1. A man got an injection of curarelike substance causing the relaxation of all skeletal muscles. What is its mechanism of action?

A. Block of cholinergic receptors of postsynaptic membrane
B. Disturbance of acetylcholine synthesis
C. Block of Ca^{2+}-channels of presynaptic membrane
D. Disturbance of cholinesterase synthesis
E. Disturbance of acetylcholine secretion

2. Production of primary urine in kidneys is induced by filtration in renal corpuscles. What components of blood plasma are absent in the primary urine?

A. Proteins
B. Amino acids
C. Glucose
D. Urea
E. Ions

3. Microscopic examination of primary cortex of a root in its absorption zone revealed that it consisted mainly of multilayer loose living parenchyma with amyloid granules. It is called:

A. Mesoderm
B. Endoderm
C. Exoderm
D. Collenchyme
E. Phellogene

4. Particles of dispersed phase of an emulsion are deformed and look like polyhedrons. What emulsion is it?

A. High-concentrated
B. Concentrated
C. Diluted
D. Oil-in water
E. Water-in-oil

5. A child with evident hypotrophy got edemata on his lower extremities, ascites. What is the main mechanism of pathogenesis of cachectic edema?

A. Drop of oncotic pressure of blood plasma
B. Rise of hydrostatic blood pressure
C. Rise of oncotic pressure of intercellular fluid
D. Increased permeability of vascular wall
E. Disturbance of lymph outflow

6. Protein digestion in the stomach is carried out by pepsin secreted in form of an inactive pepsinogen. Pepsinogen is converted to pepsin by the removal of the N-terminal peptide that is provoked by:

A. Perchloric acid
B. Sulfuric acid
C. Acetic acid
D. Bile acids
E. Amino acids

7. Hydrogen is characterized by the following oxidation rates: -1; 0; $+1$. The -1 oxidation rate hydrogen has in:

A. Hydrides
B. Acids
C. Hydroxides
D. Water
E. Acid salts

8. High-grade deficit of the ascorbic acid causes development of scorbutus. This pathology develops due to the disturbed synthesis of the following connective tissue protein:

A. Collagen
B. Prothrombin
C. Fibrinogen
D. Albumin
E. Ceruloplasmin

9. Cardiac diseases are treated with cocarboxylase preparation. This preparation is the coenzymatic form of the following vitamin:

A. B_1
B. B_6
C. B_{12}
D. C
E. P

10. What substance can act as both oxidant and reducer in oxidation-reduction reactions?

A. SO_2
B. SO_3
C. CO_2
D. PbO_2
E. CrO_3

11. Examination of a patient revealed an increase in low-density lipoprotein concentration in blood serum. The patient can be expected to have the following disease:

A. Atherosclerosis
B. Pneumonia
C. Glomerulonephritis
D. Acute pancreatitis
E. Gastritis

12. Nitrogen (I) oxide (N_2O) is applied for

inhalation narcosis. It is obtained by heating of:

A. NH_4NO_3
B. NH_3
C. $Cu(NO_3)_2$
D. NH_4OH
E. $NaNO_3$

13. For determination of nitrate ions diphenylamine was added to the solution under examination. The following changes were observed:

A. Generation of blue solution
B. Generation of yellow deposition
C. Generation of blue deposition
D. Generation of brown gas
E. Emergence of a typical smell

14. A patient was prescribed a bile preparation for better digestion of fatty food. What components of this preparation cause fat emulsification?

A. Bile acids
B. Cholesterol and its ethers
C. Diglycerides
D. Bilirubinglucuronids
E. Bile pigments

15. According to the requirements of WHO and Pharmacopoeia different drug dosage forms of unsterile preparations are allowed to have a certain quantity of bacteria and fungi. What quantity of saprophytic bacteria and fungi in 1 g (ml) of a peroral preparation will ensure its safety?

A. 1000 bacteria and 100 mold fungi
B. 500 bacteria and 50 mold fungi
C. 250 bacteria and 25 mold fungi
D. 500 bacteria and 200 mold fungi
E. 1500 bacteria and 150 mold fungi

16. Antibiotics can be classified according to various principles. According to the action mechanism cephalosporins relate to the following group:

A. Inhibitors of cell wall synthesis
B. Inhibitors of protein synthesis
C. Inhibitors of respiratory processes
D. Inhibitors of oxidative phosphorilation
E. Inhibitors of cytoplasmic membrane synthesis

17. It is known that digestion of proteins, fats and carbohydrates happens due to protease, lipase and amylase respectively. What digestive juice contains all three enzyme groups enough for digestion?

A. Juice of pancreas
B. Saliva
C. Gastric juice
D. Bile
E. Juice of large intestine

18. Plant pathogenic microorganisms relate to various groups. Which of them causes diseases of medicinal plants most often?

A. Fungi
B. Viruses
C. Bacteria
D. Actinomycetes
E. Micoplasma

19. Iodometric determination of formaldehyde in formaline can be done by the back titration. Iodine surplus is titrated with the standard solution of:

A. Sodium thiosulphate
B. Sodium nitrate
C. Sodium sulphate
D. Sodium carbonate
E. Sodium phosphate

20. It is required to diminish pump function of patient's heart. This can be done by means of blockers of the following membrane cytoreceptors:

A. β-adrenoreceptors
B. Nicotinic cholinoreceptors
C. Muscarinic cholinoreceptors
D. α-adrenoreceptors
E. Dopamine receptors

21. Electrolyte solutions are medicinal preparations. What is the maximum value of isotonic coefficient for $MgSO_4$ solution?

