine
- C. Chemical vaccine
- D. Genetically engineered vaccine
- E. Anatoxin

82. Experimental stimulation of the sympathetic nerve branches that innervate the heart caused an increase in force of heart contractions because the membrane of typical cardiomyocytes permitted an increase in:

- A. Calcium ion entry
- B. Calcium ion exit
- C. Potassium ion exit
- D. Potassium ion entry
- E. Calcium and potassium ion exit

83. According to the results of glucose tolerance test, the patient has no disorder of carbohydrate tolerance. Despite that, glucose is detected in the patients's urine (5 mmol/l). The patient has been diagnosed with renal diabetes. What renal changes cause glucosuria in this case?

- A. Decreased activity of glucose reabsorption enzymes
- B. Increased activity of glucose reabsorption enzymes
- C. Exceeded glucose reabsorption threshold
- D. Increased glucose secretion
- E. Increased glucose filtration

84. As a result of past encephalitis, a male patient has developed an increase in cerebrospinal fluid pressure in the right lateral ventricle. What can be the cause of this condition?

- A. Closure of right interventricular foramen
- B. Closure of left interventricular foramen
- C. Atresia of tubus medullaris
- D. Atresia of sylvian aqueduct
- E. Atresia of the fourth ventricle foramina

85. Parents of 5-year-old child report him o have frequent colds that develop into pneumonias, presence of purulent rashes on the skin. Laboratory tests have revealed the following: absence of immunoglobulins of any type, and naked cells are absent from the lymph nodes punctate. What kind of immune disorder is it?

- A. X-linked hypogammaglobulinemia (Bruton type agammaglobulinemia)
- B. Autosomal recessive agammaglobulinaemia (Swiss type)
- C. Hypoplastic anemia
- D. Agranulocytosis
- E. Louis-Barr syndrome

86. A 3-year-old child has continuous fever, lymph nodes are enlarged, the amount of lymphocytes in blood is significantly increased. Enzyme-linked immunosorbent assay (ELISA) revealed antigen of Epstein-Barr virus. What diagnosis can be made based on the information given above?

- A. Infectious mononucleosis
- B. Burkitt's lymphoma
- C. Herpetic lymphadenopathy
- D. Generalized infection caused by herpes-zoster
- E. Cytomegalovirus infection

87. A microslide contains the preparation of a gland composed of several secretory saccule-shaped parts that open in the common excretory duct. What gland is it?

- A. Simple branched alveolar gland
- B. Compound branched alveolar gland
- C. Simple unbranched alveolar gland
- D. Compound unbranched alveolar gland
- E. Simple branched tubular gland

88. A patient intending to undergo a gender reassignment surgery has been admitted to a specialised clinic. In the course of examination both male and female gonades have been revealed, with male structure of external genitals. What kind of genital maldevelopment has the patient?

- A. True hermaphroditism
- B. Male pseudohermaphroditism
- C. Female pseudohermaphroditism
- D. Accessory ovary
- E. Ectopia of testis

89. 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

90. In case of alkaptonuria, homogentisic acid is excreted in urine in large amounts. The development of this disease is associated with a disorder of metabolism of the following amino acid:

- A. Tyrosine
- B. Phenylalanine
- C. Alanine
- D. Methionine
- E. Asparagine

91. A male patient complains of skin insensitivity of inferior eyelid, external lateral surface of nose and upper lip. A doctor in the course of examination has revealed inflammation of the second branch of trigeminal nerve. What cranial foramen does this branch

go through?

- A. Supraorbital
- B. Lacerum
- C. Superior orbital fissure
- D. Spinosum
- E. Oval

92. An patient with insomnia induced by allergic rash and itch has been prescribed the drug that has antihistamine and hypnotic effect. Specify this drug:

- A. Benadryl
- B. Loratadine
- C. Prednisolone
- D. Acetylsalicylic acid
- E. Analgin

93. In a cat with decerebrate rigidity the muscle tone is to be decreased. This can be achieved by:

- A. Destruction of the vestibular nuclei of Deiters
- B. Stimulation of the otolithic vestibular receptors
- C. Stimulation of the vestibular nuclei of Deiters
- D. Stimulation of the vestibulocochlear nerve
- E. Stimulation of the ampullar vestibular receptors

94. When studying the signs of pulmonary ventilation, reduction of forced expiratory volume has been detected. What is the likely cause of this phenomenon?

