

MINISTRY OF PUBLIC HEALTH OF UKRAINE

Department of human resources policy, education and science

Testing Board

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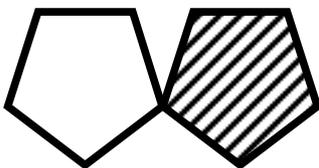
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Test items for licensing examination

Krok 1

MEDICINE



General Instruction

Every one of these numbered questions or unfinished statements in this chapter corresponds to answers or statements endings. Choose the answer (finished statements) that fits best and fill in the circle with the corresponding Latin letter on the answer sheet.

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The book includes test items for use at licensing integrated examination “Krok 1. Medicine” and further use in teaching.

The book has been developed for students of medical, pediatric and medical-and-prophylactic faculties and academic staff of higher medical educational establishments.

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1. A 35-year-old man has been delivered into a surgical ward with a suppurating wound in the neck, anterior to the trachea (previsceral space). If a surgical operation is not performed urgently, there is a risk of infection spreading to the:

- A. Thoracic cavity - anterior mediastinum
- B. Thoracic cavity - middle mediastinum
- C. Thoracic cavity - posterior mediastinum
- D. Retrovisceral space
- E. Interaponeurotic suprasternal space

2. In the life cycle of a cell during mitosis a natural change in the amount of genetic material occurs. The DNA doubles at the following stage:

- A. Interphase
- B. Prophase
- C. Metaphase
- D. Anaphase
- E. Telophase

3. A woman with seasonal vasomotor rhinitis, who works as a train dispatcher and is an outpatient, should be prescribed an antihistaminic drug that does not suppress central nervous system. Name this drug:

- A. Loratadine
- B. Dimedrol (Diphenhydramine)
- C. Diprazine (Promethazine)
- D. Suprastin (Chloropyramine)
- E. Tavegil (Clemastine)

4. During sanitary and bacteriological testing of water with the membrane filter technique there were revealed two red colonies on the membrane filter (Endo medium) through which 500 ml of water was filtered. Calculate the coli index and coli titer of this water:

- A. 4 and 250
- B. 2 and 500
- C. 250 and 4
- D. 500 and 2
- E. 250 and 2

5. Protective function of saliva is based on several mechanisms, including the presence of enzyme that has bactericidal action and causes lysis of complex capsular polysaccharides of staphylococci and streptococci. Name this enzyme:

- A. Lysozyme
- B. Alpha-amylase
- C. Oligo-1,6-glucosidase
- D. Collagenase
- E. Beta-glucuronidase

6. What kind of muscle contraction occurs in an upper limb during an attempt to lift a load beyond one's strength?

- A. Isometric
- B. Isotonic
- C. Auxotonic
- D. Phasic
- E. Single

7. The patient's pyramids of the medulla oblongata are damaged by tumor growth. As a result the conduction of nervous impulses will be impaired in the following pathway:

- A. *Tr. corticospinalis*
- B. *Tr. corticonuclearis*
- C. *Tr. corticopontinus*
- D. *Tr. dentatorubralis*
- E. *Tr. spinocerebellaris*

8. A patient complains of pain in the upper umbilical region. On palpation there is a mobile painful intestine. What intestine is being palpated by the doctor?

- A. Transverse colon
- B. Jejunum
- C. Duodenum
- D. Ileum
- E. Sigmoid colon

9. After inoculation of investigated material (feces) on 1% alkaline peptone water and 8-hour-long incubation in the thermostat under 37°C there is growth of pale bluish film observed. Such cultural properties are characteristic of the agent of the following disease:

- A. Cholera
- B. Plague
- C. Typhoid fever
- D. Paratyphoid A fever
- E. Dysentery

10. Histological investigation of the uterine scrape of the 45-year-old woman with disturbed ovarian menstrual cycle revealed increased number of endometrial glands, some of which are serrated, while others are dilated and cyst-like. Make the diagnosis:

- A. Endometrial cystic glandular hyperplasia
- B. Placental polyp
- C. Atypical endometrial hyperplasia
- D. Glandular endometrial polyp
- E. Endometrial adenocarcinoma

11. A pregnant woman with several miscarriages in anamnesis is prescribed a therapy that includes vitamin preparations. What vitamin facilitates carrying of a pregnancy?

- A. Alpha-tocopherol
- B. Folic acid
- C. Cyanocobalamin
- D. Pyridoxal phosphate
- E. Rutin

12. A patient has decreased concentration of magnesium ions that are required for ribosomes connection to granular endoplasmic reticulum. This condition is known to disturb the process of protein biosynthesis. Disturbance occurs at the following stage:

- A. Translation
- B. Transcription
- C. Replication
- D. Amino acids activation
- E. Processing

13. A patient with chronic heart failure presents with increased blood viscosity. Capillaroscopy detected damage to the vessel walls of the microcirculation system. What disorder is possible in the given case?

- A. Blood "sludge" phenomenon
- B. Thrombosis
- C. Embolism
- D. Arterial hyperemia
- E. Venous hyperemia

14. A 3-year-old boy with pronounced hemorrhagic syndrome has no 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

15. Paronychia of the patient's little finger was complicated with phlegmon of the hand and forearm. In this case the suppuration had spread through the:

- A. *Vagina synovialis communis mm. flexorum*
- B. *Vagina tendinis m. flexor pollicis longi*
- C. *Canalis carpalis*
- D. *Vagina tendinis m. flexor carpi radialis*
- E. Interfascial compartments

16. During cholecystectomy besides *a. cystica* another artery was pulled into the ligature. Ligation of this artery resulted in right-sided necrosis of the liver which led to the death of the patient. What artery was mistakenly ligated along with *a. cystica*?

- A. *Ramus dexter a. hepatica propria*
- B. *A. hepatica communis*
- C. *A. gasstro-duodenalis*
- D. *Ramus sinister a. hepatica propria*
- E. *A. pancreato-duodenalis sup*

17. During treatment with bismuth preparations a patient with syphilis developed gray spots on his oral mucosa and nephropathy symptoms. What drug is used as an antidote to bismuth preparations poisoning?

- A. Unithiol
- B. Nalorphine
- C. Bemegride
- D. Naloxone
- E. Methylene blue

18. A patient with periodontitis of the lower molar came to the doctor. It was determined that the inflammatory process spread to the lymph nodes. What lymph nodes were the first to be affected by the inflammatory process?

- A. Submandibular
- B. Lateral cervical
- C. Anterior cervical
- D. Submental
- E. Facial

19. A 63-year-old man suffers from esophageal carcinoma, presents with metastases into the mediastinal lymph nodes and cancerous cachexia. What pathogenetic stage of neoplastic process is observed in the patient?

- A. Progression
- B. Promotion
- C. Transformation
- D. Initiation
- E. -

20. A person is in a room with air temperature of 38°C and relative air humidity of 50%. What type of heat transfer ensures maintenance of constant body core temperature under these conditions?

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

21. 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

22. A shepherd, who tended to the flock of sheep with his dogs, gradually developed pain in the chest and bloody expectorations. X-ray revealed spheric helminth larvae in the patient's lungs. Specify the helminth that could be the causative agent of this disease:

- A. *Echinococcus*
- B. *Hymenolepis nana*
- C. *Diphyllobotrium latum*
- D. *Fasciola hepatica*
- E. *Taenia solium*

23. A 67-year-old patient with clinical diagnosis of chronic bronchitis, pneumosclerosis, and cardiopulmonary decompensation has the biopsy material taken from the suspicious area in his right bronchus mucosa. Cellular and tissue atypism along with pearly bodies can be histologically detected. What pathologic process is characterized by the described histological changes?

- A. Squamous cell carcinoma of bronchus with keratinization
- B. Polypoid chronic bronchitis
- C. Bronchiectasis
- D. Acute bronchitis
- E. Squamous cell metaplasia of bronchial mucosa

24. A child with point mutation presents with absence of glucose 6-phosphatase, hypoglycemia, and hepatomegaly. What pathology are these signs characteristic of?

- A. Von Gierke's disease (Glycogen storage disease type I)
- B. Cori's disease (Glycogen storage disease type III)
- C. Addison's disease (Primary adrenal insufficiency)
- D. Parkinson's disease
- E. McArdle's disease (Glycogen storage disease type V)

25. At the 2-3 day after the gastric resection the patient's intestinal peristalsis failed to restore. What should the patient be prescribed to stimulate the function of his gastrointestinal tract?

