MINISTRY OF HEALTH OF UKRAINE

Testing Board for Professional Competence Assessment of Higher Education Trainees in Medicine and Pharmacy at the Ministry of Health of Ukraine

2021

Student ID								
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Last name										
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Variant 45

Test items for test components of stage 1 of the Unified State Qualification Exam

STOMATOLOGY

Krok 1

1. A student uses percussion to determine the cardiac border that projects on the anterior thoracic wall at the level of the third costal cartilage. What cardiac border is being determined?

A. Apex
B. Left
C. Upper
D. Right
E. Lower

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

A. Noradrenaline hydrotartrate
B. Suprastin (Chloropyramine)
C. Adrenalin hydrochloride
D. Prednisolone
E. Dimedrol (Diphenhydramine)

3. A centrifugate of urine sample obtained from a patient with suspected renal tuberculosis was used to make a slide mount for microscopy. What method should be used to stain the slide and detect the causative agent?

A. Burri stain
B. Aujeszky stain
C. Ziehl-Neelsen stain
D. Loeffler stain
E. Gram stain

4. A patient has received a trauma to the calvaria. What sinuses are likely to be damaged?

A. Inferior petrosal sinus
B. Superior petrosal sinus
C. Sigmoid sinus
D. Superior sagittal sinus
E. Inferior sagittal sinus

5. A shepherd tended to the sheep with the help of his dogs. Gradually he developed pain in his chest and started coughing blood. X-ray shows a spherical structure inhis lungs. Immunology testing confirmed the provisional diagnosis. What helminth is the likely cause of this condition?

A. *Diphyllobothrium latum*
B. Echinococcus
C. *Taenia solium*
D. *Hymenolepis nana*
E. Liver fluke

6. During a class in molecular biology, the mutations resulting in production of abnormal hemoglobin are being studied. What amino acid substitution occurs when S-hemoglobin is being produced, resulting in the development of sickle-cell anemia?

A. Glutamic acid is substituted with valine
B. Histidine is substituted with arginine
C. Threonine is substituted with lysine
D. Lysine is substituted with glutamine
E. Glycine is substituted with asparagine

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

A. Peroxisomes and ribosomes
B. Ribosomes
C. Lysosomes and proteasomes
D. Golgi complex and microtubules
E. Endoplasmic reticulum and microfilament

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

A. Collagen fibers
B. Subcutaneous fat
C. Elastic fiber
D. Epidermis
E. Amorphous substance

9. Autopsy of a patient, who died of heart failure, shows yellow spots and streaks in the the aortic and coronary intima, as well as gray-yellow plaque, protruding from the intima surface. The plaque is focally ulcerated and presents with hemorrhages, thrombi, and calcified foci. Such vascular alterations are characteristic of:

A. Syphilitic mesaortitis
B. –
C. Atherosclerosis
D. Essential hypertension
E. Periarteritis nodosa

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

A. Increased tone of the sympathetic nervous system
B. Adrenaline production
C. Increased vagal tone
D. Aldosterone production
E. Cortisol production

11. Contractions of the respiratory

muscles completely stop, if:

A. –
B. Spinal cord transection at the level of upper cervical segments
C. Spinal cord transection at the level of lower cervical segments
D. Separation of pons cerebelli from medulla oblongata
E. Bilateral vagal transection

12. A deciduous second molar was extracted in a 13-year-old child. What permanent tooth will replace the extracted one?

A. First molar
B. Second molar
C. First premolar
D. Third molar
E. Second premolar

13. Several patients with similar complaints came to the doctor. They all present with weakness, pain in the intestines, indigestion. Feces analysis revealed the need for urgent hospitalization of the patient, who had microbial cysts with four nuclei detected in his samples. Such cysts are characteristic of the following protozoon:

A. *Balantidium*
B. *Entamoeba coli*
C. *Trichomonad*
D. *Lamblia*
E. *Entamoeba histolytica*

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

A. Disseminated intravascular coagulation
B. Disturbed platelet production
C. Autoimmune thrombocytopenia
D. Hemorrhagic diathesis
E. Exogenous intoxication

15. Dependence of blood pressure from vascular resistance was studied in an experiment on a test animal. In what vessel will the resistance be the highest?