- A. Obstructive pulmonary disease
- B. Increase of respiratory volume
- C. Increase of inspiratory reserve volume
- D. Increase of pulmonary residual volume
- E. Increase of functional residual lung capacity

95. X-ray examination of a patient allowed to diagnose a tumor in the superior lobe of the right lung. There is a probability of metastases spread to the following lymph nodes:

- A. Sternal
- B. Inferior mediastinum
- C. Anterior mediastinum
- D. Axillary
- E. Deep lateral cervical

96. A 55-year-old patient with a characteristic rash, fever, dizziness has been admitted to a hospital. He has been provisionally diagnosed with typhus. No similar cases have been reported. In his youth (15 years old) the patient suffered typhus in a boarding school. What disease is it?

- A. Brill's disease
- B. Typhoid fever
- C. Measles
- D. Rubella
- E. Cholera

97. A young woman suddenly developed fever up to 39°C accompanied by a strong headache. Examination revealed marked nuchal rigidity. Spinal puncture was performed. Gram-stained smear of cerebrospinal fluid contained many neutrophils and Gram-positive diplococci. What bacteria could be the cause of this disease?

- A. Neisseria meningitidis
- B. Streptococcus pneumonia
- C. Haemophilus influenzae
- D. Staphylococcus aureus
- E. Pseudomonas aeruginosa

98. In the course of an experiment adenohipophysis of an animal has been removed. The resulting atrophy of thyroid gland and adrenal cortex has been caused by deficiency of the following hormone:

- A. Tropic hormones
- B. Thyroid hormones
- C. Somatotropin
- D. Cortisol
- E. Thyroxin

99. Degenerative changes in posterior and lateral columns of spinal cord (funicular myelosis) caused by methylmalonic acid accumulation occur in patients with B₁₂-deficiency anemia. This results in synthesis disruption of the following substance:

- A. Myelin
- B. Acetylcholine
- C. Norepinephrine
- D. Dopamine
- E. Serotonin

100. A patient with suspected tumor of lung had been admitted to the oncological department. Examination revealed localised pathology in the inferior lobe of the left lung. How many bronchopulmonary segments does this lobe have?

- A. 5
- B. 6
- C. 4
- D. 3
- E. 2

101. During local anesthetization the patient has gone into anaphylactic shock. What drug must be administered to the patient?

- A. Epinephrine hydrochloride
- B. Diazepam
- C. Atropine sulfate
- D. Propranolol
- E. Nitroglycerin

102. As a result of an injury, the integrity of the anterior spinal cord root was broken. Specify the neurons and their processes that had been damaged:

- A. Axons of motor neurons
- B. Motor neuron dendrites
- C. Axons of sensory neurons
- D. Dendrites of sensory neurons
- E. Dendrites of association neurons

103. A patient who had been taking diclofenac sodium for arthritis of mandibular joint developed an acute condition of gastric ulcer. Such side effect of this medicine is caused by inhibition of the following enzyme:

- A. Cyclooxygenase-1 (COX-1)
- B. Cyclooxygenase-2 (COX-2)
- C. Lipoxygenase
- D. Phosphodiesterase
- E. Monoamine oxidase

104. In one of Polesye regions there was an outbreak of helminthiasis manifested by cramps and facial edmata.

The developed preventive measures in particular included ban for eating infested pork even after heat processing. What helminthiasis was the case?

- A. Trichinosis
- B. Taeniarhynchosis
- C. Teniasis
- D. Echinococcosis
- E. Alveococcosis

105. A female patient sought medical-genetic consultation. Physical examination revealed pterygium colli deformity (webbed neck), broad chest, underdeveloped breasts. Study of buccal epithelium cells revealed no X-chromatin in the nuclei. This indicates that the patient has the following syndrome:

- A. Turner's
- B. Klinefelter's
- C. Patau's
- D. Down's
- E. Edwards'

106. During blood transfusion a patient has developed intravascular erythrocyte hemolysis. What kind of hypersensitivity does the patient have?

- A. II type (antibody-dependent)
- B. I type (anaphylactic)
- C. III type (immune complex)
- D. IV type (cellular cytotoxicity)
- E. IV type (granulomatosis)

107. Patients with erythropoietic porphyria (Gunther's disease) have teeth that fluoresce with bright red color when subjected to ultraviolet radiation; their skin is light-sensitive, urine is red-colored. What enzyme can cause this disease, when it is deficient?

- A. Uroporphyrinogen III cosynthase
- B. Uroporphyrinogen I synthase
- C. Delta-aminolevulinate synthase
- D. Uroporphyrinogen decarboxylase
- E. Ferrochelatase

108. During the air and bone conduction tests it was revealed that in the left ear the tones were louder by bone conduction. This might be associated with the disease of:

- A. Left middle ear
- B. Right middle ear
- C. Left inner ear
- D. Right inner ear
- E. Right external ear

109. In course of invasive abdominal surgery a surgeon has to locate the origin of the mesenteric root. Where is it normally localized?