A. 2
B. 4
C. 3
D. 5
E. 7

22. A patient had cerebral haemorrhage that made impossible active motions of left arm and leg. Muscle tone of these limbs is increased, their spinal reflexes are intensified, reflex zones are increased. What type of CNS disorder is it?

A. Central paralysis
B. Peripheral paralysis
C. Spinal shock
D. Atonic paralysis
E. Reflex paralysis

23. Corolla of the origanum flower is zygomorphic, sympetalous and consists of a tube and two limbs. The upper limb is bilobate and the lower is trilobate. Such corolla is called:

A. Bilabiate
B. Unilabiate
C. Lingulate
D. Thimble-like
E. -

24. Structure of proteins includes proteinogenic amino acids. What is the position of the amino group in the structure of these amino acids?

A. α-position
B. β-position
C. γ-position
D. δ-position
E. ϵ-position

25. Biochemical function of water-soluble vitamins depends on their ability to turn into the coenzymatic forms. Specify the coenzymatic form of the vitamin B_2 (riboflavin):

A. FMN (flavin mononucleotide)
B. NAD+ (nicotinamide adenine dinucleotide)
C. TMP (thiamine monophosphate)
D. TDP (thiamine diphosphate)
E. PALP (pyridoxal phosphate)

26. A plant has ribbed and hollow stems, sheathing pinnatisected leaves; compound umbel inflorescence; fruit with essential oil tubules. These features are typical for the representatives of the following family:

A. *Apiaceae*
B. *Solanaceae*
C. *Fabaceae*
D. *Brassicaceae*
E. *Scrophulariaceae*

27. One of the examined soft fruits is characterized by essential-oil exocarp, spongioid mesocarp and overgrown endocarp that consists of juice saccules. What fruit was under examination?

A. Hesperidium
B. Pepo
C. Multicoccus
D. Drupe
E. Bacca

28. Enzymes (biological catalysts) are used as pharmacologic preparations. What is the mechanism of enzyme action in the biochemical reactions?

A. They reduce the energy of reaction activation
B. They increase the energy of reaction activation
C. They inhibit the reaction process
D. They change the constant of the reaction rate
E. They change the reaction order

29. Depressurization of the cabin at an altitude of 19 km led to instantaneous death of pilots. What is its cause?

A. Explosive decompression
B. Hematencephalon
C. Myocardial infarction
D. Bleeding
E. Respiratory centre paralysis

30. After a girl had accidentally eaten inedible mushrooms she was admitted to the resuscitation unit with symptoms of impaired consciousness, arterial hypotension, anuria, hyperazotemia. What kind of renal dysfunction is it?

A. Acute renal failure
B. Acute glomerulonephritis
C. Acute pyelonephritis
D. Urolithiasis
E. Urine acid diathesis

31. Filter paper impregnated with solution of cobalt (II) nitrate and a solution under examination forms blue ash when burned down. This is the evidence of presence of the following ions:

A. Al^{3+}
B. Cr^{3+}
C. Ni^{2+}
D. Sb^{3+}
E. Zn^{2+}

32. After a solution had been heated with $(NH_4)_2S_2O_8$ in presence of $AgNO_3$, it turned crimson. What ions were present in the solution?

A. Mn^{2+}
B. Fe^{3+}
C. Fe^{2+}
D. Co^{2+}
E. Cu^{2+}

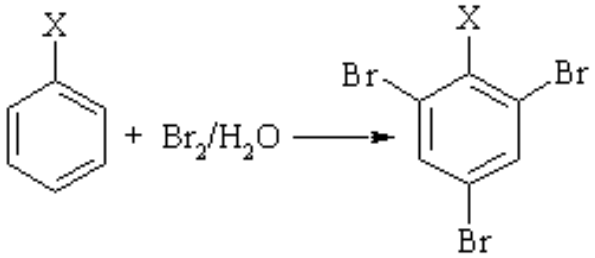
33. A solution under examination was added to the solution of $FeSO_4$ in presence of concentrated H_2SO_4. Formation of a brown ring indicates presence of:

A. Nitrate ions
B. Acetate ions
C. Carbonate ions
D. Oxalate ions
E. Phosphate ions

34. For tuberculosis prevention the newborns got an injection of a vaccine. What vaccine was used?

A. BCG
B. Mantoux
C. DTaP vaccine
D. Anatoxin
E. Oral polio vaccine (Sabin vaccine)

35. Bromination proceeds with generation of tribromoderivative in presence of the following substituent X:



A. X = OH
B. X = $COOH$
C. X = NO_2
D. X = CHO
E. X = SO_3H

36. Gastric juice of a patient has decreased concentration of enzymes. What secretory cells of stomach display disfunction?

A. Chief cells of glands
B. Parietal cells of glands
C. Gland mucocytes
D. Cells of tegumental epithelium
E. G-cells

37. Yield of medical products can be enhanced by proper choice of temperature conditions during their production. What equation determines dependence of equilibrium constant from the temperature under constant pressure?

A. Isobaric lines of chemical reaction
B. Isotherms of chemical reaction
C. Kirchhoff equation
D. Isochores of chemical reaction
E. Gibbs-Helmholtz equation

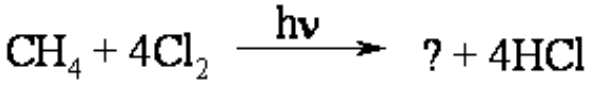
38. During identification of a perennial herb of *Ranunculaceae* family it was found to have: apical flowers of regular form up to 6 cm in diameter; 5 downy violet-and-green calyx lobes of irregular serrate form; up to 20 bright yellow glossy petals without nectarostigma. What plant is it?