A. Arterioles
B. Arteries
C. Aorta
D. Veins
E. Capillaries

16. To take a sample of cerebrospinal fluid for analysis, a doctor makes a puncture into subarachnoid space. To prevent damage to the spinal cord, the needle must be inserted between the two following vertebrae:

A. L3 and L4
B. Th4 and Th5
C. Th12 and L1
D. Th11 and Th12
E. –

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

A. Predominant inhibition of cyclooxygenase-1
B. Phospholipase A2 inhibition
C. Phosphodiesterase inhibition
D. Predominant inhibition of cyclooxygenase-2
E. Predominant stimulation of adenylate cyclase

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

A. Viral hepatitis
B. Hepatic cirrhosis
C. Toxic dystrophy
D. Alcoholic hepatitis
E. Chronic hepatosis

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

A. Sarcoma
B. Syphilis
C. Tuberculosis
D. Scleroma
E. Leprosy

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

A. 5.55 mmol/L
B. 20.0 mmol/L
C. 15.5 mmol/L
D. 8.88 mmol/L
E. 1.0 mmol/L

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

A. Cobalamin
B. Pantothenic acid
C. Niacin
D. Biotin
E. Vitamin *A*

22. A patient with trauma has an epidural hematoma in the temporal region. What artery was damaged?

A. Posterior communicating artery
B. Anterior meningeal artery
C. Medial cerebral artery
D. Middle meningeal artery
E. Anterior cerebral artery

23. A patient suffering from ciliary arrhythmia with anamnesis of bronchial asthma should be prescribed an antiarrhythmic drug. What antiarrhythmic drug is contraindicated in this case?

A. Verapamil
B. Novocainamide (Procainamide)
C. Salbutamol
D. Nifedipine
E. Anaprilin (Propranolol)

24. What hormone of parotid glands intensifies teeth mineralization by stimulating calcium supply to the calcified tissues?

A. Glucagon
B. Calcitonin
C. Cortisol
D. Parotin
E. Parathyrin

25. Autopsy of the body of a man, who died after 3 weeks of pneumonia, shows acutely enlarged lower lobe of his right lung. The lobe is dense, airless, gray, with fibrin deposits on the pleura. Microscopy shows fibrin and segmented leukocytes in all alveoles of this lobe. Make the diagnosis:

A. Influenza virus pneumonia
B. Fibrinous pleurisy
C. Interstitial pneumonia
D. Focal bronchopneumonia
E. Croupous pneumonia

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

A. Microvillous epithelial cells
B. Basement epithelial cells
C. Neurosensory epithelial cells
D. Supporting epithelial cells
E. Ciliary epithelial cells

27. Acid resistance of human teeth depends on the ratio of calcium to phosphorus in the enamel. What is the normal calcium to phosphorus ratio?

A. 1.67
B. 0.8
C. 1.1
D. 0.5
E. 0.9

28. It is known that saliva contains thromboplastins. What is their role in the oral cavity?

A. Increase coagulation properties of saliva
B. Increase bactericidal properties of saliva
C. Increase fibrinolytic properties of saliva
D. Increase enzymatic properties of saliva
E. Increase immunity-inducing properties of saliva

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

A. Lower second premolars
B. Upper third molars
C. Lower second molars
D. Upper second molars
E. Lower first molars

30. Rectal microscopy shows large necrotic foci on the mucosa. Necrotic masses are saturated with fibrin, forming a film. Mucosa and submucosa on

the periphery of the necrotic foci are hyperemic, swollen, and have hemorrhages and leukocyte infiltrations. What disease can be suspected?

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

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

A. Nephrotic syndrome
B. Pyelonephritis
C. Nephritis
D. Urolithiasis
E. Chronic kidney disease

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

A. Hypoaldosteronism
B. Hypothyroidism
C. Hyperthyroidism
D. Hypergonadism
E. Hypogonadism

33. After a prolonged isoniazid treatment, the patient developed polyneuritis, paresthesia, memory disorders, and convulsions. What is the likely mechanism of the described isoniazid side-effects?

A. Disruption of cell membrane synthesis
B. Inhibition of RNA synthesis
C. Inhibition of pyridoxal phosphate formation
D. Para-aminobenzoic acid antagonism
E. Inhibition of protein synthesis

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

A. Corynebacteria and mycobacteria
B. Salmonellae and klebsiellae
C. Mold and yeast-like fungi
D. Bacilli and clostridia
E. Staphylococci and streptococci

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

A. Thymic agenesis
B. Thymoma
C. Congenital thymomegaly
D. Accidental thymic involution
E. Thymic dysplasia

36. It is known that in metabolism of catecholamine mediators the special role belongs to monoamine oxidase (MAO). How does this enzyme activate these mediators (noradrenaline, adrenaline, dopamine)?

A. Oxidative deaminization
B. Methyl group removal
C. Hydrolysis
D. Carboxylation
E. Amino group attachment

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

A. Collinearity
B. Nonoverlapping
C. Universality
D. Degeneracy
E. Triplet nature

38. During an appointment with the dentist, a patient developed hypersalivation. What group of drugs can decrease this phenomenon?

A. Adrenergic antagonist
B. Cholinergic agonists
C. Adrenergic agonist
D. Astringent agents
E. Cholinergic antagonists

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

A. Cyclooxygenase
B. Peroxidase
C. 5-Lipoxygenase
D. Phospholipase A2
E. Phosphodiesterase

40. A patient came to the doctor with complaints of general weakness and sleep disturbances. Objectively the patient's skin is yellow. In blood there is increased concentration of direct bilirubin and bile acids. Acholic stool is observed. What condition can be characterized by these changes?