- A. Duodenojejunal flexure
- B. Right flexure of colon
- C. Left flexure of colon
- D. Sigmoid colon
- E. Right mesenteric sinus

110. A 55-year-old male had been delivered to the resuscitation unit unconscious. Relatives reported him to have mistakenly drunk an alcoholic solution of unknown origin. On examination the patient was diagnosed with methanol intoxication. What antidote should be used in this case?

- A. Ethanol
- B. Teturamum
- C. Naloxone
- D. Protamine sulfate
- E. Acetylcysteine

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

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

112. As a result of a road accident a 37-year-old female victim developed urinary incontinence. What segments of the spinal cord had been damaged?

- A. $S_2 - S_4$
- B. $Th_1 - Th_5$
- C. $L_1 - L_2$
- D. $Th_2 - Th_5$
- E. $Th_1 - L_1$

113. An 8-week-pregnant woman

with acute respiratory disease and temperature rise up to $39,0^{\circ}\text{C}$ has called in a doctor. The doctor insisted on her avoiding taking paracetamol, because in this period of pregnancy there is a risk of its:

- A. Teratogenicity
- B. Embryotoxicity
- C. Fetotoxicity
- D. Hepatotoxicity
- E. Allergenicity

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

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

115. 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

116. When defining blood group according to the ABO system, using salt solutions of monoclonal antibodies, agglutination didn't occur with any of the solutions. What blood group is it?

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

117. Examination of a 56-year-old female patient with a history of type 1 diabetes revealed a disorder of protein metabolism that is manifested by aminoacidemia in the laboratory blood test values, and clinically by the delayed wound healing and decreased synthesis of antibodies. Which of the following mechanisms causes the

development of aminoacidemia?

- A. Increased proteolysis
- B. Albuminosis
- C. Decrease in the concentration of amino acids in blood
- D. Increase in the oncotic pressure in the blood plasma
- E. Increase in low-density lipoprotein level

118. Symptoms of pellagra (vitamin PP deficiency) is particularly pronounced in patients with low protein diet, because nicotinamide precursor in humans is one of the essential amino acids, namely:

- A. Tryptophan
- B. Threonine
- C. Arginine
- D. Histidine
- E. Lysine

119. A 68-year-old patient consults a cardiologist, complaining of high arterial blood pressure, pain in the heart region, intermittent pulse. Prescribe the β_1 -adrenoreceptor blocker for the treatment of the described pathology:

- A. Metoprolol
- B. Morphine hydrochloride
- C. Nootropil
- D. Fenoterol
- E. Benzylpenicillin

120. A female suffered rubella during pregnancy. The child was born with developmental abnormalities, namely cleft lip and palate. The child's genotype is normal. These malformations are a manifestation of:

- A. Modification variability
- B. Polyploidy
- C. Combinative variability
- D. Chromosomal mutation
- E. Aneuploidy

121. An electron micrograph shows a cell-to-cell adhesion consisting, in each cell, of an attachment plaque. The intercellular space is filled with electron-dense substance including transmembrane fibrillar structures. Specify this adhesion:

- A. Desmosome
- B. Synapse
- C. Tight junction
- D. Nexus
- E. Adherens junction

122. For biochemical diagnostics of myocardial infarction it is necessary to measure activity of a number of enzymes and their isoenzymes. What enzymatic test is considered to be the best to prove or disprove the diagnosis of infarction in the early period after the chest pain is detected?

- A. Creatine kinase isoenzyme CK-MB
- B. Creatine kinase isoenzyme CK-MM
- C. LDH1 lactate dehydrogenase isoenzyme
- D. LDH2 lactate dehydrogenase isoenzyme
- E. Aspartate aminotransferase cytoplasmic isoenzyme

123. A patient complains of pain in the heart area during acute attack of gastric ulcer. What vegetative reflex can cause this painful feeling?

- A. Viscerovisceral reflex
- B. Viscerodermal reflex
- C. Visceromotor reflex
- D. Dermatovisceral reflex
- E. Motor-visceral reflex

124. A patient is diagnosed with acute morphine hydrochloride intoxication. Prescribe an oxidizing agent for gastric lavage:

- A. Potassium permanganate
- B. Chloramine
- C. Sulfocamphocainum (Procaine + Sulfocamphoric acid)
- D. Cerigel
- E. Chlorhexidine (bi)gluconate

125. In the course of puncture biopsy of transplanted kidney the following has been revealed: diffuse infiltration of stroma by lymphocytes and plasmocytes and necrotic arteritis. What pathological process has developed in the transplant?