- A. Proserin
- B. Platyphyllin
- C. Cyclodol (Trihexyphenidyl)
- D. Atropine
- E. Dithyline (Suxamethonium chloride)

26. Examination of the patient with traumatic brain injury revealed that he has lost the ability to discern the movement of an object on the skin. What part of the cerebral cortex is damaged?

- A. Posterior central gyrus
- B. Occipital lobe
- C. Parietal lobe
- D. Frontal lobe
- E. Anterior central gyrus

27. Blood test of the patient revealed albumine content of 20 g/l and increased activity of lactate dehydrogenase isoenzyme 5 (LDH₅). These results indicate disorder of the following organ:

- A. Liver
- B. Kidneys
- C. Heart
- D. Lungs
- E. Spleen

28. Section shows significant enlargement of the patient's right kidney. There is a nephrolith at the place of incision. Renal pelvic lumen is distended with accumulating urine. Renal parenchyma is acutely thinned out. What is the most correct diagnosis?

- A. Hydronephrosis
- B. Pyelectasis
- C. Hydroureteronephrosis
- D. Renal cyst
- E. Nephroblastoma

29. A patient demonstrates sharp decrease of pulmonary surfactant activity. This condition can result in:

- A. Alveolar tendency to recede
- B. Decreased airways resistance
- C. Decreased work of expiratory muscles
- D. Increased pulmonary ventilation
- E. Hyperoxemia

30. After a case of cold the patient developed a lacrimation disorder. This disorder was caused by functional disturbance of the following autonomic ganglion:

- A. Pterygopalatine
- B. Ciliary
- C. Otic
- D. Submandibular
- E. Sublingual

31. A patient is diagnosed with diabetic coma. Blood sugar is 18,44 mmol/l. What

glucose-regulating drug should be prescribed in the given case?

- A. Rapid-acting insulin
- B. Intermediate-acting insulin
- C. Long-acting insulin
- D. Biguanide
- E. Sulfonylurea derivative

32. A man came into the admission room with complaints of edemas, rapid heart rate, dyspnea, and cyanotic mucosal tunics. He was diagnosed with chronic heart failure. What drug should be prescribed to improve the patient's general state?

- A. Digoxin
- B. Papaverine hydrochloride
- C. Mesaton (Phenylephrine)
- D. Cordiamin
- E. Nitroglycerine

33. Exposure to colchicine resulted in metaphase plate of a human containing 23 chromosomes more than it is normal. Name this mutation:

- A. Polyploidy
- B. Aneuploidy
- C. Polyteny
- D. Inversion
- E. Translocation

34. A 30-year-old man complains of suffocation, heaviness in the chest on the right, general weakness. Body temperature is $38,9^{\circ}\text{C}$. Objectively the right side of the chest lags behind the left side during respiration. Pleurocentesis yielded exudate. What is the leading factor of exudation in the patient?

- A. Increased permeability of the vessel wall
- B. Increased blood pressure
- C. Hypoproteinemia
- D. Erythrocyte aggregation
- E. Decreased resorption of pleural fluid

35. A 46-year-old woman suffering from cholelithiasis developed jaundice. Her urine became dark yellow, while feces are light-colored. What substance will be the most increased in concentration in the blood serum in this case?

- A. Conjugated bilirubin
- B. Unconjugated bilirubin
- C. Biliverdine
- D. Mesobilirubin
- E. Urobilinogen

36. A traumatology unit received a patient with crushed muscular tissue. What biochemical indicator of urine will be raised in this case?

- A. Creatinine
- B. Total lipids
- C. Glucose
- D. Mineral salts
- E. Uric acid

37. A 30-year-old woman first developed pain, swelling, and skin redness in the area of joints about a year ago. Provisional diagnosis is rheumatoid arthritis. One of the likely causes of this disease is change in the structure of the following connective tissue protein:

- A. Collagen
- B. Mucin
- C. Myosin
- D. Ovalbumin
- E. Troponin

38. A 15-year-old teenager complains of lack of air, general weakness, palpitations. Heart rate is 130/min., BP is 100/60 mm Hg. ECG: QRS complex has normal shape and duration. The number of P waves and ventricular complexes is equal, T wave merges with P wave. What type of cardiac arrhythmia is observed in the teenager?

- A. Sinus tachycardia
- B. Sinus extrasystole
- C. Atrial fibrillation
- D. Atrial thrill
- E. Paroxysmal atrial tachycardia

39. A patient complaining of dizziness, thirst, difficult swallowing, and impaired vision of close objects has addressed a doctor. Objectively: respiratory rate is increased, pupils are dilated, general agitation, talkativeness, though the speech is indistinct. BP is 110/70 mm Hg, heart rate is 110/min. Given symptoms can indicate overdose of the following drug:

- A. Atropine
- B. Morphine
- C. Ephedrine
- D. Aminazine
- E. Caffeine

40. On autopsy of a 40-year-old woman, who had been suffering from rheumatoid arthritis, her liver is found to be dense and enlarged. On dissection its tissue is red-brown colored, with enlarged follicles resembling semi-transparent grayish-white granules. What is the most likely pathological process?

- A. Sago spleen
- B. Sugar-coated spleen
- C. Lardaceous spleen
- D. Splenic hyalinosis
- E. Porphyry spleen

41. On autopsy the dissector determined that the lungs are enlarged, pale, soft, do not deflate, crunch when cut. Microscopically there are dilated alveolar ducts, alveolar septa are thin, and signs of intracapillary sclerosis are observed. What pulmonary disorder are these presentations characteristic of?

- A. Emphysema
- B. Pneumosclerosis
- C. Pneumothorax
- D. Atelectasis
- E. Pneumonia

42. During removal of the hyperplastic thyroid gland of a 47-year-old woman, the parathyroid gland was damaged. One month after the surgery the patient developed signs of hypoparathyroidism: frequent convulsions, hyperreflexia, laryngospasm. What is the most likely cause of the patient's condition?

- A. Hypocalcemia
- B. Hyponatremia
- C. Hyperchlorhydria
- D. Hypophosphatemia
- E. Hyperkalemia

43. On examination the patient presents with hirsutism, moon-shaped face, stretch marks on the abdomen. BP is 190/100 mm Hg, blood glucose is 17,6 mmol/l. What pathology is such clinical presentation characteristic of?

- A. Adrenocortical hyperfunction
- B. Hyperthyroidism
- C. Hypothyroidism
- D. Gonadal hypofunction
- E. Hyperfunction of the insular apparatus

44. Histological specimen of the ovary shows large hollow structures. Primary oocyte within these structures is surrounded with transparent membrane and radiating crown and is situated in the *cumulus oophorus*, the wall is made of follicular cell layer and theca. What ovarian structure can be characterized by these morphological features?

- A. Mature (tertiary) follicle
- B. Primordial follicle
- C. Primary follicle
- D. *Corpus luteum*
- E. *Corpus atreticum*

45. Histological specimen demonstrates a parenchymal organ with cortical and medullary substances. The cortical substance is composed of bands of epithelial cells with capillary blood vessels between them. The bands form three zones. The medullary substance consists of chromaffin

cells and venous sinusoids. What organ can be characterized by these morphological features?

- A. Adrenal gland
- B. Kidney
- C. Lymph node
- D. Thymus
- E. Thyroid gland

46. A child with suspected colienteritis was delivered to the infectious diseases hospital. *Colibacillus* was obtained from the child's feces. How to determine whether this bacillus is of pathogenic variety?

- A. Agglutination reaction with serum 0
- B. Based on its biochemical properties
- C. By means of bacteriophage typing
- D. Microscopy of stained smears
- E. Based on the nature of its growth in Endo medium

47. A patient undergoes right-sided pneumectomy due to lung cancer. Name the anatomical structures of the right lung radix (downward order):

- A. Bronchus, artery, veins
- B. Artery, bronchus, veins
- C. Artery, veins, bronchus
- D. Veins, artery, bronchus
- E. Veins, bronchus, artery

48. In a township there was registered an outbreak of hepatitis, which was attributed to water supply. What hepatitis virus could be the cause of the outbreak in this township?