A. Familial nonhemolytic (Gilbert's) syndrome
B. Chronic cholecystitis
C. Mechanical jaundice
D. Hemolytic jaundice
E. Parenchymatous jaundice

41. Auscultation reveals that in the patient's II intercostal space along the parasternal line on the right the II heart sound is better heard than the I heart sound. Closure of which valve produces this sound?

A. Right tricuspid valve
B. Left bicuspid valve
C. Semilunar aortic valve
D. Bicuspid and tricuspid valves
E. Semilunar pulmonary valve

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

A. They extract cholesterol from tissues
B. They supply tissues with cholesterol
C. They facilitate cholesterol absorption in the intestine
D. They activate cholesterol transformation into bile acids
E. They take part in cholesterol breakdown

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

A. Anaplasia
B. Infiltrating growth
C. Positive Pasteur effect
D. Increased number of mitotic cells
E. Expansive growth

44. During an appointment, a patient developed atrioventricular block. What medicinal substance can be used as an emergency aid in this case?

A. Pirenzepine
B. Atenolol
C. Platyphyllin
D. Atropine
E. Anaprilin (Propranolol)

45. A teenager with impaired visual acuity came to an ophthalmologist. The doctor explained that this condition was caused by a spasm of accommodation. What component of an eyeball is a part of accommodation apparatus?

A. Ciliary muscle
B. Vitreous body
C. Retina
D. Cornea
E. Sclera

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

A. B lymphocytes
B. Immunoglobulins E
C. Immunoglobulins M
D. T lymphocytes
E. Plasmacytes

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

A. Syphilitic mesaortitis
B. Nonspecific aortitis
C. Dysplastic aortic wall
D. –
E. Aortic aneurysm with rupture

48. During an outbreak of a hospital-acquired infection, pure cultures of *S. aureus* were grown after inoculation of the samples obtained from the nasopharynxes of the medical personnel and from wound drainage of the surgical patients. What tests are necessary to determine the likely source of infection?

A. Antibiotic sensitivity testing
B. Biochemical profiles
C. Repeated inoculations
D. Phage typing of the obtained cultures
E. Sero-identification

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

A. Inoculation of chick chorioallantoic membrane or brain tissue of white mice
B. Precipitation reaction
C. Inoculation on Eagle medium
D. Inoculation on medium 199 with addition of bovine serum
E. Inoculation on Rappaport medium

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

A. Decreased permeability of membrane glomeruli
B. Decreased oncotic blood pressure
C. Decreased glomerular filtration
D. Decreased number of functional glomeruli
E. Increased hydrostatic pressure on the capillary wall

51. Formation of dental bone tissue requires calcium. The active form of vitamin D plays a large role in calcium metabolism and is produced in:

A. Stomach and heart
B. Kidneys and liver
C. Liver and muscles
D. Kidneys and heart
E. Intestine and liver

52. Most epithelial cells sampled from the oral mucosa of a man contained one X chromatin body. It is characteristic of:

A. Down syndrome
B. Klinefelter syndrome
C. Triple X syndrome
D. Triple Y syndrome
E. Turner syndrome

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

A. Hypothalamus
B. Amygdala
C. Substantia nigra
D. Hippocampus
E. Postcentral gyrus

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

A. Coronary vasospasm
B. Peripherial vasodilatation
C. Increased heart rate
D. Peripheral vasoconstriction
E. Persistent hyperglycemia

55. A 16-year-old girl, who has been starving herself for a long time to lose weight, developed an edema. This phenomenon is mainly caused by:

A. Venous congestion and increased venous pressure
B. Deceleration of glomerular filtration rate
C. Hypoproteinemia due to protein synthesis disturbance
D. Hypoglycemia due to glycogen synthesis disturbance
E. Decreased production of vasopressin in the hypothalamus

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

A. Supply of hard dental tissues with mineral substances
B. Intensity of metabolic processes in the pulp
C. Dental blood supply
D. Dentin formation
E. –

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

A. Antigen
B. Hormone
C. Serum
D. Antibody
E. Enzyme

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

A. Disturbed contraction of the muscles that elevate the hyoid bone
B. Disturbed function of the lingual muscles
C. Disturbed contraction of the laryngeal muscles
D. Disturbed contraction of the pharyngeal muscles
E. Disturbed contraction of the muscles of the soft palate

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

A. Amrinone
B. Corglycon
C. Dobutamine
D. Cordiamin (Nikethamide)
E. Ethimizol

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

A. Complement fixation reaction
B. Enzyme-linked immunosorbent assay
C. Polymerase chain reaction
D. Indirect hemagglutination reaction
E. Hemagglutination inhibition reaction

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

A. Tumor tissue assumes the properties of other tissue
B. Tumor progression
C. Tumor cells revert to their normal condition
D. Cells lose their ability to differentiate
E. Intensified mitosis of tumor cells

62. Autopsy of the body of a man, who died during an abdominal surgery, revealed numerous thrombi in the veins of the lesser pelvis. Clinically, thromboembolic syndrome was detected. Where should the doctor search for the embolus?