- A. Immune rejection
- B. Ischemic kidney failure
- C. Glomerulonephritis
- D. Tubular necrosis
- E. Pyelonephritis

126. During cell division, DNA replication occurs by a signal from the cytoplasm, and a certain portion of the DNA helix unwinds and splits into two individual strands. What enzyme facilitates this process?

- A. Helicase
- B. RNA polymerase
- C. Ligase
- D. Restrictase
- E. DNA polymerase

127. A female patient, having visited the factory premises with lots of dust in the air for the first time, has got cough and burning pain in the throat. What respiratory receptors, when irritated, cause this kind of reaction?

- A. Irritant receptors
- B. Juxtacapillary (J) receptors
- C. Stretch receptors of lungs
- D. Proprioceptors of respiratory muscles
- E. Thermoreceptors

128. Since a patient has had myocardial infarction, his 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

129. A 35-year-old female patient has been hospitalised with acute intoxication caused by salts of high-density metals (lead, most probably). As a part of complex therapy the antidote that contains two active sulfhydryc groups has been prescribed. Specify this antidote:

- A. Dimercaprol
- B. Metamizole
- C. Mannitol
- D. Nalorphine hydrochloride
- E. Calcium chloride

130. A 60-year-old male patient has type II diabetes. A doctor has prescribed him synthetic hypoglycemic long-acting drug that is sulfonylurea derivative. What drug is it?

- A. Glibenclamide
- B. Butamide
- C. Metformin
- D. Actrapid (soluble insulin)
- E. Acarbose

131. A patient has been given atropine sulfate for rapid relief of spastic colon symptoms. The use of this drug is contraindicated during the following disease:

- A. Glaucoma
- B. Bronchial asthma
- C. Bradycardia
- D. Hypotension
- E. Gastric ulcer

132. As an example of specific human parasites one can name Plasmodium falciparum, human pinworm and some others. The source of parasite invasion is always a human. Such specific human parasites cause the diseases that are called:

- A. Anthroponoses
- B. Zoonoses
- C. Anthroozoonoses
- D. Infections
- E. Multifactorial diseases

133. In an experiment a dog had been conditioned to salivate at the sight of food and a flash of light. After conditioning the reflex, the light was then paired with the bell. The dog didn't start to salivate. What type of inhibition was observed?

- A. External
- B. Differential
- C. Extinctive
- D. Persistent
- E. Protective

134. A newborn baby has numerous

hemorrhages. Blood coagulation tests reveal increased prothrombin time. The child is most likely to have a disorder of the following biochemical process:

- A. Production of gamma-carboxyglutamate
- B. Conversion of homocysteine to methionine
- C. Conversion of methylmalonyl CoA to succinyl CoA
- D. Degradation of glutathione
- E. Hydroxylation of proline

135. A 63-year-old male patient with bladder atony had been prescribed a medication, which he had been arbitrarily taking at a higher dose. The patient developed hyephydration, salivation, diarrhea, muscle spasms. The prescribed drug relates to the following group:

- A. Cholinomimetics
- B. Cholinesterase reactivators
- C. Adrenergic blockers
- D. Tocolytics
- E. Ganglionic blockers

136. 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

137. Tissue sampling of a 37-year-old male patient with chronic renal disease has revealed the following: sclerosis, lymphocytic and plasmocytic infiltration of renal pelvis and calices walls, dystrophy and atrophy of tubules. Remaining tubules are enlarged and stretched with colloid masses, epithelium is flattened out ("scutiform" or "shield-shaped" kidney). What is the most likely diagnosis?

- A. Chronic pyelonephritis
- B. Tubular interstitial nephritis
- C. Acute pyelonephritis
- D. Glomerulonephritis
- E. Nephrosclerosis

138. During the histological study of cortical shaft, basophilic cells with developed synthesis organelles can be seen on the bone surface under the layer of fibers. These cells take part in bone tissue regeneration. What shaft layer are they located in?

- A. Periosteum
- B. Bone
- C. Osteon layer
- D. Outer lamellae of compact bone tissue
- E. Inner lamellae of compact bone tissue

139. Autopsy of a 50-year-old male who had tuberculosis revealed a dense gray-white nidus in form of a nodule 2 cm in diameter in the subpleural portion of the upper right lobe. The pleura in this region was thickened, in the pleural cavity there was a small amount of serous hemorrhagic fluid. Histological study of the region revealed some glandular structures with signs of cellular atypia and abnormal mitoses, which were found within the fibrous connective tissue. What other pathology had developed in the lungs?

- A. Adenocarcinoma
- B. Squamous cell carcinoma
- C. Adenoma
- D. Fibrosarcoma
- E. Fibroma

140. 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+}

141. Hepatitis B is diagnosed through

laboratory tests that determine the presence of HBA-DNA in blood serum of the patient. What reference method is applied for this purpose?