- A. Hepatitis E virus
- B. Hepatitis C virus
- C. Hepatitis D virus
- D. Hepatitis G virus
- E. Hepatitis B virus

49. A 64-year-old woman presents with disturbed fine motor function of her fingers, marked muscle rigidity, and tremor. The neurologist diagnosed her with Parkinson's disease. What brain structures are damaged resulting in this disease?

- A. Substantia nigra
- B. Thalamus
- C. Red nuclei
- D. Cerebellum
- E. Reticular formation

50. Due to prolonged taking of a drug the patient can develop osteoporosis, gastric mucosal erosions, hypokalemia, sodium and water retention, and decreased blood content of corticotropine. Specify this drug:

- A. Prednisolone
- B. Hydrochlorothiazide
- C. Digoxin
- D. Indometacin
- E. Reserpine

51. Nitrogen is being excreted from the body mainly as urea. When activity of a certain enzyme in the liver is low, it results in inhibition of urea synthesis and nitrogen accumulation in blood and tissues. Name this enzyme:

- A. Carbamoyl phosphate synthetase
- B. Aspartate aminotransferase
- C. Urease
- D. Amylase
- E. Pepsin

52. After pancreatic surgery the patient developed hemorrhagic syndrome with disturbed 3rd stage of blood clotting. What will be the most likely mechanism of the hemostatic disorder?

- A. Fibrinolysis activation
- B. Decrease of prothrombin synthesis
- C. Decrease of fibrinogen synthesis
- D. Qualitative abnormalities of fibrinogenesis
- E. Fibrin-stabilizing factor deficiency

53. A patient with jaundice has high total bilirubin that is mainly indirect (unconjugated), high concentration of stercobilin in the feces and urine. The level of direct (conjugated) bilirubin in the blood plasma is normal. What type of jaundice can be suspected?

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

54. Histological specimen shows organ parenchyma to consist of lymphoid tissue that forms lymph nodules; the nodules are located diffusely and have a central artery. What anatomical structure has such morphological characteristics?

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

55. During fibergastroscopy of a patient with ulcer disease of the stomach, the mucosal biopsy material is taken from the area of an ulcer. Impression smear is prepared from the biopsy material and stained by Gram method; the rest of the biopsy material is tested for urease activity. Microscopy of the

impression smear revealed gram-negative spiral-shaped microorganisms, urease activity test is positive. What bacteria were detected?

- A. *Helicobacter pylori*
- B. *Spirilla minor*
- C. *Shigella flexneri*
- D. *Treponema pallidum*
- E. *Campylobacter jejuni*

56. A patient suffering from gout was prescribed allopurinol. What pharmacological property of allopurinol provides therapeutic effect in this case?

- A. Competitive inhibition of xanthine oxidase
- B. Acceleration of nitrogen-containing substances excretion
- C. Acceleration of pyrimidine nucleotides catabolism
- D. Deceleration of pyrimidine nucleotides salvage
- E. Acceleration of nucleic acids synthesis

57. A woman, who has been suffering from marked hypertension for 15 years, has lately developed dyspnea, palpitations, slightly decreased systolic pressure, while diastolic pressure remains the same. What is the main mechanism of heart failure development in this case?

- A. Cardiac overload due to increased vascular resistance
- B. Cardiac overload due to increased blood volume
- C. Damage to the myocardium
- D. Disorder of impulse conduction in the myocardium
- E. Dysregulation of cardiac function

58. Old burial ground for animal refuse, which has not been in use for the last 50 years, is planned to be given for housing development. However, the soil analysis detected viable spores of a causative agent of an extremely dangerous disease. What microorganism is the most likely to remain in the soil for such a long period of time?

- A. *Bacillus anthracis*
- B. *Francisella tularensis*
- C. *Brucella abortus*
- D. *Yersinia pestis*
- E. *Mycobacterium bovis*

59. Blood of the patients with diabetes mellitus shows increased content of free fatty acids. Name the most likely cause of this:

- A. Increased activity of adipose triglyceride lipase
- B. Accumulation of palmitoyl-CoA in cytosol
- C. Activation of ketone bodies utilization
- D. Activation of apoA1, apoA2, and apoA4 apolipoprotein synthesis
- E. Decreased activity of plasma phosphatidylcholine-cholesterol-acyltransferase

60. During autopsy of a man, who had been suffering from mitral stenosis, the lungs are revealed to be dense and brown-colored. What pathologic process had occurred in the lungs?

- A. Hemosiderosis
- B. Hemochromatosis
- C. Jaundice
- D. Hemomelanosis
- E. Lipofuscinosis

61. Examination of the coronary arteries revealed atherosclerotic plaques with calcinosis that close the arterial opening by 1/3. In the muscle there are numerous whitish layers of connective tissue. Name the process detected in the myocardium:

- A. Diffuse cardiosclerosis
- B. Tiger heart
- C. Postinfarction cardiosclerosis
- D. Myocarditis
- E. Myocardial infarction

62. T-lymphocytes are determined to be affected with HIV. In this case viral enzyme reverse transcriptase (RNA-dependent DNA-polymerase) catalyzes the synthesis of:

- A. DNA based on the viral RNA matrix
- B. Viral RNA based on the DNA matrix
- C. Viral protein based on the viral RNA matrix
- D. Viral DNA based on the DNA matrix
- E. Informational RNA based on the viral protein matrix

63. A woman with dense area in her mammary gland came to a surgeon. To minimize the trauma to the mammary gland lobule during the operation the surgeon should make the incision:

- A. Radially
- B. Vertically
- C. Transversely
- D. Arcuately
- E. -

64. Electrical activity of neurons is being measured. They fire prior to and at the beginning of inhalation. Where are these neurons situated?

- A. Medulla oblongata
- B. Diencephalon
- C. Mesencephalon
- D. Spinal cord
- E. Cerebral cortex

65. Investigation of an isolated cardiac myocyte determined that it does not generate excitation impulses automatically, which means this cardiac myocyte was obtained from the following cardiac structure:

- A. Ventricles
- B. Sinoatrial node
- C. Atrioventricular node
- D. His' bundle
- E. Purkinje's fibers

66. To lose some weight a woman has been limiting the amount of products in her diet. 3 months later she developed edemas and her diuresis increased. What dietary component deficiency is the cause of this?

- A. Proteins
- B. Fats
- C. Carbohydrates
- D. Vitamins
- E. Minerals

67. The patients with organic brain disorder can take the following drug to improve their memory:

- A. Piracetam
- B. Nitrazepam
- C. Medazepam
- D. Diazepam
- E. Caffeine

68. A 40-year-old man developed skin redness and swelling in the neck area, where eventually a small abscess appeared. On section the focus is dense and yellow-green colored. In the purulent masses there are white granules. Histologically there are fungal druses, plasma and xanthome cells, and macrophages detected. Specify the most correct etiological name of this pathological process:

- A. Actinomycosis
- B. Furuncle
- C. Carbuncle
- D. Syphilis
- E. Leprosy

69. In preparation for business trip abroad the doctor was prescribed a histoschizontocidal antimalarial drug as a personal means of disease prevention. What drug was given to the doctor?

- A. Chingamin
- B. Biseptol (Co-trimoxazole)
- C. Doxycycline
- D. Mefloquine
- E. Quinine

70. A patient, who has been suffering from bronchial asthma for a long time, developed acute respiratory failure. What is the main mechanism of pathology development in this case?

- A. Obstructive disorders of pulmonary ventilation
- B. Restrictive disorders of pulmonary ventilation
- C. Pulmonary blood supply disturbance
- D. Pulmonary enzyme system disturbance
- E. Decreased elasticity of the pulmonary tissue

71. A 40-year-old woman 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 the 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

72. A patient has been hospitalized 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. Enzyme-linked immunosorbent assay
- B. Radioimmunoassay technique
- C. Immunofluorescence test
- D. Complement fixation test
- E. Immobilization test

73. Due to blood loss the circulating blood volume of a patient decreased. How will it affect the blood pressure in this patient?

- A. Systolic and diastolic pressure will decrease
- B. Only systolic pressure will decrease
- C. Only diastolic pressure will decrease
- D. Systolic pressure will decrease, while diastolic will increase
- E. Diastolic pressure will decrease, while systolic will increase

74. A bacteriological laboratory tests canned meat for botulinum toxin. Extract of the tested material and ABE botulinum

antitoxin serum was introduced into the test group of mice; the control group of mice received the extract without antitoxin serum. What serological reaction was used?