A. Pulmonary arteries
B. Portal vein
C. Left ventricle of heart
D. Brain
E. Veins of the lower extremities

63. Influenza serology allows detecting the increase of antibody titer against the causative agent in the patient's blood serum. What antibody titer increase must be observed with paired serum samples, for the result to be considered valid?

A. Double increase
B. Fourfold increase or more
C. By one titer
D. By a half-titer
E. Triple increase

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

A. –
B. Red hepatization
C. Resolution
D. Influx
E. Gray hepatization

65. A patient suffers from disturbed ocular accommodation. What muscle is damaged?

A. *Musculus sphincter pupillae*
B. *Musculus dilatator pupillae*
C. *Musculus ciliaris*
D. *Musculus rectus inferior*
E. *Musculus rectus superior*

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

A. Development of ozone holes
B. Increased levels of sulfur oxides in the atmosphere
C. Increased carbon dioxide levels in the atmosphere
D. Decreased carbon dioxide levels in the atmosphere
E. Decreased oxygen levels in the atmosphere

67. A 43-year-old cattle farm worker is brought to the surgeon with fever, malaise, and inflamed lesions on his hands and arms. He reports that about 2 weeks before his presentation at the hospital he noticed small, painless, pruritic papules that quickly enlarged and developed a central vesicle. The vesicles developed into erosion and left painless necrotic ulcers with black, depressed eschar. Gram's staining of the ulcer reveals gram-positive spore-forming bacilli. Which of

the following diseases is the most likely cause of these findings?

A. Anthrax
B. Syphilis
C. Plague
D. Chickenpox
E. Tularemia

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

A. Analgin (Metamizole)
B. Acetylsalicylic acid
C. Codeine phosphate
D. Paracetamol
E. Dimedrol (Diphenhydramine)

69. During a spinal surgery, the patient's vertebral arches and their connecting ligaments were removed. Name these ligaments:

A. Yellow ligaments
B. Interspinous ligaments
C. Posterior longitudinal ligament
D. –
E. Anterior longitudinal ligament

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

A. Thymidine diphosphate (TDP), flavin adenine dinucleotide (FAD), coenzyme A (CoASH), nicotine amide adenine dinucleotide (NAD), lipoic acid
B. Lipoic acid, tetrahydrofolic acid, pyridoxal-5-phosphate, methylcobalamin
C. Coenzyme A (CoASH), flavin adenine dinucleotide (FAD), pyridoxal-5-phosphate, tetrahydrofolic acid, carnitine
D. Flavin adenine dinucleotide (FAD), tetrahydrofolic acid, pyridoxal-5-phosphate, thymidine diphosphate (TDP), choline
E. Nicotine amide adenine dinucleotide (NAD), pyridoxal-5-phosphate, thymidine diphosphate (TDP), methylcobalamin, biotin

71. Formation of a large amount of immunoglobulins with various antigen specificity from a small number of genes occurs due to:

A. Translocation
B. Deletion
C. Recombination
D. Replication
E. Transcription

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

A. Interglobular dentin
B. Predentin
C. Parapulpar dentin
D. Granular layer
E. Mantle dentin

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

A. Take with large amount of liquid, preferably milk
B. Take before eating
C. Do not take with vitamin preparations
D. Avoid prolonged exposure to the sun
E. Course of treatment should not exceed 1 day

74. Phenylketonuria belongs to the following group of molecular metabolic diseases:

A. Hereditary disorders of lipid metabolism
B. Amino acid metabolism disorders
C. Carbohydrate metabolism disorders
D. Hereditary disorders of connective tissue metabolism
E. Mineral metabolism disorders

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

A. Epithelial granuloma
B. Eosinophilic granuloma
C. Cystic granuloma
D. Simple granuloma
E. Granulating periodontitis

76. In the wall of a blood vessel there is a large number of elastic fibers in all the layers. The middle layer contains elastic fenestrated membranes. Such

characteristics of the vessel wall structure are caused by the following factors:

A. High blood pressure
B. Low blood pressure
C. Osmotic pressure
D. High blood flow velocity
E. Low blood flow velocity

77. A 5-year-old boy complains of intense headache and vomiting. Objectively, he has nuchal rigidity, vomiting without nausea, herpes rash on his face, and fever. What pathologic material should be obtained for bacteriology, to confirm the diagnosis of cerebrospinal meningitis?