- A. Polymerase chain reaction
- B. Hybridization method
- C. Hybridization signal amplification method
- D. Ligase chain reaction method
- E. ELISA diagnostic method

142. On the 24th day since the onset of disease, a male patient diagnosed with typhoid fever and undergoing treatment in an infectious diseases hospital has suddenly developed clinical presentations of acute abdomen leading to the death of the patient. During autopsy peritonitis has been revealed, with numerous ulcers covering the colon mucosa and reaching as deep as muscular and, in places, serous tunic. The ulcers have smooth edges and even floor. The intestinal wall is perforated. What stage of typhoid fever has the lethal complication arisen at?

- A. Clean ulcer
- B. Medullary swelling
- C. Necrosis
- D. Dirty ulcer
- E. Regeneration

143. An HIV-positive patient's cause of death is acute pulmonary insufficiency resulting from pneumonia. Pathohistological investigation of lungs has revealed interstitial pneumonia, alveolocyte desquamation and their metamorphoses: alveolocyte enlargement, large intranuclear inclusions surrounded by lightly-colored areas. Transformed cells resemble owl's eye. Name the pneumonia causative agent:

- A. Cytomegalovirus
- B. Pneumococcus
- C. Influenza virus
- D. Candida fungi
- E. Toxoplasma

144. The organisms to be identified have a nucleus surrounded by a nuclear membrane. Genetic material is concentrated predominantly in the

chromosomes which consist of DNA strands and protein molecules. These cells divide mitotically. Identify these organisms:

- A. Eukaryotes
- B. Bacteriophages
- C. Prokaryotes
- D. Viruses
- E. Bacteria

145. A 37-year-old male patient developed pseudoarthrosis after a closed fracture of the femur. Specify the type of regeneration in the patient:

- A. Pathological hypo-regeneration
- B. Pathological hyper-regeneration
- C. Reparative
- D. Physiological
- E. -

146. Nucleolar organizers of the 13-15, 21, 22 human chromosomes contain about 200 cluster genes that synthesize RNA. These regions of chromosomes bear the information on the following type of RNA:

- A. rRNA
- B. tRNA
- C. mRNA
- D. snRNA
- E. tRNA + rRNA

147. The resuscitation unit has admitted a patient in grave condition. It is known that he had mistakenly taken sodium fluoride which blocks cytochrome oxidase. What type of hypoxia developed in the patient?

- A. Tissue
- B. Hemic
- C. Cardiovascular
- D. Hypoxic
- E. Respiratory

148. Steatosis is caused by the accumulation of triacylglycerols in hepatocytes. One of the mechanisms of this disease development is a decrease in the utilization of VLDL neutral fat. What lipotropics prevent the development of steatosis?

- A. Methionine, B_6 , B_{12}
- B. Arginine, B_2 , B_3
- C. Alanine, B_1 , PP
- D. Valine, B_3 , B_2
- E. Isoleucine, B_1 , B_2

149. A 2-year-old boy is diagnosed with Down syndrome. What chromosomal changes may be the cause of this disease?

- A. Trisomy 21
- B. Trisomy 13
- C. Trisomy X
- D. Trisomy 18
- E. Monosomy X

150. A patient who has recently arrived 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 prove or to disprove 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

151. A patient has severe blood loss caused by an injury. What kind of dehydration will be observed in this particular case?

- A. Iso-osmolar
- B. Hyposmolar
- C. Hyperosmolar
- D. Normosmolar
- E. -

152. A 30-year-old patient has dyspnea fits, mostly at night. He has been diagnosed with bronchial asthma. What type of allergic reaction according to the Gell-Coombs classification is most likely in this case?

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

153. Decarboxylation of glutamate induces production of gamma-

aminobutyric acid (GABA) neurotransmitter. After breakdown, GABA is converted into a metabolite of the citric acid cycle, that is:

- A. Succinate
- B. Citric acid
- C. Malate
- D. Fumarate
- E. Oxaloacetate

154. An outbreak of an intestinal infection occurred in a kindergarten on the eve of New Year holidays. Bacteriological examination of patients' faeces didn't reveal any pathogenic bacteria. Electron microscopy revealed roundish structures with clear outer edges and a thick core resembling a wheel. Specify the most likely causative agent of this infection:

- A. *Rotavirus*
- B. *Adenovirus*
- C. *Coxsacki-virus*
- D. *E.coli*
- E. *P.vulgaris*

155. A smear of streptobacillus preparation stained by Ozheshko method has been studied microscopically with oil immersion. What structural feature of the bacteria has been studied?