- A. Neutralization
- B. Precipitation
- C. Complement binding
- D. Opsonophagocytic
- E. Double immunodiffusion

75. A 50-year-old man is diagnosed with ischemic heart disease and cardiosclerosis with hypertensive syndrome. What drug should be prescribed in this case?

- A. Metoprolol
- B. Acetylsalicylic acid
- C. Corglycon
- D. Strophanthine
- E. Potassium chloride

76. Poisoning caused by mercury (II) chloride (corrosive sublimate) occurred in the result of safety rules violation. In 2 days the patient's diurnal diuresis became 620 ml. The patient developed headache, vomiting, convulsions, dyspnea; moist crackles are observed in the lungs. Name this pathology:

- A. Acute renal failure
- B. Chronic renal failure
- C. Uremic coma
- D. Glomerulonephritis
- E. Pyelonephritis

77. Autopsy of a 9-year-old child shows numerous irregular defects of varying depth with uneven margins and gray-white films tightly attached to the underlying tissue on the rectal mucosa of the body. What disease can be suspected?

- A. Dysentery
- B. Salmonellosis
- C. Cholera
- D. Typhoid fever
- E. Amebiasis

78. A man presents with glomerular filtration rate of 180 ml/min., while norm is 125 ± 25 ml/min. The likely cause of it is the decreased:

- A. Plasma oncotic pressure
- B. Effective filtration pressure
- C. Hydrostatic blood pressure in the glomerular capillaries
- D. Renal blood flow
- E. Permeability of the renal filter

79. A young man came to a hospital with complaints of disturbed urination. Examination of his external genitalia revealed the urethra to be split on the top, with urine flowing out of this opening. What type

of external genitalia maldevelopment is observed in this case?

- A. Epispadia
- B. Phimosis
- C. Hermaphroditism
- D. Paraphimosis
- E. Hypospadias

80. A 10-year-old child had cut his leg with a glass shard, when playing, and was delivered to the outpatient department to receive antitetanus serum. To prevent development of anaphylactic shock the serum was introduced by Bezredka method. This method of organism hyposensitization is based on the following mechanism:

- A. Binding of mast cell-fixed IgE
- B. Blocking of mast cell mediators synthesis
- C. Stimulation of immune tolerance to antigen
- D. Stimulation of antigen-specific IgG2
- E. Stabilization of mast cell membranes

81. A 38-year-old man, who has been suffering from systemic lupus erythematosus for 3 years, developed diffuse renal lesions accompanied by massive edemas, marked proteinuria, hyperlipidemia, and dysproteinemia. What is the most likely mechanism of proteinuria development in this case?

- A. Autoimmune damage to the nephrons
- B. Inflammatory damage to the nephrons
- C. Ischemic damage to the tubules
- D. Increased blood proteins
- E. Morbid affection of the urinary tracts

82. During experiment a part of the brain was extracted, which resulted in asynergy and dysmetria development in the test animal. What part of the brain was extracted in the animal?

- A. Cerebellum
- B. Frontal lobe
- C. Parietal lobe
- D. Mesencephalon
- E. Reticulum

83. A woman with polyarticular rheumatoid arthritis was prescribed a non-steroidal antiinflammatory drug - diclofenac sodium. After the patient has been taking it for some time, her concomitant disease exacerbated, which forced the doctor to cancel the prescription of this drug. What concomitant disease could necessitate cancellation of this drug prescription?

- A. Ulcer disease
- B. Ischemic heart disease
- C. Diabetes mellitus
- D. Essential hypertension
- E. Bronchial asthma

84. Histologic preparation stained with orcein demonstrates from 40 to 60 fenestrated elastic membranes within the middle coat of the vessel. Name this vessel:

- A. Elastic artery
- B. Muscular artery
- C. Mixed type artery
- D. Muscular vein
- E. Nonmuscular vein

85. A woman with the III (B), Rh (-) blood group gave birth to a child with the II (A) blood group. The child is diagnosed with hemolytic disease of newborn caused by rhesus incompatibility. What blood group and Rh are likely in the father?

- A. II (A), Rh (+)
- B. I (0), Rh (+)
- C. III (B), Rh (+)
- D. I (0), Rh (-)
- E. II (A), Rh (-)

86. A 40-year-old woman with Cushing's disease presents with steroid diabetes. On biochemical examination she has hyperglycemia and hypochloremia. What process activates in the first place in such patients?

- A. Gluconeogenesis
- B. Glycogenolysis
- C. Glucose reabsorption
- D. Glucose transportation into a cell
- E. Glycolysis

87. A 40-year-old prisoner died of tuberculosis in the corrective labor camp. Autopsy of the body revealed deformation and diminishing of both lung apices; in the both upper lobes there are multiple cavities with dense walls 2-3 mm thick; in the lower lung lobes there are disseminated foci of caseous necrosis varying from 5 mm to 2 cm in diameter. Diagnose the type of tuberculosis:

- A. Secondary fibro-cavitary tuberculosis
- B. Secondary fibrous-focal tuberculosis
- C. Hematogenous macrofocal pulmonary tuberculosis
- D. Primary tuberculosis, primary affect development
- E. Secondary cirrhotic tuberculosis

88. A 7-year-old boy died of acute posthemorrhagic anemia caused by profuse hemorrhage in the gastrointestinal tract.

Postmortem study revealed the following: macroscopically there were acutely enlarged various groups of the lymph nodes, thymomegaly, hepatosplenomegaly, and bright red bone marrow; microscopically there was hypercellular bone marrow with monomorphic infiltrations composed of blasts and diffuse-focal tumor infiltrations in the liver, spleen, lymph nodes, brain substance and tunics. Make the diagnosis:

- A. Acute lymphoblastic leukemia
- B. Acute myeloblastic leukemia
- C. Acute undifferentiated leukemia
- D. Acute monoblastic leukemia
- E. Acute plasmablastic leukemia

89. Autopsy of a man, who served on a nuclear submarine, revealed the following pathologies: bone marrow atrophy (panmyelophthisis), anemia, leukopenia, thrombocytopenia, lymphocytes disintegration in the lymph nodes, spleen, gastrointestinal lymphatic system, and hemorrhages into the adrenal glands. What disease had developed in this case?

- A. Acute radiation sickness
- B. Decompression sickness
- C. Acute leukemia
- D. Acute anemia
- E. Vibration disease

90. After sensitization a test animal received subcutaneously a dose of antigen. At the site of injection a fibrinous inflammation developed with alteration of vessel walls, basal substance, and fibrous structures of connective tissue. The inflammation took form of mucoid and fibrinoid degeneration, fibrinoid necrosis. What immune response occurred in the test animal?

- A. Immediate hypersensitivity
- B. Delayed hypersensitivity
- C. Transplantation immune reaction
- D. Normergic reaction
- E. Granulomatosis

91. Preoperative examination revealed prothrombin deficiency in the blood of the patient. What drug should be preliminarily prescribed to mitigate blood loss in the patient during the surgery?

- A. Vicasol (Menadione)
- B. Thrombin
- C. Aminocaproic acid
- D. Phenylin (Phenindione)
- E. Contrykal (Aprotinin)

92. 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

93. During regular check-up a child is determined to have interrupted mineralization of the bones. What vitamin deficiency can be the cause?

- A. Calciferol
- B. Riboflavin
- C. Tocopherol
- D. Folic acid
- E. Cobalamin

94. On examination the patient was determined to have strong, balanced, inert type of higher nervous activity according to Pavlov's classification. What temperament according to Hippocrates is it?

- A. Phlegmatic
- B. Sanguine
- C. Choleric
- D. Melancholic
- E. -

95. A specimen shows an organ covered with connective tissue capsule with trabeculae radiating inward the organ. The organ's cortex contains lymph nodules; there are medullary cords made of lymphoid cells. What organ is under study?

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

96. Brain autopsy revealed an edema, hyperemia, and small hemorrhages in the medulla oblongata. Microscopically chromatolysis, hydropia and nerve cell necrosis are observed; within the cytoplasm of hippocampal nerve cells there are eosinophilic structures (Negri bodies) detected. What diagnosis corresponds with the described morphological signs?