A. Urine culture of *N. Meningitidis*
B. Fecal culture of *N. Meningitidis*
C. A sample of *N. Meningitidis* bacteria from urogenital mucosa
D. Spinal tap
E. Vomit content analysis

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

A. Chondroblasts
B. Chondrocytes
C. Mesenchymal cells
D. Osteoclasts
E. Semi-stem osteogenic cells

79. After acute blood loss, the patient with rhesus-negative blood was mistakenly transfused with rhesus-positive blood. What changes will occur in blood in this case?

A. Erythrocytosis
B. Platelet aggregation
C. Hemolysis of recipient's erythrocytes
D. Hemolysis of donor's erythrocytes
E. Aggregation of donor's erythrocytes

80. To improve tooth mineralization, dentists prescribe Ca^{2+} preparations. This substance has no effect on the following processes in an organism:

A. Development of myocardial depolarization
B. Hemostasis
C. Muscle contraction
D. Oncotic pressure generation
E. Synaptic transmission of excitation

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

A. 90 minutes
B. 30-60 minutes
C. 150 minutes
D. 120 minutes
E. 10-20 minutes

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

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

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

A. Renal corpuscle
B. Descending limb of loop of Henle
C. Distal convoluted tubule
D. Ascending limb of loop of Henle
E. Proximal convoluted tubule

84. In an experiment, an excitatory cell was placed into a salt solution without sodium ions. How will it affect the process of excitation?

A. Duration of action potential decreases
B. Action potential will be absent
C. Duration of action potential increases
D. Amplitude of action potential increases
E. Amplitude of action potential decreases

85. Trying to lose weight, a woman has limited the amount of products in her diet. Three months later she developed edema and increased urine output, which indicates that her diet is low on the following type of nutrients:

A. Minerals
B. Vitamins
C. Proteins
D. Lipids
E. Carbohydrates

86. A lab rat received a subcutaneous injection of mercury(II) chloride in the dosage of 5 mg per 1 kg of body mass. 24 hours later, the creatinine levels in the animal's blood plasma increased several times. What mechanism of retention azotemia is observed in this case?

A. Increased glomerular filtration
B. Increased creatinine secretion in the renal tubules
C. Decreased glomerular filtration
D. Increased creatinine reabsorption
E. Increased creatinine production in the muscles

87. After exposure to radiation, a rabbit presents with the III stage of acute radiation sickness that manifests in bone marrow syndrome. Damage to what tissue is the leading link in the pathogenesis of radiation sickness-related disorders in this case?

A. Hematopoietic tissue
B. Glandular epithelium
C. Bone tissue
D. Nerve tissue
E. Gonadal epithelium

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

A. Yeast-like fungi of *Candida* genus
B. Oral spirochetes
C. Actinomycetes
D. Oral trichomonas
E. Streptococci

89. During microscopy of an embryo material, a yolk sac is visible in the microslide. What is the main function of this organ in the human body?

A. Trophic
B. Hemopoietic
C. Excretory
D. Protective
E. Amniotic fluid production

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

A. Chingamin (Chloroquine)
B. Chiniofon
C. Enteroseptol
D. Tetracycline
E. Metronidazole

91. Histologic examination of a biopsy specimen shows a structure of the oral cavity composed of the bone tissue, which is covered by stratified squamous non-keratinizing epithelium and lamina propria. The specimen has also minor mucous salivary glands. In all parts of the lamina propria the collagenous fibers form thick bundles that bind the mucosa to the periosteum. Based on these findings, which of the following structures is the most likely presented?

A. Hard palate
B. Cheek
C. Soft palate
D. Tongue
E. Lip

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

A. Myocytes
B. Leucocytes
C. Platelets
D. Epithelial cells
E. Erythrocytes

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

A. Fatty degeneration of the myocardium
B. Cardiosclerosis
C. Dilated cardiomyopathy
D. Fatty heart
E. Myomalacia

94. Appendicitis can be mistaken for a liver or gallbladder disorder if the vermiform appendix is in the folowing position:

A. Ascending
B. Lateral
C. Descending
D. Retrocecal
E. Medial

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

A. Rocuronium
B. Dithylinum (Suxamethonium chloride)
C. Novocaine (Procaine)
D. Papaverine hydrochloride
E. Atracurium

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

A. Phenylin (Phenindione)
B. Aminocapronic acid
C. Contrykal (Aprotinin)
D. Heparin
E. Neodicoumarin

97. A patient presents with acute onset of the disease: high fever and enlarged painful spleen. On the 10th day since the onset the patient developed a maculopapular rash on the abdomen. On the 21st day the patient died of peritonitis. Postmortem study of the body shows deep ulcers in the area of necrotic aggregate lymphoid follicles (Peyer's patches) in the ileum of the deceased. One of the ulcers is perforated and diffuse fibrinopurulent peritonitis is observed. What disease can be suspected in this case?