- A. Spores
- B. Capsule
- C. Flagella
- D. Inclusions
- E. Structure of cell wall

156. After a road accident a victim has tachycardia, arterial blood pressure 130/90 mm Hg, tachypnoe, the skin is pale and dry, excitation of central nervous system is observed. What shock stage is the patient most likely in?

- A. Erectile
- B. Terminal
- C. Torpid
- D. Preshock (compensation stage)
- E. Agony

157. Autopsy has revealed shrunken kidneys weighing 50 mg, with fine-grained surface and uniformly thi-

nned substance. Microscopic investigation has shown the thickening of arteriole walls due to accumulation of homogeneous anhistic pink-coloured masses in them. Glomerules were undersized, sclerotic, with atrophied tubules. What disease are these changes characteristic of?

- A. Essential hypertension
- B. Pyelonephritis with kidney shrinkage
- C. Renal amyloidosis
- D. Acute glomerulonephritis
- E. Membranous nephropathy

158. A fixed-run taxi passenger has a sudden and expressed 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 causing the following reflex:

- A. Dagnini-Aschner reflex
- B. Bainbridge reflex
- C. Holtz's reflex
- D. Hering-Breuer reflex
- E. Frank-Starling mechanism

159. Histological examination of biopsy samples taken from the thickened edges of a gastric ulcer revealed small clusters of small, markedly atypical hyperchromatic epithelial cells that were localized in the overdeveloped stroma. Specify the tumor:

- A. Scirrhous undifferentiated carcinoma
- B. Medullary carcinoma
- C. Adenocarcinoma
- D. Undifferentiated sarcoma
- E. Adenoma

160. A 10-year-old child was found to have a congenital hypoplasia of the left kidney. Ultrasound examination revealed that the right kidney was markedly enlarged and had regular shape. No functional disorders were revealed. Specify the process that developed in the right kidney:

- A. Vicarious hypertrophy
- B. Working hypertrophy
- C. Hypertrophic growth
- D. Pseudohypertrophy
- E. Metaplasia

161. In allergic diseases, a dramatic increase in basophilic leukocyte number in patients' blood is observed. This phenomenon is due to the following basophil function:

- A. Participation of heparin and histamine in metabolism
- B. Phagocytosis of microorganisms and small particles
- C. Immunoglobulin synthesis
- D. Phagocytosis of immune complexes
- E. Participation in blood clotting

162. A 47-year-old male patient developed intestinal colic against the background of essential hypertension. In this situation it would be most efficient to arrest the colic by using drugs of the following group:

- A. Myotropic antispasmodics
- B. Anticholinesterase agents
- C. Sympathomimetics
- D. M-cholinomimetics
- E. Adrenomimetics

163. A patient has been admitted to the contagious isolation ward with signs of jaundice caused by hepatitis virus. Which of the symptoms given below is strictly specific for hepatocellular jaundice?

- A. Increase of ALT, AST level
- B. Hyperbilirubinemia
- C. Bilirubinuria
- D. Cholemia
- E. Urobilinuria

164. An underage patient has signs of achondroplasia (dwarfism). It is known that this is a monogenic disease and the gene that is responsible for the development of such abnormalities is a dominant one. The development of that child's brother is normal. Specify the genotype of the healthy child:

- A. aa
- B. AA
- C. Aa
- D. AaBb
- E. AABB

165. A patient has acute bronchitis. The fever up to $38,5^{\circ}\text{C}$ had lasted for a week, presently there is a decrease in

temperature down to $37,0^{\circ}\text{C}$. Specify the leading mechanism in the 3rd stage of fever:

- A. Peripheral vasodilation
- B. Increased heat production
- C. Development of chill
- D. Increased diuresis
- E. Increased respiratory rate

166. A 35-year-old female patient has undergone biopsy of the breast nodules. Histological examination has revealed enhanced proliferation of the small duct and acini epithelial cells, 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

167. At a bacteriological laboratory animal skins are analyzed by means of Ascoli precipitation test. What is detected if the reaction is positive?

- A. Anthrax agent antigens
- B. Anaerobic infection toxin
- C. Brucellosis agent
- D. Yersinia surface antigen
- E. Plague agent

168. 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

169. A 36-year-old female patient has a history of B_2 -hypovitaminosis. The most likely cause of specific symptoms (epithelial, mucosal, cutaneous, corneal lesions) is the defi-

ciency of:

- A. Flavin coenzymes
- B. Cytochrome A1
- C. Cytochrome oxidase
- D. Cytochrome B
- E. Cytochrome C

170. 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. Fat
- B. Tissue
- C. Thromboembolism
- D. Gaseous
- E. Air

171. A blood drop has been put into a test tube with 0,3% solution of *NaCl*. What will happen to erythrocytes?

- A. Osmotic haemolysis
- B. Shrinkage
- C. Mechanical haemolysis
- D. Any changes will be observed
- E. Biological haemolysis

172. There are cortical and medullary substances separated by connective tissue layer in the endocrine gland specimen. Parenchyma cells make up three zones in cortical substance, with rounded masses in the superficial zone, parallel chords in the middle one, reticular structure of cell chords in the deep one. What gland is it?