- A. Rabies
- B. Meningococcal meningitis
- C. Encephalitis
- D. Encephalomyelitis
- E. Brucellosis

97. A married couple came for a genetic counseling. The husband suffers from insulin-independent diabetes mellitus, while the wife is healthy. What is the probability of their child developing insulin-independent diabetes mellitus?

- A. Higher than in the population
- B. The same as in the population
- C. Lower than in the population
- D. 100%
- E. 50%

98. A 46-year-old patient suffering from ulcer disease of the stomach is diagnosed with rheumatoid arthritis. What anti-inflammatory drug would be the most advisable in this case?

- A. Celecoxib
- B. Prednisolone
- C. Analgin (Metamizole)
- D. Promedol (Trimeperidine)
- E. Paracetamol

99. Electron micrograph of the kidney shows fenestrated endothelium lying on the basement membrane; the external surface of the membrane has adjacent dendritic epithelial cells. What do these structures form in the kidney?

- A. Filtration barrier
- B. Juxtaglomerular apparatus
- C. Distal nephron
- D. Henle's loop
- E. Proximal nephron

100. A worker of an agricultural enterprise had been suffering from an acute disease with aggravating intoxication signs, which resulted in his death. On autopsy: the spleen is enlarged, flaccid, dark cherry-red on section, yields excessive pulp scrape. Soft meninges of the fornix and base of the brain are edematous and saturated with blood ("cardinal's cap"). Microscopically: serous-hemorrhagic inflammation of meninges and cerebral tissues. Make the diagnosis:

- A. Anthrax
- B. Tularemia
- C. Plague
- D. Cholera
- E. Brucellosis

101. A woman suffers from tonsillitis complicated with retropharyngeal abscess that is localized in the *spatium retroviscerale*. In this case the suppurative process can spread to the:

- A. *Mediastinum posterius*
- B. *Spatium interaponeuroticum suprasternale*
- C. *Mediastinum anterius*
- D. *Spatium pretracheale*
- E. *Spatium interscalenum*

102. A patient with chronic bronchitis was prescribed a drug with mucolytic action. Name this drug:

- A. Ambroxol
- B. Anaprilin (Propranolol)
- C. Atropine sulfate
- D. Magnesium sulfate
- E. Paracetamol

103. A patient suffers from acute cardiopulmonary failure with pulmonary edema. What diuretic should be prescribed in the given case?

- A. Furosemide
- B. Triamterene
- C. Spironolactone
- D. Dichlothiazidum (Hydrochlorothiazide)
- E. Diacarb (Acetazolamide)

104. Therapeutics unit of a hospital received a man suffering from ulcer disease of the stomach with hyperacidity. Which of the listed group of drugs must be used as a part of the complex therapy of this patient?

- A. Histamine H₂-receptor antagonists
- B. Calcium channel blockers
- C. Nonsteroidal antiinflammatory drugs
- D. Steroidal antiinflammatory drugs
- E. Histamine H₁-receptor antagonists

105. A 45-year-old woman gave birth to a boy with cleft maxilla (cleft lip and palate). On additional examination there are significant disturbances of the boy's nervous, cardiovascular, and visual systems. Karyotype investigation allowed diagnosing the patient with trisomy 13. What syndrome is present in the boy?

- A. Patau
- B. Down
- C. Klinefelter
- D. Turner
- E. DiGeorge

106. Pathologic material (mucosal excretion from the nasal passages) obtained from a patient provisionally diagnosed with influenza was delivered to the virological laboratory. What quick test allows detecting specific viral antigen in the investigated material?

- A. Direct and indirect immunofluorescence (IF)
- B. Direct and indirect enzyme-linked immunosorbent assay (ELISA)
- C. Hemagglutination inhibition assay (HAI)
- D. Reverse indirect haemagglutination (RIHA)
- E. Radioimmunoassay (RIA)

107. A 5-year-old child is diagnosed with Bruton syndrome (X-linked agammaglobulinemia) that manifests itself in severe clinical course of bacterial

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

- A. Decreased IgA, IgM
- B. Increased IgA, IgM
- C. Decreased IgD, IgE
- D. Increased IgD, IgE
- E. No changes

108. A 37-year-old man, who was working in a caisson, after being lifted to the surface suddenly developed signs of acute cerebral circulation disturbance and loss of consciousness. Several days later he died. On autopsy in the left cerebral hemisphere there was detected a gray soft irregular focus 5x6x3,5 cm in size. What process had occurred in the brain?

- A. Ischemic stroke
- B. Hemorrhagic infarction
- C. Abscess
- D. Cyst
- E. Tumor

109. A short-term physical load resulted in reflex increase of heart rate and systemic arterial pressure in a person. What receptor activation was the most contributory to inducing the pressor reflex?

- A. Proprioceptors of the working muscles
- B. Vascular chemoreceptors
- C. Vascular volume receptors
- D. Vascular baroreceptors
- E. Hypothalamic thermoreceptors

110. During experiment a skeletal muscle is being stimulated with a series of electrical impulses. What type of muscular contraction will develop, if each following impulse occurs within the relaxation period after the previous single contraction of the muscle?

- A. Incomplete tetanus
- B. Smooth tetanus
- C. Series of single contractions
- D. Muscle contracture
- E. Asynchronous tetanus

111. Depression and emotional disturbances result from the lack of noradrenaline, serotonin, and other biogenic amines in the brain. Their content in the synapses can be increased through administration of antidepressants that inhibit the following enzyme:

- A. Monoamine oxidase
- B. Diamine oxidase
- C. L-amino acids oxidase
- D. D-amino acid oxidase
- E. Phenylalanine 4-monooxygenase

112. A 2-year-old child presents with acute psychomotor retardation, vision and hearing impairment, sharp enlargement of the liver and spleen. The child is diagnosed with hereditary Niemann-Pick disease. What genetic defect is the cause of this disease?

- A. Sphingomyelinase deficiency
- B. Glucose 6-phosphatase deficiency
- C. Amylo-1,6-glucosidase deficiency
- D. Acid lipase deficiency
- E. Xanthine oxidase deficiency

113. Clinical presentations of a woman allowed provisionally diagnosing her with X polysomy. Cytogenetic method is applied to clarify the diagnosis. The diagnosis will be confirmed if the patient's karyotype is:

- A. 47, XXX
- B. 48, XXXY
- C. 48, XXYY
- D. 47, XXY
- E. 46, XX

114. During dehelminthization there was a 3,5-meter-long tapeworm produced from the patient's intestine. There are 4 suckers and hooks on the tapeworm's scolex. Mature segments of the tapeworm are immobile and have up to 12 uterine branches. What disease is it?

- A. Teniasis
- B. Echinococcosis
- C. Beef tapeworm infection
- D. Diphyllbothriasis
- E. Opisthorchiasis

115. A patient presents with steatorrhea. This disorder can be linked to disturbed supply of the intestine with the following substances:

- A. Bile acids
- B. Carbohydrates
- C. Trypsin
- D. Chymotrypsin
- E. Amylase

116. Cytochrome oxidase is a hemeprotein that is an end component of the mitochondrial respiratory chain. What reaction is catalyzed with this enzyme?

- A. Transfer of reduced equivalents to molecular oxygen
- B. Cytochrome synthesis
- C. Transfer of reduced equivalents to ubiquinone
- D. Cytochrome splicing
- E. Adenosine triphosphate synthesis

117. A 16-year-old girl fainted when she tried to quickly change her position from horizontal to vertical. What caused the loss of consciousness in the girl?