A. Intestinal amebiasis
B. Dysentery
C. Typhoid fever
D. Salmonellosis
E. Cholera

98. During tooth extraction, novocaine (procaine) is administered to the area of a sensitive nerve, which results in an anesthetic effect because of disturbed:

A. Conduction of pain impulses
B. Formation of pain mediators
C. Tissue pH
D. Excitability of pain receptors
E. Axonal transport

99. A 35-year-old woman is brought to the physician because of a 4-month history of progressive weakness of both lower limbs. She notes difficulty climbing stairs and complains of lethargy and loss of muscle bulk. Her diet consists primarily of "polished" rice. A diagnosis of dry beriberi is suspected. Deficiency of which of the following vitamins is most likely to be detected in her blood?

A. Vitamin B_6 (pyridoxine)
B. Vitamin B_1 (thiamine)
C. Vitamin B_3 (niacin)
D. Vitamin C (ascorbic acid)
E. Vitamin B_2 (riboflavin)

100. Examination of the patient's oral cavity shows a contact between the cutting edges of the upper and lower incisors. This type of teeth placement is characteristic of:

A. Closed occlusion
B. Orthognathia
C. Orthogenic occlusion
D. Biprognathic occlusion
E. Progenia

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

A. *N. sublingualis*
B. *N. hypoglossus*
C. *N. glossopharynseus*
D. *N. lingualis*
E. *Ansa cervicalis*

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

A. Kininase
B. Kallikrein
C. Angiotensin converting enzyme
D. Cyclooxygenase
E. Urokinase

103. Combined therapy of chronic heart failure with digitoxin and furosemide resulted in acute muscle weakness in the patient. What electrolyte imbalance can be detected in the patient's blood?

A. Hypokalemia
B. –
C. Hypocalcemia
D. Hypercalcemia
E. Hyperkalemia

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

A. Iron
B. Copper
C. Calcium
D. Zinc
E. Iodine

105. A patient complaining of polydipsia,

polyphagia, and polyuria excretes glucose with urine. What disease can be suspected?

A. Diabetes insipidus
B. Acromegalia
C. Insulinoma
D. Addison disease
E. Diabetes mellitus

106. A 9-year-old boy is hospitalized in the endocrinology department. He has already had several limb fractures because of fragile bones. What endocrine gland does not function properly in this patient?

A. Parathyroid gland
B. Thyroid gland
C. Thymus gland
D. Pineal glands
E. Adrenal glands

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

A. Ethacrynic acid
B. Spironolactone
C. Furosemide
D. Hydrochlorothiazide
E. Triamterene

108. A man came to the dentist complaining of problems with chewing. Backward movement of his lower jaw is painful. The dentist determined inflammation of a masticatory muscle in this patient. Which muscle is inflamed in this case?

A. Lateral pterygoid muscle
B. Temporal muscle (posterior fibers)
C. Temporal muscle (anterior fibers)
D. Medial pterygoid muscle
E. Masseter muscle

109. During kidney microscopy, the pathologist noticed crescent-shaped epithelial formations in the outer layer of the Bowman's capsule in 80% of the glomeruli. He concluded that such clinical presentation corresponds with:

A. Rapidly progressive extracapillary proliferative glomerulonephritis
B. Fibroplastic glomerulonephritis
C. Intracapillary exudative glomerulonephritis
D. Intracapillary proliferative glomerulonephritis
E. Extracapillary exudative glomerulonephritis

110. X-ray detected pus accumulation in the sphenoidal sinus. The pus is being excreted into the following nasal meatus:

A. Right middle nasal meatus
B. Left middle nasal meatus
C. Right and left superior nasal meatus
D. Left inferior nasal meatus
E. Right inferior nasal meatus

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

A. –
B. Metabolic acidosis
C. Respiratory alkalosis
D. Metabolic alkalosis
E. Respiratory acidosis

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

A. Increased concentration of glucagon
B. Decreased concentration of insulin
C. Increased levels of somatotropin
D. Increased levels of thyroxine
E. Increased levels of catecholamines

113. A 42-year-old man with an incised wound on the lower anterior surface of his shoulder came to the medical station. Objectively he presents with impaired forearm flexion. What muscles are likely to be damaged in this patient?

A. *M. deltoideus, m. biceps brachii*
B. *M. coracobrachialis, m. supraspinatus*
C. *M. deltoideus, m. infraspinatus*
D. *M. biceps brachii, m. anconeus*
E. *M. brachialis, m. biceps brachii*

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

A. Lower, due to higher blood CO_2 levels
B. No difference
C. Lower, due to O_2 release from the organism
D. Higher, due to higher blood CO_2 levels
E. Higher, due to O_2 release from the organism

115. Autopsy of a 46-year-old man, who had untreated enteric infection and died of sepsis, revealed the following: perirectal phlegmon, multiple ulcers of

the rectum and sigmoid colon, some of which are perforated; mucosa of these intestinal segments is thickened and covered with firmly attached grayish films. What is the most likely disease in this case?