A. *Adonis vernalis*
B. *Helleborus purpurascens*
C. *Ranunculus acris*
D. *Delphinium elatum*
E. *Aconitum napellus*

39. A herb under analysis relates to the Malvaceae family and is used as an expectorant and coating agent. The stem is erect, with simple palmate three to five lobed leaves, large pink flowers growing in short panicles. The herb has schizocarpic fruit - a capsule. Identify the plant:

A. *Althaea officinalis*
B. *Fragaria vesca*
C. *Potentilla erecta*
D. *Tussilago farfara*
E. *Thymus serpyllum*

40. What is the final product of methane chlorination?



A. Tetrachloromethane
B. Chloroform
C. Chloroethanol
D. Ethane
E. Chloromethane

41. 1M sulphuric acid solution was added to the solution under study. This resulted in formation of white sediment that was soluble in the alkalies. This indicated that the solution contains:

A. Plumbum cations
B. Calcium cations
C. Barium cations
D. Argentum cations
E. Mercury (I) cations

42. A solution contains cations of zinc and aluminum. Specify the reagent that enables to detect cations of zinc in this solution:

A. Potassium hexacyanoferrate (II) solution
B. Sodium hydroxide solution
C. Cobalt nitrate $Co(NO_3)_2$
D. The excess of 6M sodium hydroxide in presence of hydrogen peroxide
E. Sulfuric acid solution

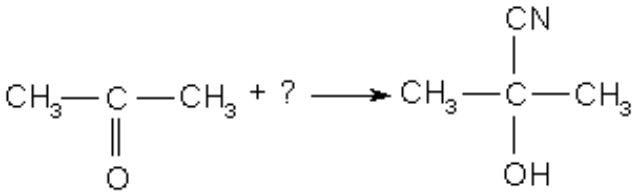
43. The polarographic method is commonly used for the analysis of inorganic cations and anions. Electroreduction of the analyzed ions is performed by using:

A. Dropping mercury electrode
B. Platinum electrode
C. Antimony electrode
D. Calomel electrode
E. Silver electrode

44. What disorder of local circulation is characterized by pallor, local temperature drop, pain, local sensitivity disorder, reduction in the volume of the organ?

A. Ischemia
B. Venostasis
C. Thrombosis
D. Embolism
E. Arterial hyperemia

45. Choose the reagent that can be used for acetone cyanohydrin production:

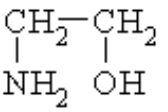


A. HCN
B. $H_2N–OH$
C. $H_2N–NH_2$
D. $H_2N-NH-C_6H_5$
E. H_2N-CH_3

46. Which reagent allows to distinguish propine $(CH_3-C\equiv CH)$ from propene $(CH_3-CH=CH_2)$?

A. $[Ag(NH_3)_2]OH$
B. Br_2
C. HCl
D. $Cu(OH)_2$
E. Cl_2

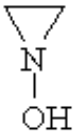
47. What compound is formed as a result of reaction:

A. 

B. CH_3-CH_2-NH-OH

C. CH_3-NH-CH_2-OH

D. 

E. 

48. Cellular and plasma mediators play an important part in the pathogenesis of secondary alteration during inflammation. What mediators are produced in the blood plasma?

A. Bradykinin
B. Histamine
C. Leukotrienes
D. Prostaglandins
E. Lysosomal factors

49. A 73-year-old patient had been admitted to a hospital with closed fracture of his right femur. Suddenly his condition deteriorated, the patient was diagnosed with vascular embolism. What type of embolism is observed most often in patients with the fractures of tubular bones?

A. Fatty
B. Air
C. Tissue
D. Retrograde
E. Gas

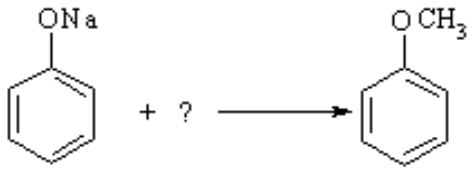
50. Stable contraction of myofibrilla of muscle fibers takes place due to accumulation of the following ions in the cytoplasm:

A. Calcium
B. Potassium
C. Sodium
D. Magnesium
E. Hydrogen

51. A 45-year-old woman has frequent uterine haemorrhages, she presents with general weakness, dyspnea, tachycardia, cardiac pain. In blood: erythrocytes - $3 \cdot 10^9$/l, Hb- 70 g/l, colour index - 0,7. The smear contains mostly hypochromic erythrocytes, microcytes. Specify the type of anaemia accrding to its mechanism of development:

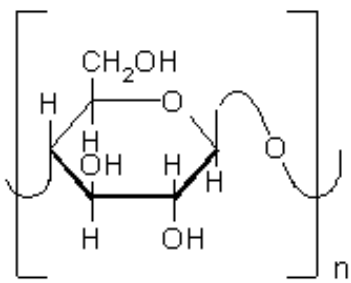
A. Iron-deficiency
B. B_{12}-folate-deficiency
C. Haemolytic
D. Minkowsky-Shauffard disease
E. Protein-deficiency