- A. Decreased venous return
- B. Increased venous return
- C. Increased central venous pressure
- D. Decreased oncotic plasma pressure
- E. Increased arterial pressure

118. An unconscious patient was delivered 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

119. 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*

120. After mushroom poisoning the patient developed signs of acute hepatic failure leading to his death. On autopsy the liver is diminished, flaccid; the capsule is wrinkled; the tissue is ochre-yellow on section. Microscopically: fatty degeneration of hepatocytes, necrotic central segments of the hepatic lobes. These changes are characteristic of:

- A. Massive progressive necrosis
- B. Fatty hepatitis
- C. Acute exudative hepatitis
- D. Acute productive hepatitis
- E. Hepatolenticular degeneration

121. Blood test of an athlete shows the

following: erythrocytes - $5,5 \cdot 10^{12}/l$, hemoglobin - 180 g/l, leukocytes - $7 \cdot 10^9/l$, neutrophils - 64%, basophils - 0,5%, eosinophils - 0,5%, monocytes - 8%, lymphocytes - 27%. These values primarily indicate the stimulation of:

- A. Erythropoiesis
- B. Leukopoiesis
- C. Lymphopoiesis
- D. Granulocytopoiesis
- E. Immunogenesis

122. Experimental stimulation of the sympathetic nerve branches that innervate the heart caused an increase in the 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

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

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

124. A patient with pneumonia has body temperature of $39,2^{\circ}C$. What cells are the main producers of endogenous pyrogen that had caused such temperature rise?

- A. Monocytes
- B. Eosinophils
- C. Neutrophils
- D. Endotheliocytes
- E. Fibroblasts

125. A patient is diagnosed with compression fracture of the lumbar vertebra. The patient presents with acutely increased lumbar lordosis. What ligament was damaged in this patient resulting in such deformation of vertebral column curvature?

- A. Anterior longitudinal ligament
- B. Posterior longitudinal ligament
- C. Yellow ligament
- D. Iliolumbar ligament
- E. Interspinal ligament

126. Gram-positive spore-forming bacilli were extracted in anoxic environment from the patient's wound contaminated

with soil. Cultivation on a blood-glucose agar resulted in growth of the colonies surrounded with hemolysis zone. What agent was extracted from the wound?

- A. *Clostridium perfringens*
- B. *Staphylococcus aureus*
- C. *Clostridium botulinum*
- D. *Escherichia coli*
- E. *Pseudomonas aeruginosa*

127. The patient's ECG shows that in the second standard lead from the extremities the P waves are positive, their amplitude is 0,1 mV (norm is 0,05-0,25 mV), duration - 0,1 seconds (norm is 0,07-0,10 seconds). It can be concluded that the following process occurs normally in the cardiac atria:

- A. Depolarization
- B. Repolarization
- C. Activation
- D. Contraction
- E. Relaxation

128. Autopsy of a patient, who died of bilateral bronchopneumonia, shows in the left lung lower lobe a cavity 5 cm in diameter, filled with liquid yellowish-white substance. What complication of the patient's pneumonia had developed?

- A. Abscess
- B. Gangrene
- C. Granuloma
- D. Sequestrum
- E. Tuberculoma

129. A patient, who has been subsisting exclusively on polished rice, has developed polyneuritis due to thiamine deficiency. What substance is an indicator of such avitaminosis, when it is excreted with urine?

- A. Pyruvic acid
- B. Malate
- C. Methylmalonic acid
- D. Uric acid
- E. Phenyl pyruvate

130. It is known that pentose-phosphate pathway actively functions in the erythrocytes. What is the main function of this metabolic pathway in the erythrocytes?

- A. Counteraction to lipid peroxidation
- B. Activation of microsomal oxidation
- C. Neutralization of xenobiotics
- D. Oxidation of glucose into lactate
- E. Increase of lipid peroxidation

131. Pupil dilation occurs when a person steps from a light room into a dark one. What reflex causes such a reaction?

- A. Sympathetic unconditioned reflex
- B. Sympathetic conditioned reflex
- C. Metasympathetic reflex
- D. Parasympathetic unconditioned reflex
- E. Parasympathetic conditioned reflex

132. A patient complaining of heartburn has undergone biopsy of the gastric mucosa. In the sample there are numerous cells with oxyphilic cytoplasm in the glandular epithelium. Name these cells:

- A. Exocrine parietal cells
- B. Exocrine chief cells
- C. Mucous cells
- D. Epithelial cells
- E. Endocrine cells

133. Inherited diseases, such as mucopolysaccharidoses, manifest 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

134. A woman was delivered to a gynecological unit with signs of acute abdomen and suspected extrauterine pregnancy with oviduct rupture. Where will the blood accumulate in this case?

- A. Rectouterine pouch
- B. Vesicouterine pouch
- C. Retrovesical pouch
- D. Right lateral canal
- E. Left lateral canal

135. A patient had a trauma that caused dysfunction of motor centers regulating activity of head muscles. These centers can normally be located in the following area of the cerebral cortex:

- A. Inferior part of the precentral gyrus
- B. Superior part of the precentral gyrus
- C. Supramarginal gyrus
- D. Superior parietal lobule
- E. Angular gyrus

136. 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. Diphtheritic gastritis
- B. Croupous gastritis
- C. Phlegmonous gastritis
- D. Catarrhal gastritis
- E. Corrosive gastritis

137. Cystinuria manifests itself in a human as cystine stones in the kidneys (homozygous individuals) or increased cystine content in the urine (heterozygous individuals). Cystinuria is a monogenic disorder. Determine the type of interaction between the genes of cystinuria and normal urine cystine excretion:

- A. Semidominance
- B. Epistasis
- C. Complete dominance
- D. Complementarity
- E. Codominance

138. A patient with obliterating atherosclerosis has undergone sympathectomy of the femoral artery in the area of femoral triangle. What type of arterial hyperemia was developed in the patient due to this surgery?

- A. Neuroparalytic
- B. Reactive
- C. Metabolic
- D. Neurotonic
- E. Functional

139. On bronchoscopy there is a polypoid growth 1,0 cm in diameter with ulcer in its center in the upper lobe of the right lung. Histological investigation revealed a tumor composed of lymphocyte-like cells with hyperchromic nuclei, the cells form layers and bands. What is the most likely tumor type?

- A. Undifferentiated small cell carcinoma
- B. Undifferentiated large cell carcinoma
- C. Squamous cell carcinoma
- D. Adenocarcinoma
- E. Glandular squamous cell carcinoma

140. The brain trauma unit received a patient with damaged greater wing of the sphenoid bone. The fracture line crosses the spinous foramen of the sphenoid. What vessel was damaged?

- A. Middle meningeal artery
- B. Superficial temporal artery
- C. Lateral pterygoid artery
- D. Anterior deep temporal artery
- E. Posterior deep temporal artery

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

142. A person with vitamin A deficiency develops twilight vision disturbance. Name the cells that fulfill this photoreceptor function:

- A. Rod cells
- B. Horizontal cells of retina
- C. Bipolar neurons
- D. Cone cells
- E. Ganglionic nerve cells

143. Presented is the biopsy material of an organ consisting of saccule-shaped rounded structures of varying size. Inside these structures there is a gel-like non-cellular substance - colloid; structure walls are composed of one layer of cuboidal cells that lay on the basement membrane. Between the saccules there is connective tissue with vessels. Name this organ:

- A. Thyroid gland
- B. Pancreas
- C. Parotid gland
- D. Thymus
- E. Parathyroid gland

144. A 26-year-old woman 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

145. Water affects the mucosa of lower nasal passages resulting in diving reflex. This response manifests itself as:

- A. Reflex apnea
- B. Reflex dyspnea
- C. Reflex hyperpnea
- D. Cough
- E. Bronchial spasm

146. Examination of a 56-year-old woman 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 concentration of blood amino acids
- D. Increase in plasma oncotic pressure
- E. Increase in low-density lipoproteins level

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

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

148. Streptomycin and other aminoglycosides prevent the joining of formyl-methionyl-tRNA by bonding with the 30S ribosomal subunit. This effect leads to disruption of the following process:

- A. Translation initiation in procaryotes
- B. Translation initiation in eucaryotes
- C. Transcription initiation in procaryotes
- D. Transcription initiation in eucaryotes
- E. Replication initiation in procaryotes

149. In hot weather ventilators are often used to normalize the microclimate in the heated rooms. It leads to intensified heat transfer from the human body by means of:

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

150. During gastric resection the patient received mixed anesthesia with tubocurarin chloride muscle relaxant; to restore spontaneous respiration the patient received proserin. What pharmacological group does this drug belong to?