- A. Adrenal gland
- B. Thyroid gland
- C. Pituitary gland
- D. Epiphysis
- E. Hypothalamus

173. Histological specimen of a 10-day human embryo represents 2 contacting sacs (amniotic and yolk sacs). Specify the structure that separates the amniotic cavity from the yolk sac:

- A. Embryonic shield
- B. Amniotic stalk
- C. Floor of the amniotic sac
- D. Roof of the yolk sac
- E. Extraembryonic mesoderm

174. An electron micrograph shows a cell of neural origin. The terminal portion of the cell dendrite has cylindrical shape and consists of 1000 closed membrane disks. What cell is represented by the micrograph?

- A. Rod receptor cell
- B. Cone receptor cell
- C. Spinal node neuron
- D. Neuron of the cerebral cortex
- E. Neuron of the anterior horns of the spinal cord

175. Disruption of nerve fiber myelinogenesis causes neurological disorders and mental retardation. These symptoms are typical for hereditary and acquired alterations in the metabolism of:

- A. Sphingolipids
- B. Neutral fats
- C. Higher fatty acids
- D. Cholesterol
- E. Phosphatidic acid

176. A patient underwent surgical removal of a cavitory liver lesion 2 cm in diameter. It was revealed that the cavity wall was formed by dense fibrous connective tissue; the cavity contained muddy, thick, yellowish-greenish fluid with an unpleasant odor. Microscopically, the fluid consisted mainly of polymorphonuclear leukocytes. What pathological process are these morphological changes typical for?

- A. Chronic abscess
- B. Acute abscess
- C. Phlegmon
- D. Empyema
- E. -

177. A patient complains of photoreception disorder and frequent acute viral diseases. He has been prescribed a vitamin that affects photoreception processes by producing rhodopsin, the photosensitive pigment. What vitamin is it?

- A. Retinol acetate
- B. Tocopherol acetate
- C. Pyridoxine hydrochloride
- D. Cyanocobalamin
- E. Thiamine

178. A 7-year-old boy got ill with diphtheria. On the third day he died of asphyxiation. At autopsy the mucosa of the larynx, trachea and bronchi had thickened, edematous, lustreless appearance and was covered with gray films which could be easily removed. Specify the type of laryngeal inflammation:

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

179. A child has a history of hepatomegaly, hypoglycemia, seizures, especially on an empty stomach and in stressful situations. The child is diagnosed with Gierke disease. This disease is caused by the genetic defect of the following enzyme:

- A. Glucose-6-phosphatase
- B. Amyloid-1,6-glycosidase
- C. Phosphoglucomutase
- D. Glycogen phosphorylase
- E. Glucokinase

180. A public utility specialist went down into a sewer well without protection and after a while lost consciousness. Ambulance doctors diagnosed him with hydrogen sulfide intoxication. What type of hypoxia developed?

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

181. A child with a normal karyotype is diagnosed with cleft lip and hard palate, defects of the cardiovascular system, microcephaly. The child's mother suffered rubella during pregnancy. This pathology in the child may be an example of:

- A. Genocopy
- B. Trisomy
- C. Phenocopy
- D. Monosomy
- E. -

182. A 28-year-old patient undergoing treatment in the pulmonological department has been diagnosed with pulmonary emphysema caused by splitting of alveolar septum by tissular tripsin. The disease is caused by the congenital deficiency of the following protein:

- A. α_1 -proteinase inhibitor
- B. α_2 -macroglobulin
- C. Cryoglobulin
- D. Haptoglobin
- E. Transferrin

183. A patient with signs of osteoporosis and urolithiasis has been admitted to the endocrinology department. Blood test has 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

184. During a surgery for femoral hernia a surgeon operates within the boundaries of femoral trigone. What structure makes up its upper margin?

- A. *Lig.inguinale*
- B. *Arcus iliopectineus*
- C. *Lig.lacunare*
- D. *Lig. pectinale*
- E. *Fascia lata*

185. A 19-year-old victim has been delivered to the casualty department with a cut wound of the trapezius muscle. Which of the cervical fasciae forms a sheath for this muscle?