A. Tuberculosis
B. Cholera
C. Typhoid fever
D. Amebiasis
E. Dysentery

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

A. Cytoplasm
B. Internal periplasmic space
C. Cell wall
D. Cytoplasmic membrane
E. Outer membrane

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

A. Reticulofibrous bone tissue
B. Periodontium
C. Mantle dentin
D. Enamel
E. Cellular cement

118. Broad-spectrum antibiotics can cause various complications, including intestinal candidiasis. What drug is used for treatment of this complication?

A. Amphotericin B
B. Undecyne
C. Nystatin
D. Gramicidin
E. Griseofulvin

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

A. Reticular atrophy of the pulp
B. Fatty degeneration
C. Hyalinosis
D. Pulpal hyperplasia
E. Amyloidosis

120. A patient came to the dentist for tooth extraction. After the tooth had been extracted, the bleeding from the socket persisted for 15 minutes. The patient has a history of active chronic hepatitis. What is the likely cause of the prolonged bleeding time?

A. Hypocalcemia
B. Thrombocytopenia
C. Decreased albumin blood count
D. Decreased blood level of fibrinogen
E. Increased activity of anticoagulation system

121. Heart auscultation detected a systolic murmur in the II intercostal space on the left parasternal line. In this case, the doctor was able to auscultate a pathology of the:

A. Aortic valve
B. Valve of the pulmonary trunk
C. Bicuspid valve
D. Tricuspid valve
E. Valve of the superior vena cava

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

A. Chalky lesion
B. Superficial caries
C. Deep caries
D. Median caries
E. Circular caries

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

A. AA x AA
B. AA x aa
C. aa x aa
D. AA x Aa
E. Aa x Aa

124. A 67-year-old man was delivered to a cardiology department with complaints of periodical pains in his heart, dyspnea caused by even slight exertion, cyanosis and edemas. ECG shows additional excitations of heart ventricles. Name this type of rhythm disturbance:

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

125. A patient with alcoholism has hepatic cirrhosis. Within the last half a year he developed varicose abdominal veins, splenomegaly, and ascites (portal hypertension syndrome). What complication is the most likely cause of the patient's death?

A. Hypoproteinemia
B. Hemorrhage from the gastrointestinal varices
C. Accelerated hemolysis
D. Hepatolienal syndrome
E. Hepatic encephalopathy

126. In some Ukrainian regions, local cases of malaria were detected. What insects take part in such outbreaks?

A. Flies of *Ceratopogonidae* family
B. Mosquitoes of *Anofeles* genus
C. Flies of *Simulium* genus
D. Mosquitoes of *Phlebotomus* genus
E. Gadflies of *Tabanidae* family

127. A man, who accidentally rinsed his mouth with vinegar essence instead of chlorhexidine solution, was brought to a dental clinic. He complains of burning pain during eating. Examination revealed a dense whitish-gray film on his oral mucosa. What keratoplastic drug was prescribed by the dentist in the course of treatment in this case?

A. Anaesthesin (Benzocaine)
B. Diazolin (Mebhydrolin)
C. Sodium bicarbonate
D. Vinylin (Polyvinox)
E. Magnesia

128. The patient's salivary porphyrin concentration allowed diagnosisng him with porphyria. This disease leads to disturbed synthesis of the following compound:

A. Phospholipids
B. Heme
C. Uric acid
D. Creatine
E. Glycogen

129. Examination of the oral cavity revealed dark yellow and brown spots on the labial and lingual surfaces of the teeth. The spots cover more than half of the dental surface. Dentin and enamel are destroyed. What is the most likely diagnosis?

A. Dental erosion
B. Fluorosis
C. Caries of enamel
D. Deep caries
E. Cuneiform defects

130. Autopsy of the body of a 43-year-old man, who died of cardiopulmonary failure, shows a cavity 3 cm in diameter, filled with viscous green-gray content, in the lower lobe of the right lung. Histology shows that the wall of this structure is made of connective tissue and immature granulation tissue, while the lumen contains neutrophilic leukocytes and products of their breakdown. What type of inflammation is it?

A. Furuncle
B. Acute abscess
C. Empyema
D. Carbuncle
E. Chronic abscess

131. A child has a congenital immunodeficiency. The cell-mediated immunity is affected, causing frequent viral infections. It is likely to be caused by a disorder of the following organ:

A. Spleen
B. Red bone marrow
C. Lymph nodes
D. Palatine tonsils
E. Thymus gland

132. A 32-year-old woman underwent removal of a brown fungiform gingival neoplasm. Microscopically, it consists of connective tissue with numerous sinusoidal vessels, large multinucleated cells, and small mononuclear cells. There are small hemorrhages and hemosiderin deposits, as well. What type of neoplasm is it?