52. For production of phenol ether it is necessary to cause reaction of sodium phenoxide with:



A. CH_3Cl
B. CH_3OH
C. CH_4
D. CH_3NH_2
E. $CH_3C \equiv$ N

53. Polysaccharide cellulose consists of the remains of the following monosaccharide:



A. β-D-glucopyranose
B. α-D-glucopyranose
C. β-D-fructopyranose
D. α-D-fructofuranose
E. β-D-glucofuranose

54. A higher avascular plant shows clear alternation of generations with the dominant sexual (gametophyte) and reduced asexual (sporophyte) generation. This indicates that the plant relates to the:

A. *Bryophyta*
B. *Lycopodiophyta*
C. *Equisetophyta*
D. *Pteroid*
E. *Gymnosperms*

55. A patient has a necrotizing phlegmon of his lower extremity. A doctor suspects a gas gangrene. Microscopy reveals gram-positive bacilli. In order to confirm the diagnosis further bacteriological tests should include inoculation of the material into the following nutrient medium:

A. Kitt-Tarozzi medium
B. Endo agar
C. Levine agar
D. Meat-peptone agar
E. Milk-salt agar

56. A female patient bitten by a stray dog came to a surgery. Wide lacerated wounds were localized on the patient's face. What treatment-and prevention aid should be rendered in order to prevent rabies?

A. Immunization with the antirabic vaccine
B. Combined antibiotic therapy
C. Hospitalization, injection of diphtheria-pertussis-tetanus vaccine
D. Hospitalization, medical surveillance
E. Urgent injection of normal gamma-globulin

57. With an attachment of $-CH_2$ group to a hydrocarbon radical the surface activity of surfactants increases (maximally) by:

A. 3,5 times
B. 2,5 times
C. 1,5 times
D. 4,5 times
E. 5,5 times

58. Specify two compounds that can be present in a solution at the same time:

A. $Al(NO_3)_3$ and HCl
B. $Ba(OH)_2$ and CO_2
C. $NaOH$ and P_2O_5
D. $CuSO_4$ and $BaCl_2$
E. $AgNO_3$ and HCl

59. Specify the standardized solutions used for direct and back titration of reducing agents in the iodometric method:

A. I_2, $Na_2S_2O_3$
B. $K_2Cr_2O_7$, $Na_2S_2O_3$
C. I_2, KI
D. $KMnO_4$, KI
E. $K_2Cr_2O_7$, I_2

60. Specify the standard solution (titrant) for the iodometric determination of oxidants:

A. $Na_2S_2O_3$
B. $KMnO_4$
C. I_2
D. $K_2Cr_2O_7$
E. $KBrO_3$

61. In a surgical unit an outbreak of purulent infections has been registered. The infections are caused by *Staphylococcus aureus* with multiple resistance to antibiotics. What plasmid has provided this property?

A. R
B. F
C. Col
D. Tox
E. Hly

62. Iron (II) sulfate is a part of drugs used in treatment of iron deficiency anemia. $FeSO_4$ enters into reaction with one of the following compounds:

A. $KMnO_4$
B. HCl
C. CO_2
D. $FeCl_2$
E. $NaCl$

63. Treatment of a wound with hydrogen peroxide is accompanied by the release of some gas bubbles from the solution. What kind of gas is it?

A. Oxygen
B. Hydrogen
C. Ozone
D. Carbon dioxide
E. Nitrogen

64. Micelle solutions of surfactants are applied in pharmaceutical production as stabilizers and solubilizers. What solution of colloidal surfactants will have the greatest value of critical concentration of micelle formation?

A. $C_9H_{19}SO_3Na$
B. $C_{14}H_{29}SO_3Na$
C. $C_{16}H_{33}SO_3Na$
D. $C_{12}H_{25}SO_3Na$
E. $C_{10}H_{21}SO_3Na$

65. In the pharmaceutical industry, the micelle-forming solutions of surface-active substances are used for production of water-soluble preparations out of water-insoluble substances, for example vitamins A and E. The critical concentration of micelle formation has the lowest value in the solutions of the following substances:

A. $C_{17}H_{35}COONa$
B. $C_{12}H_{25}COONa$
C. $C_{13}H_{27}COONa$
D. $C_{15}H_{31}COONa$
E. $C_{11}H_{23}COONa$

66. Pharmaceutic preparation collargol is a colloid silver solution containing a high-molecular compound. What is the function of this compound?

A. It enhances aggregative stability
B. It induces coagulation
C. It facilitates sedimentation
D. It reduces aggregative stability
E. It increases dispersion degree

67. What kind of standard solution (titrant) is used according to Folgard's direct titration method?

A. Ammonium thiocyanate
B. Sodium chloride
C. Silver nitrate
D. Potassium chromate
E. Potassium dichromate

68. Presence of which ion of d-elements in the solutions can be detected by means of $K_4[Fe(CN)_6]$?

A. Fe^{3+}
B. Fe^{2+}
C. Zn^{2+}
D. Cr^{3+}
E. Cu^{2+}

69. Temporary hardness of water is caused by presence of the following calcium and magnesium salts in the natural water:

A. Hydrogen carbonate
B. Sulfates
C. Chlorides
D. Nitrates
E. Phosphates

70. Which of these chemical substances **CANNOT** act as an excitatory neurotransmitter in the central nervous system?

A. Glycine
B. Serotonin
C. Noradrenaline
D. Substance P
E. Dopamine

71. Which of the following presentations can be explained by the functional effects of adrenaline?

A. Relaxation of bronchial muscles
B. The decrease in heart rate
C. Dilatation of the skin vessels
D. Intensification of stomach and intestines contraction
E. High uropoiesis