- A. Cholinesterase inhibitors
- B. Angiotensin-converting-enzyme inhibitors
- C. Calcium channel blockers
- D. Muscarinic antagonists
- E. Muscarinic agonists

151. A 67-year-old man 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

152. To treat bronchitis the patient was prescribed a beta-lactam antibiotic. Its mechanism of action is based on inhibition of murein production, which results in death of the causative agent. Name this drug:

- A. Penicillin G Sodium Salt
- B. Bijochinol (Quinine bismuth iodide)
- C. Ciprofloxacin
- D. Azithromycin
- E. Streptomycin

153. Cell membrane rest potential changed from -85 to -90 mV. It can be caused by activation of the following cell membrane channels:

- A. Potassium
- B. Sodium
- C. Potassium and sodium
- D. Calcium
- E. Potassium and calcium

154. Ionizing radiation or vitamin E deficiency affect the cell by increasing lysosome membrane permeability. What are the possible consequences of this pathology?

- A. Partial or complete cell destruction
- B. Intensive protein synthesis
- C. Intensive energy production
- D. Restoration of cytoplasmic membrane
- E. Formation of maturation spindle

155. A 22-year-old woman ate some seafood. 5 hours later her torso and distal parts of her limbs developed small itchy papules which were partially fused together. One day later 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

156. During acute hemorrhage the body loses not only fluid but also electrolytes. What substance solution can be used as a simple blood substitute?

- A. Sodium chloride
- B. Sodium bromide
- C. Albumin
- D. Sodium nucleotide
- E. Calcium chloride

157. 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

158. In a body of a 37-year-old woman, who died with signs of pulmonary edema, there was detected acute deformation of the aortic valve: it is shortened, thickened, ulcerated, has areas of stone-like density. On its external surface there are large, up to 2 cm in diameter, thrombotic plaques. Left ventricle wall is 2,2 cm thick. Cardiac muscle is dull, matt, and flaccid. What type of endocarditis corresponds with described alterations of the aortic valve?

- A. Ulcerative polypoid endocarditis
- B. Diffuse endocarditis
- C. Acute verrucous endocarditis
- D. Recurrent verrucous endocarditis
- E. Fibroplastic endocarditis

159. Students study the stages of gametogenesis. They analyze a cell with haploid number of chromosomes, with each chromosome consisting of two chromatids. The chromosomes are located in the equatorial plane of the cell. Such situation is typical of 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

160. A 38-year-old woman developed a bronchial asthma attack. Which of the listed bronchial spasmolytics is effective for emergency aid and belongs to beta-2-adrenergic agonists?

- A. Salbutamol
- B. Adrenaline
- C. Ipratropium bromide
- D. Platyphyllin
- E. Atropine

161. After emotional upset a woman has been suffering from disturbed sleep for several days. What soporific drug would be preferable for this type of insomnia?

- A. Nitrazepam
- B. Phenobarbital
- C. Ethaminal sodium (Pentobarbital)
- D. Barbamylum (Amobarbital)
- E. Chloral hydrate

162. During training session in the laboratory the students were performing spirometry on themselves. What indicator CANNOT be measured with this method?

- A. Functional residual capacity
- B. Vital capacity
- C. Respiratory minute volume
- D. Respiration rate
- E. Maximal breathing capacity

163. In the South and Central America there can be found a species of trypanosomes that is the causative agent of Chagas disease. What animal is the infection carrier specific to this disease?

- A. Triatomine bug
- B. Cockroach
- C. Tsetse fly
- D. Mosquito
- E. Gnat

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

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

165. A 30-year-old man with diabetes mellitus type I was hospitalized. The patient is comatose. Laboratory tests revealed hyperglycemia and ketonemia. What metabolic disorder can be detected in this patient?

- A. Metabolic acidosis
- B. Metabolic alkalosis
- C. Respiratory acidosis
- D. Respiratory alkalosis
- E. Acid-base balance is normal

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

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

167. An infant, who was on synthetic formula feeding, developed signs of vitamin B₁ deficiency. What reactions does this vitamin take part in?

- A. Keto acids oxidative decarboxylation
- B. Amino acids transamination
- C. Amino acids decarboxylation
- D. Proline hydroxylation
- E. Redox reactions

168. A 30-year-old woman developed the signs of virilism (body hair growth, balding temples, disturbed menstrual cycle). What hormone can cause this condition when hyperproduced?

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

169. A histological specimen shows significant amount of mucous connective tissue (Wharton's jelly), vessels, as well as residual yolk and allantois. Name this organ:

- A. Umbilical cord
- B. Esophagus
- C. Ureter
- D. Urethra
- E. Vermiform appendix

170. On examination of a 6-year-old child the doctor noticed grayish film on the child's tonsils. Microscopy of the smears stained by Neisser method detected there *Corynebacterium diphtheriae*. What morphologic feature was the most indicative for determining the type of the agent?

- A. Polar placement of volutin granules
- B. Localization of the causative agent within macrophages
- C. Spores that exceed cells in diameter
- D. Fence-like position of the agent's cells
- E. Presence of the capsule

171. During the sports competition a boxer received a strong blow to the abdomen, which caused a knockout due to a brief drop in blood pressure. What physiological mechanisms are the cause of this condition?

- A. Stimulation of parasympathetic nerves
- B. Alteration of transcapillary exchange
- C. Ischemia of the central nervous system
- D. Abrupt change in body fluid volume
- E. Stimulation of sympathetic nerves

172. After a severe stress the patient presents with eosinopenia in the blood test. In this case the decreased number of eosinophils can explain changes in the level of the following hormones:

- A. Glucocorticoids
- B. Adrenaline
- C. Insulin
- D. Mineralocorticoids
- E. Vasopressin

173. A 30-year-old patient's blood test revealed the following: erythrocyte count is $6 \cdot 10^{12}/l$, hemoglobin is 10,55 mmol/l. Vaquez's disease was diagnosed. Name the leading part of pathogenesis in this case:

- A. Neoplastic erythroid hyperplasia
- B. Iron-deficiency
- C. B_{12} -deficiency
- D. Hypoxia
- E. Acidosis

174. Deaf parents with genotypes DD e e and ddEE gave birth to a child with normal hearing. Specify the interaction of D and E genes:

- A. Complementary interaction
- B. Complete dominance
- C. Epistasis
- D. Polymery
- E. Overdominance

175. Corticosteroid hormones regulate the adaptation processes of the body as a whole to environmental changes and ensure the maintenance of internal homeostasis. What hormone activates the hypothalamo-pituitary-adrenal axis?

- A. Corticoliberin
- B. Somatoliberin
- C. Somatostatin
- D. Corticostatin
- E. Thyroliberin

176. 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. H_1 -histamine receptors stimulation
- E. Supression of serotonergic neurotransmission

177. A 50-year-old inpatient during examination presents with glucosuria and blood glucose of 3,0 mmol/l, which are the most likely to be caused by:

- A. Renal disorder
- B. Diabetes insipidus
- C. Myxedema
- D. Essential hypertension
- E. Pellagra

178. A man is suffering from diarrhea. In

summer he spent his vacation in the south at the sea coast. Bacteria with the following properties were detected in his feces: gram-negative curved mobile monotrichous bacilli that do not produce spores or capsules. They are undemanding to nutrient medium but require alkaline reaction (pH - 8,5-9,5). Described are the agents of the following enteric infection:

- A. Cholera
- B. Shigellosis
- C. Typhoid fever
- D. Colienteritis
- E. Pseudotuberculosis

179. A pregnant woman was detected to have IgM to rubella virus. An obstetrician-gynecologist recommended therapeutic abortion due to the high risk of teratogenic affection of the fetus. Detection of IgM was of great importance as it is these specific immunoglobulins that:

- A. Indicate recent infection
- B. Penetrate placental barrier
- C. Have the largest molecular weight
- D. Are associated with anaphylactic reactions
- E. Are the main factor of antiviral protection

180. During examination of a teenager with xanthomatosis the family history of hypercholesterolemia is revealed. What transportable lipids are increased in concentration in case of such a disease?

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

181. On examination the patient is found to have low production of adrenocorticotrophic hormone. How would this affect production of the other hormones?

- A. Decrease adrenocorticotrophic hormones synthesis
- B. Decrease hormone synthesis in the adrenal medulla
- C. Decrease insulin synthesis
- D. Increase sex hormones synthesis
- E. Increase thyroid hormones synthesis

182. Parkinson's disease is caused by disturbance of dopamine synthesis. What brain structure synthesizes this neurotransmitter?