A. Gingival fibromatosis
B. Giant-cell epulis
C. Hypertrophic gingivitis
D. Fibromatous epulis
E. Angiomatous epulis

133. The costal margin is an important topographic landmark of the human body. It is formed by the cartilage of the following vertebrae:

A. From 1 to 7
B. Only 12
C. From 7 to 10
D. From 1 to 12
E. From 11 to 12

134. A car accident victim presents with a spinal hematoma accompanied by retrosternal pain, tachycardia, and elevated blood pressure. The patient's condition results from the damage to the following segments of the spinal cord:

A. Th1-Th5
B. C6-C8
C. –
D. L1-L3
E. S1-S3

135. A patient has torticollis. What muscle of the neck is damaged?

A. *M. Omohyoideus*
B. *M. Mylohyoideus*
C. *M. Sternocleidomastoideus*
D. *M. Sternohyoideus*
E. *M. Platisma*

136. At autopsy, section of the right ovary shows a round lesion 2.5 cm in diameter with a clear serous fluid, surrounded by a smooth glistening membrane. Which of the following macroscopic lesions best represents the autopsy findings?

A. Nodule with central necrosis
B. Infiltrate
C. Cyst
D. Nodule
E. Ulcer

137. To determine functional state of the patient's liver, the analysis of animal indican excreted with urine was conducted. This substance is produced in the process of detoxification of putrefaction products of a certain amino acid, which takes place in the large intestine. Name this amino acid:

A. Glycine
B. Tryptophan
C. Serine
D. Cysteine
E. Valine

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

A. Allosteric center
B. Cofactor
C. Active center
D. Coenzyme
E. Polypeptide chain portion

139. Histology of a tissue shows that it has no blood vessels and its cells tightly adhere to one another, forming layers. What tissue is it?

A. Muscle tissue
B. Epithelial tissue
C. Nerve tissue
D. Bone tissue
E. Cartilaginous tissue

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

A. –
B. Testicle
C. Seminal vesicles
D. Epididymis
E. Prostate

141. A patient needs to be prescribed a broad-spectrum fluoroquinolone. Select such drug from the list below:

A. Carbenicillin
B. Azlocillin
C. Chinoxydin
D. Amoxicillin
E. Ciprofloxacin

142. During experiment the processes of food and water hydrolysis products absorption were studied. It was determined that these processes mainly occur in the following gastrointestinal segment:

A. Oral cavity
B. Large intestine
C. Rectum
D. Small intestine
E. Stomach

143. Normal cardiomiocytes have a specific phase of the action potential:

A. Rapid dyastolic repolarization
B. Rapid systolic repolarization
C. Slow repolarization (plateau)
D. Systolic repolarization
E. Slow dyastolic repolarization

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

A. Cyclooxygenase-2 inhibition
B. Inhibition of P substance release
C. Local anesthetic effect of Analgin (Metamizole)
D. Inhibition of algogenic kinin formation
E. Counter-attracting action

145. A 34-year-old woman has a gastric

ulcer. To describe the location of the ulcer, the doctor must know, into what parts the stomach can be divided:

A. Body and fundus of the stomach, greater and lesser curvatures of stomach
B. Anterior and posterior stomach walls, pyloric stomach and cardiac stomach
C. Fundus of the stomach, greater and lesser curvatures of stomach, cardiac stomach
D. Body and fundus of the stomach, pyloric stomach and cardiac stomach
E. Fundus and fornix of the stomach, pyloric stomach, pyloric antrum, cardiac stomach

146. A child presents with delayed mental development, delayed growth and formation of the teeth, late development of ossification foci, and low basal metabolic rate. What endocrine gland is functionally insufficient, causing this condition?

A. Thyroid gland
B. Gonads
C. Neurohypophysis
D. Adrenal glands
E. Pancreas

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

A. Increased renin secretion in the kidneys
B. Stimulation of the cerebral cortex
C. Stimulation of sinocarotid baroreceptors
D. Stimulation of hypothalamic vegetative centers
E. Increased blood levels of catecholamines

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

A. Maxillary processes
B. Mandibular and maxillary processes
C. Thyroid cartilage
D. External auditory meatus
E. Mandibular processes

149. A sick child has signs of achondroplasia (dwarfism). It is known that this disease is monogenic and the gene that causes the development of this anomaly is dominant. The natural brother of this child has normal development. Genotypically, the healthy child is:

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

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

A. Loosely attached to the periosteum, well-defined muscular layer
B. No lamina propria or muscular layer
C. Contains numerous small salivary glands
D. No muscular layer, well developed submucous layer
E. Tightly attached to the periosteum, lamina propria forms tall papillae, no muscular layer