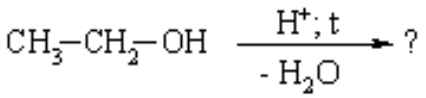
72. To quantify the adsorption at the solid-gas interface, the following equation can be used:

A. Freundlich
B. Gibbs
C. Shishkovski
D. Helmholtz-Smoluchowski
E. Rayleigh

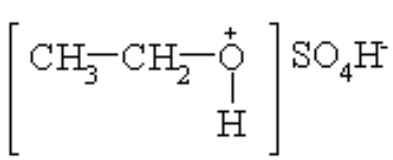
73. Iron (III) hydroxide is produced as a result of interaction of:

A. $FeCI_3$ with $NaOH$
B. Fe_2O_3 with $NaOH$
C. $FeCI_3$ with H_2O
D. Fe_2O_3 with H_2O
E. Fe with $NaOH$

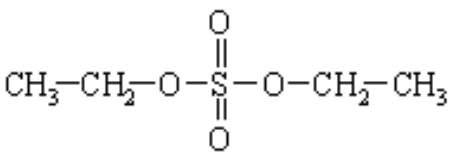
74. What compound is formed as a result of the intermolecular dehydration of ethanol?



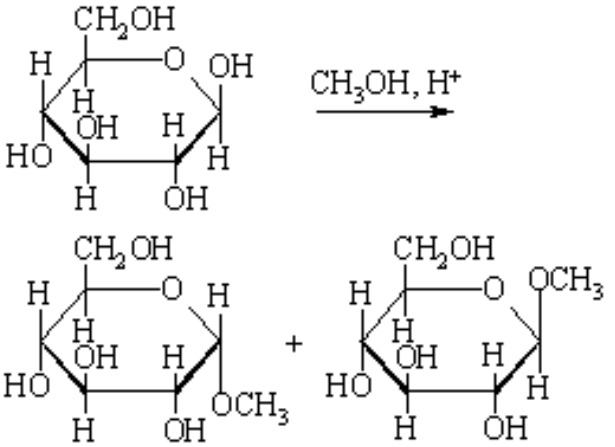
A. $C_2H_5 - O - C_2H_5$
B. $C_2H_5 - O - SO_3H$
C. $CH_2 = CH_2$
D.



E.



75. As a result of the reaction of cyclic forms of monosaccharides with alcohols in presence of an acid catalyst the following compounds are formed:



A. Glycosides
B. Esters
C. Osazones
D. Acids
E. Oxoacids

76. During examination of a plant cell under the electron microscope some structures in form of a stack of flattened membrane cisterns and vesicles were found. What organelles are these?

A. Golgi apparatus
B. Endoplasmic reticulum
C. Plastids
D. Mitochondrions
E. Microbodies

77. Analysis of the cerebrospinal fluid of a child with signs of purulent lesion of brain tunics revealed gram-negative bean-shaped diplococci. What presumptive diagnosis can be made on the basis of the analysis results?

A. Meningitis
B. Gonorrhea
C. Cholera
D. Plague
E. Anthrax

78. As a result of the interaction of excess alkali with amphoteric metals the following compound is formed:

A. Hydroxo complexes
B. Oxides
C. Hydroxides
D. Neutral salts
E. Basic salts

79. Chlorophyll, the green pigment of plants, is a chelate compound. Specify the

chelating ion in chlorophyll:

A. Mg^{2+}
B. Fe^{3+}
C. Mn^{2+}
D. Fe^{2+}
E. Ni^{2+}

80. In order to enhance the solubility of the individual components of a number of liquid drug formulations, the colloidal surface-active substances are added. What physico-chemical phenomenon underlies this process?

A. Solubilization
B. Coagulation
C. Extraction
D. Diffusion
E. Sedimentation

81. A flower has the androecium consisting of two long and two short stamens. Therefore the flower's androecium is:

A. Didynamous
B. Tetradynamous
C. Diadelphous
D. Tetradelphous
E. Polyadelphous

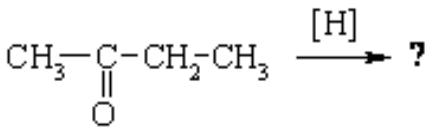
82. Potassium dichromate $K_2Cr_2O_7$ is applied as an oxidant in acidic medium. What is the product of reduction of dichromate-ion $Cr_2O_7^{2-}$ under these conditions?

A. Cr^{3+}
B. $Cr(OH)_3$
C. $Cr(OH)_2$
D. $[Cr(OH)_6]^{3-}$
E. Cr_2O_3

83. Mass serological diagnosis of HIV infection is made by means of enzyme-linked immunosorbent assay techniques. What standard component of the reaction must be adsorbed on the solid phase of the test system?

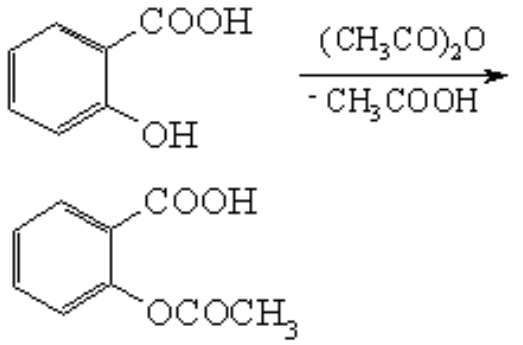
A. HIV antigens
B. Monoclonal HIV antibodies
C. Enzyme-marked HIV antibodies
D. Specific immunoglobulins
E. Substrates to determine enzyme activity

84. What compound will be produced during reduction of methyl ethyl ketone?



A. *secondary*-butyl alcohol
B. Butanol-1
C. Isobutyl alcohol
D. *tertiary*-butyl alcohol
E. Propanol-2

85. What medication is formed as a result of interaction of salicylic acid with acetic anhydride?



A. Aspirin
B. Salicyl amide
C. Phenyl salicylate
D. Benzyl salicylate
E. Sodium salicylate

86. Digestion of proteins in the digestive tract is a complex process of their hydrolysis till peptides and free amino acids. What enzymes decompose proteins in the duodenum?