- A. Substantia nigra
- B. Globus pallidus
- C. Corpora quadrigemina
- D. Red nuclei
- E. Hypothalamus

183. Determining a patient's blood group with monoclonal test-reagents revealed positive agglutination reaction to anti-A and anti-B reagents, and negative reaction to anti-D. What blood group does this patient have?

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

184. A patient visited a dentist to extract a tooth. After the tooth had been extracted, bleeding from the tooth socket continued for 15 minutes. Anamnesis states that the patient suffers from active chronic hepatitis. What phenomenon can extend the time of hemorrhage?

- A. Decrease of fibrinogen content in blood
- B. Thrombocytopenia
- C. Hypocalcemia
- D. Increased activity of anticoagulation system
- E. Decrease of albumine content in blood

185. During ascent into mountains a person develops increased respiration rate and rapid heart rate. What is the cause of these changes?

- A. Decrease of O_2 partial pressure
- B. Increase of CO_2 partial pressure
- C. Increase of blood pH
- D. Increase of nitrogen content in air
- E. Increase of air humidity

186. To stop the bleeding the patient was prescribed a direct coagulant. During introduction of the solution the patient was complaining of pain along the vein, hot sensation, and palpitations. Name the drug that causes such symptoms:

- A. Calcium chloride
- B. Hirudine
- C. Ergocalciferol
- D. Pentoxyl
- E. Streptokinase

187. A student, whose educational achievements throughout the semester were poor, feels emotionally tense during the final test. What is the primary cause that induced leading mechanism of emotional tension in this case?

- A. Lack of information
- B. Tight time
- C. Tight time and lack of energy
- D. Lack of energy
- E. Lack of energy and information

188. A young family came for a genetic counseling to identify the father of their child. The husband insists that the child does not resemble him at all and cannot possibly be his. Polymerase chain reaction method for person identification is based on the following:

- A. Gene amplification
- B. Nucleotide deletion
- C. Genetic recombination
- D. Missense mutation
- E. Transduction

189. A 52-year-old man presents with fever and pain in the joints. Both of his first metatarsophalangeal articulations are deformed, swollen, and reddened. Blood urea is high. The patient is diagnosed with gout. What is the main developmental factor in the pathogenesis of this disease?

- A. Hyperuricemia
- B. Argininosuccinic aciduria
- C. Hyperazotemia
- D. Hyperaminoacidemia
- E. Citrullinuria

190. A 67-year-old man was delivered to the cardiology unit with complaints of periodical pain in the heart, dyspnea after even insignificant physical exertion, cyanosis, and edemas. ECG revealed additional contractions of the heart ventricles. Name this type of rhythm disturbance:

- A. Extrasystole
- B. Bradycardia
- C. Tachycardia
- D. Flutter
- E. Fibrillation

191. During narcosis the patient developed a risk of cerebral edema. What drug should be administered in this case?

- A. Furosemide
- B. Dopamine
- C. Phenazepam
- D. Triamterene
- E. Sodium bromide

192. A patient with pulmonary tuberculosis is prescribed the most effective anti-tuberculous antibiotic. Name this drug:

- A. Rifampicin
- B. Tetracycline
- C. Streptocide
- D. Furasolidone
- E. Bactrim (Co-trimoxazole)

193. During surgery performed in the abdominal cavity a surgeon located ligament of liver stretching from anterior abdominal wall (navel) to inferior surface of liver. What ligament is it?

- A. Round ligament of the liver
- B. Falciform ligament of the liver
- C. Coronary ligament of the liver
- D. Venous ligament of the liver
- E. Triangular ligament of the liver

194. On examination of a patient with disease onset 5 days ago the doctor suspected tularemia and prescribed the patient tularin intracutaneously. What is the purpose of this drug administration in the patient?

- A. Allergy diagnostics
- B. Prevention
- C. Treatment
- D. Treatment evaluation
- E. Prognosis for the disease

195. A patient developed increased blood content of HCO_3^- against the background of repeated and uncontrollable vomiting. What will be the leading mechanism in compensation of developed acid-base imbalance?

- A. Decreased pulmonary ventilation
- B. Increased pulmonary ventilation
- C. Increased renal reabsorption of bicarbonate
- D. Increased renal reabsorption of ammonia
- E. -

196. A 13-year-old boy presents with eczematous rashes on his shins and torso. Anamnesis states cases of otitis, pneumonia, and furuncles in the patient. Blood test: platelets - $70 \cdot 10^9/l$, low activity of T helper and T suppressor cells, low IgM, with normal IgA and IgG. What immunodeficient disease does this boy have?

- A. Wiskott-Aldrich syndrome
- B. Louis-Bar syndrome (Ataxia-telangiectasia)
- C. Severe combined immunodeficiency (Swiss type)
- D. DiGeorge syndrome
- E. Chediak-Higashi syndrome

197. During the exam a student was unable to correctly answer all the questions in his question card, which was accompanied by

the reddening of his face and hot sensation. What type of arterial hyperemia did the student develop in this case?

- A. Neurotonic
- B. Metabolic
- C. Postischemic
- D. Pathologic
- E. Neuroparalytic

198. An injured person with wound of the anterior cervical region presents with hemorrhage. The outflowing blood is dark. What vessel is damaged?

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

199. Due to trauma the patient presents with disturbed function of the parotid gland. What nerve ensures its secretion function?

- A. *N. petrosus minor*
- B. *N. petrosus major*
- C. *N. petrosus profundus*
- D. *N. auricularis minor*
- E. *N. auricularis major*

200. A patient developed pyoinflammatory process of periodontal tissues caused by activation of the microorganisms inherent in the body, which are a part of oral mucosal microflora. What type of infection is it?

- A. Autoinfection
- B. Exogenous infection
- C. Reinfection
- D. Superinfection
- E. Relapse

INSTRUCTIONAL BOOK

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List of abbreviations

A/G	Albumin/globulin ratio	HR	Heart rate
A-ANON	Alcoholics anonymous	IDDM	Insulin dependent diabetes mellitus
ACT	Abdominal computed tomography	IFA	Immunofluorescence assay
ADP	Adenosine diphosphate	IHD	Ischemic heart disease
ALT	Alanin aminotransferase	IU	International unit
AMP	Adenosine monophosphate	LDH	Lactate dehydrogenase
AP	Action potential	MSEC	Medical and sanitary expert committee
ARF	Acute renal failure	NAD	Nicotine amide adenine dinucleotide
AST	Aspartat aminotransferase	NADPH	Nicotine amide adenine dinucleotide phosphate restored
ATP	Adenosine triphosphate	NIDDM	Non-Insulin dependent diabetes mellitus
BP	Blood pressure	PAC	Polyunsaturated aromatic carbohydrates
bpm	Beats per minute	PAS	Periodic acid & Schiff reaction
C.I.	Color Index	pCO ₂	CO ₂ partial pressure
CBC	Complete blood count	pO ₂	CO ₂ partial pressure
CHF	Chronic heart failure	pm	Per minute
CT	Computer tomography	Ps	Pulse rate
DIC	Disseminated intravascular coagulation	r	roentgen
DCC	Doctoral controlling committee	RBC	Red blood count
DM-2	Non-Insulin dependent diabetes mellitus	RDHA	Reverse direct hemagglutination assay
DTP	Anti diphtheria-tetanus vaccine	Rh	Rhesus
ECG	Electrocardiogram	(R)CFT	Reiter's complement fixation test
ESR	Erythrocyte sedimentation rate	RIHA	Reverse indirect hemagglutination assay
FC	Function class	RNA	Ribonucleic acid
FAD	Flavin adenine dinucleotide	RR	Respiratory rate
FADH ₂	Flavin adenine dinucleotide restored	S1	Heart sound 1
FEGDS	Fibro-esophago-gastro-duodenoscopy	S2	Heart sound 2
FMNH ₂	Flavin mononucleotide restored	TU	Tuberculin unit
GIT	Gastrointestinal tract	U	Unit
GMP	Guanosine monophosphate	USI	Ultrasound investigation
Hb	Hemoglobin	V/f	Vision field
HbA1c	Glycosylated hemoglobin	WBC	White blood count
Hct	Hematocrit	X-ray	Roentgenogram
HIV	Human immunodeficiency virus		