- A. Investing layer of cervical fascia
- B. Muscular part of the pretracheal layer of cervical fascia
- C. Visceral part of the pretracheal layer of cervical fascia
- D. Prevertebral layer of cervical fascia
- E. Carotid sheath of cervical fascia

186. A patient with acne has been prescribed doxycycline hydrochloride. What recommendations should be given to the patient, while he is taking this drug?

- A. Avoid long stay in the sun
- B. Take with large quantity of liquid, preferably milk
- C. Take before meal
- D. The course of treatment should not exceed 1 day
- E. Do not take with vitamins

187. A 30-year-old patient with a past history of virus B hepatitis complains of prolonged nosebleeds. What drug will be most efficient in remedying this condition?

- A. Vicasolum
- B. Fraxiparine
- C. Folic acid
- D. Dipiridamol
- E. Asparcam

188. 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

189. A patient has been diagnosed with ARVI. Blood serum contains immunoglobulin M. What is the stage of infection in this case?

- A. Acute
- B. Prodromal
- C. Incubation
- D. Convalescence
- E. Carriage

190. In a dysentery patient undergoing treatment in the contagious isolation ward, a significant increase in packed

cell volume has been observed (60%). What other value will be affected by this change?

- A. Increasing blood viscosity
- B. Increasing volume of blood circulation
- C. Leukopenia
- D. Thrombocytopenia
- E. Increasing erythrocyte sedimentation rate (ESR)

191. A patient complains of palpitation after stress. The pulse is 104 bpm, P-Q=0,12 seconds, there are no changes of QRS complex. What type of arrhythmia does the patient have?

- A. Sinus tachycardia
- B. Sinus bradycardia
- C. Sinus arrhythmia
- D. Ciliary arrhythmia
- E. Extrasystole

192. A 30-year-old patient has undergone keratoplasty in the transplantation center, cornea has been taken from a donor, who died in a road accident. What kind of transplantation was performed?

- A. Allotransplantation
- B. Autotransplantation
- C. Xenotransplantation
- D. Explantation
- E. Heterotransplantation

193. A 29-year-old male with a knife wound of neck presents with bleeding. During the initial debridement of the wound the surgeon revealed the injury of a vessel found along the lateral edge of the sternocleidomastoid muscle. Specify this vessel:

- A. *V. jugularis externa*
- B. *V. jugularis anterior*
- C. *A. carotis externa*
- D. *A. carotis interna*
- E. *V. jugularis interna*

194. A histologic specimen represents an organ with walls comprised of mucous, submucous, fibrous-cartilaginous and adventitial membranes. Epithelium is multirowed and ciliated, muscular layer of mucous membrane is absent, submucous membrane contain-

ns serous-mucous glands, hyaline cartilage forms open circles. What organ has the described morphological features?

- A. Trachea
- B. Tertiary bronchi (segmental bronchi)
- C. Secondary bronchi (lobar bronchi)
- D. Terminal bronchiole
- E. Larynx

195. In cancer patients who have been continuously receiving methotrexate, the target cells of tumor with time become insensitive to this drug. In this case, gene amplification of the following enzyme is observed:

- A. Dihydrofolate reductase
- B. Thiaminase
- C. Deaminase
- D. Thioredoxin reductase
- E. -

196. Pancreas is known as a mixed gland. Endocrine functions include production of insulin by beta cells. This hormone affects the metabolism of carbohydrates. What is its effect upon the activity of glycogen phosphorylase (GP) and glycogen synthase (GS)?

- A. It inhibits GP and activates GS
- B. It activates both GP and GS
- C. It inhibits both GP and GS
- D. It activates GP and inhibits GS
- E. It does not affect the activity of GP and GS

197. A patient has the oxyhemoglobin dissociation curve shifted to the left. What blood changes induce this condition?

- A. Alkalosis, hypocapnia, temperature drop
- B. Acidosis, hypercapnia, temperature rise
- C. Acidosis, hypercapnia, temperature drop
- D. Acidosis, hypocapnia, temperature rise
- E. -

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 patient with signs of emotional lability that result in troubled sleep has been prescribed nitrazepam. Specify the sleep-inducing mechanism of this drug:

- A. GABA-ergic system activation
- B. Blockade of opiate receptors
- C. Inhibition of stimulating amino acids
- D. H1-histamine receptors stimulation
- E. Suppression of serotonergic neurotransmission

200. A patient has been found to have a marked dilatation of saphenous veins in the region of anterior abdominal wall around the navel. This is symptomatic of pressure increase in the following vessel:

- A. *V. portae hepatis*
- B. *V. cava superior*
- C. *V. cava inferior*
- D. *V. mesenterica inferior*
- E. *V. mesenterica superior*