A. Trypsin, chemotrypsin
B. Enterokinase, lipase
C. Amylase, maltase
D. Pepsin, gastricsin
E. Lipase, phospholipase

87. After a 5-year-old child has been brought home from the kindergarten he presented with weakness, headache, body temperature rise up to $37,5^oC$. What period of disease develompent is the case?

A. Prodromal
B. Latent
C. Incubative
D. Recovery
E. Fastigium

88. Iodimetry involves use of standard solutions of iodine and $Na_2S_2O_3$. What substance is used to standardize the sodium thiosulfate solution?

A. $K_2Cr_2O_7$
B. $NaCl$
C. $N_2B_4O_7$
D. K_2CO_3
E. As_2O_3

89. It is required to determine the amount of sodium salicylate in a solution. What titrimetric method can be applied for the quantitative determination of aromatic compounds?

A. Bromometry
B. Mercurimetry
C. Cerimetry
D. Argentometry
E. Chelatometry

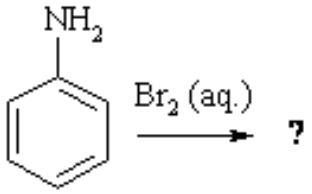
90. A 56 year-old patient complains about limitation of movements and pain in hand joints, mainly at night. Objectively: there is a disfiguring painful swelling of affected joints. Blood and urine have high concentration of uric acid. What disease has developed?

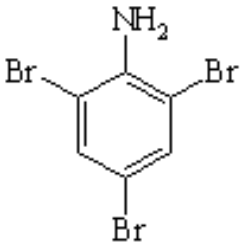
A. Gout
B. Pellagra
C. Phenylketonuria
D. Alkaptonuria
E. Tyrosinosis

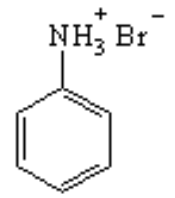
91. What elements of IIB group exhibit amphoteric properties?

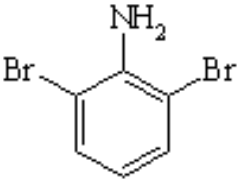
A. Zinc only
B. Zinc and cadmium
C. Cadmium and mercury
D. All elements
E. Mercury only

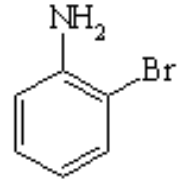
92. Interaction of aniline with of bromine water resulted of white precipitate. What substance was produced?

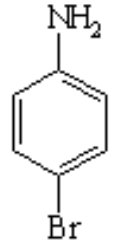


A.


B.


C.


D.


E.


93. Analytical indication of effect of potassium iodide solution upon unstained oxidizing anions in presence of chloroform is:

A. Brown stain of free iodine
B. Settling down of white deposition
C. Change of aggregate state
D. Emission of gas bubbles
E. Origination of deposition and its solution in reagent excess

94. Every year during the plant blossoming a female patient develops acute catarrhal inflammation of conjunctiva and nasal mucosa that is the clinical presentation of an allergy. These symptoms relate to the following type of allergic reactions:

A. Anaphylactic
B. Cytotoxic
C. Immune complex
D. Cell-mediated
E. Cellular dysfunction

95. A female patient consulted a doctor about leg pain that arises usually toward the evening; feet and shins edemata. Objectively: leg skin is cyanotic, cold to the touch. What type of peripheral circulation disorder does the patient present with?

A. Venous hyperaemia
B. Arterial hyperaemia
C. Ischaemia
D. Stasis
E. Thrombosis

96. Presence of the pathogenic microorganisms in the air can be prognosticated according to the content of sanitary-indicative bacteria. Which bacteria indicate immediate epidemiologic danger?

A. Haemolytic streptococci
B. Sarcinae
C. Mold fungi
D. Yeast fungi
E. Micrococci

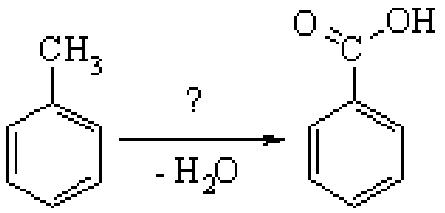
97. A patient with low immunity, frequent colds is recommended to take ascorutine as a more effective drug than ascorbic acid. What constituent substance of this preparation intensifies action of vitamin C?

A. Vitamin P
B. Vitamin A
C. Glucose
D. Lactose
E. Vitamin D

98. Determination of Δ*Boiling point* of water-alcohol mixtures is the pharmacopoeial method of quantitative determination of alcohol. Which method enables to determine Δ*Boiling point*?

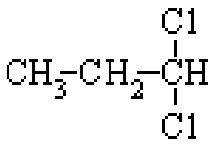
A. Ebullioscopy
B. Cryoscopy
C. Enteroscopy
D. Osmometry
E. Conductometry

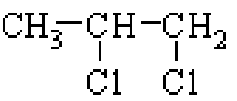
99. Toluol is converted to the benzoic acid under the following conditions:

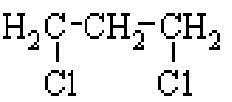


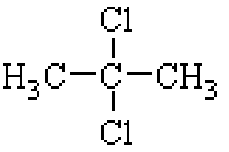
A. Oxidation with potassium permanganate
B. Heating with sulphuric acid
C. Hydrogen peroxide action at a room temperature
D. Sodium hydroxide action at a room temperature
E. Boiling in the open air

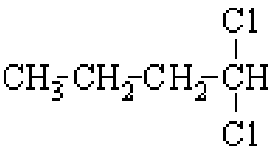
100. Which of the following compounds forms a propionic aldehyde as a result of alkaline hydrolysis (H_2O, OH^-)?

A.


B.


C.


D.


E.


101. The 0,1 M solution of which substance has the smallest ion concentration?

A. CH_3COOH
B. HCl
C. $CaCl_2$
D. H_2SO_4
E. $NaNO_3$

102. Inflammatory processes in the gall bladder exert negative influence on the colloidal properties of bile. This may lead to gallstone formation. One of the causes

of their formation is the crystallization of the following substance:

A. Cholesterol
B. Albumine
C. Haemoglobin
D. Urates
E. Oxalates

103. Which of the given bases is a weak electrolyte?

A. $Mg(OH)_2$
B. $Ca(OH)_2$
C. $Ba(OH)_2$
D. $NaOH$
E. KOH

104. Bacteria may contain not only chromosomal but also nonchromosomal hereditary elements called plasmids. Presence of plasmid genes can show itself by:

A. Multiple drug resistance
B. Stain resistance
C. Physical factor resistance
D. Sporogenesis ability
E. Mobility

105. The method of "accelerated drug ageing"used for determination of drug shelf life is based upon:

A. Van't Hoff's rule
B. Fajans' rule
C. Planck's postulate
D. Ostwald law
E. Raoult law

106. Choose the reagents for detection of the sulphate ions in a solution containing carbonate, sulphate and phosphate ions:

A. $Ba(NO_3)_2$, HCl
B. $Ba(NO_3)^{-2}$, $NaOH$
C. $BaCl_2$, H_2O
D. $CaCl_2$, NH_4OH
E. $AgNO_3$, HNO_3

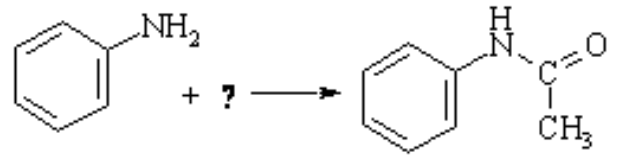
107. Transamination is the biochemical process in which amino groups of different amino acids take form of one of the amino acids. What amino acid is it?

A. Glutamic
B. Glycine
C. Valine
D. Leucine
E. Arginine

108. Microscopic examination of ground tissue of a small branch revealed cork and felloderm. These are the derivates of:

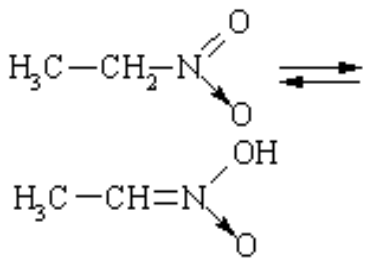
A. Phellogen
B. Cambium
C. Procambium
D. Protoderm
E. Pericycle

109. Chooes the reagent that can be used for acylation of amines:



A. $(CH_3CO)_2O$
B. CH_3CHO
C. C_2H_5Cl
D. HNO_2
E. $CHCl_3 + NaOH$

110. What type of tautomerism is typical for the given compound?



A. Nitro-aci-nitro tautomerism
B. Carbonyl-enol tautomerism
C. Cyclo-oxo tautomerism
D. Amine-imine tautomerism
E. Keto-enol tautomerism

111. Aminotransferases are the enzymes that transfer an amino group from one compound to another. What compound is the acceptor of amino groups?

A. α-ketoglutaric acid
B. Acetone
C. Lactic acid
D. Succinic acid
E. Butyric acid

112. Alpha-cells of pancreas stimulate synthesis of the glucagon hormone that is involved into the carbohydrate metabolism. It has the following effect on liver processes:

A. Activates glycogenolysis
B. Activates alcoholic fermentation
C. Inhibits glycogenolysis
D. Inhibits glycolysis
E. Activates lypogenesis

113. Sol $Al(OH)_3$ was produced as a result of treatment of freshly prepared $Al(OH)_3$ precipitate with a small amount of HCl solution. What phenomenon underlies the sol production?

A. Chemical peptization
B. Chemical condensation
C. Washing with a solvent
D. Mechanical dispersion
E. Physical condensation

114. What is oxidation number of the central atom in the compound $H[AuCl_4]$?

A. +3
B. 0
C. +1
D. +2
E. +4

115. A 37-year-old man was admitted to a hospital with an attack of bronchial asthma. What respiration type will be observed in this patient?

A. Expiratory dyspnea
B. Inspiratory dyspnea
C. Apnoea
D. Gasping respiration
E. Hyperpnoea

116. It is required to measure the nitrogen metabolism in a person under observation who is recovering from continuous starvation. What result is most likely to be expected?

A. Decrease in nitrogen secretion
B. Nitrogen equilibrium
C. Negative nitrogen balance
D. Acetonemia
E. -

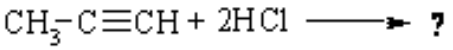
117. It is required to increase the secretion of gastric juice in an experimental dog with stomach fistula. What should be introduced into the stomach?

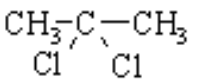
A. Meat broth
B. White bread
C. Milk
D. Dried bread
E. Sour cream

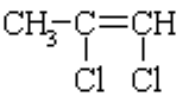
118. Anti-tetanus gamma globulin is produced by hyperimmunization of donors with tetanus anatoxin. What class of immunoglobulins prevails in this preparation?

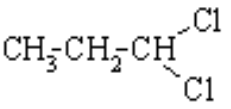
A. IgG
B. IgA
C. IgM
D. IgE
E. IgD

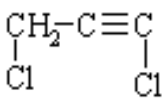
119. Specify the product that results from the interaction of 2 moles of HCl with 1 mole of propyne:

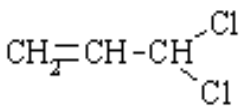


A.


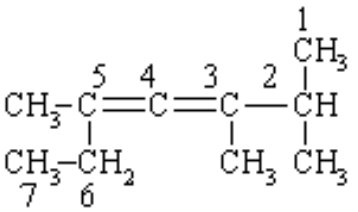
B.


C.


D.


E.


120. Specify the name of the compound according to the IUPAC nomenclature:



A. 2,3,5-Trimethyl heptadiene-3,4
B. 3,5,6,6-Tetramethyl heptadiene-3,4
C. 3,5,6,6-Trimethyl hepten-3
D. 2-Ethyl-4,5-dimethyl hexadiene-2,3
E. 2-Ethyl-4,5,5-trimethyl pentadiene-2,3

121. Which salt should be dissolved in water in order to increase the concentration of hydrogen ions?

A. $ZnCl_2$
B. $NaNO_3$
C. KCl
D. Na_3CO_2
E. Na_2S

122. Drugs in form of colloidal-and-disperse systems are widely spread in the pharmaceutical practice. What method of sol production is based upon the phenomenon of physical condensation?

A. Solvent substitution
B. Reduction
C. Oxidation
D. Hydrolysis
E. Double exchange

123. Under what conditions the limited swelling of gelatine turns into the unlimited one?

A. Heating
B. Cooling
C. In presence of PO_4^{3-} ions
D. In presence of Cl^- ions
E. In presence of H^+ ions whose concentration is equal to their concentration in the isoelectric point

124. As a result of staining of a plant microslide with $Sudan$ III solution the cell membranes turned pink. This indicates the presence of:

A. Suberin
B. Cellulose
C. Lignin
D. Pectin
E. Hemicellulose

125. Choose a pair of titrants for the qualitative determination of ammonia in a solution by the method of back titration:

A. HCl, $NaOH$
B. HCl, H_2SO_4
C. KOH, $NaOH$
D. $NaOH$, KCl
E. H_2SO_4, K_2SO_4

126. The analytical effect of reaction of potassium hexacyanoferrate (II) solution with iron (III) ions is:

A. Formation of blue precipitate
B. Formation of white precipitate
C. Formation of blue precipitate and its dissolution in the excess of the reagent
D. Effervescence
E. Characteristic smell

127. Content of potassium dichromate in a solution was determined by iodometric method. Name the titrant of iodometric method for oxidant determination:

A. Sodium thiosulfate
B. Sodium hydroxide
C. Potassium iodide
D. Potassium permanganate
E. Potassium bromate

128. Under anaerobic conditions during glycolysis ATP is synthesized by the way of substrate phosphorylation. This process uses energy of other high-energy compounds. Specify one of such compounds:

A. Phosphoenol pyruvate
B. Glucose 6-phosphate
C. Lactate
D. Pyruvate
E. Glucose

129. Fruits of the *Apiaceae* family can be identified on the basis of a set of morphological features and presence of the following formation in the pericarp:

A. Essential oil tubules
B. Resin ducts
C. Articulated lacticifers
D. Non-articulated lacticifers
E. Wax strips with stomata

130. A patient was diagnosed with right lung cancer and doctors administered him surgical treatment. After right-sided pulmonectomy the patient began to suffer from evident dyspnea. What form of respiratory failure is it?

A. Pulmonary restrictive
B. Central
C. Peripheral
D. Pulmonary obstructive
E. Thoracodiaphragmal

131. During the practical training the students placed the isolated frog's heart into a solution. This caused the cardiac arrest in diastole. What solution was the heart placed into?

A. 3% solution of KCl
B. 1% solution of $NaCl$
C. 3% solution of $NaCl$
D. 1% solution of $CaCl_2$
E. 0,1% solution of $MgCl_2$

132. A patient takes blocker of muscarinic cholinoreceptors of parasympathetic nerve organ synapses. What changes of heart activity will be observed?

A. Heart rate rise
B. Heart rate and heart force fall
C. Heart rate fall
D. Heart force fall
E. Prolongation of atrioventricular delay

133. A patient complains about an increase in heart rate, hyperperspiration, irritability, sleeplessness. He has been presenting with these symptoms for the latest six months. They indicate the hyperfunction of the following endocrine gland:

A. Thyroid gland
B. Pancreas
C. Adrenal glands
D. Sexual glands
E. Thymus

134. Examination of five herbarium specimens of medicinal plants showed that one of them belonged to the *legume* family, namely:

A. *Glycyrhiza glabra*
B. *Atropa belladonna*
C. *Hyoscyamus niger*
D. *Datura stramonium*
E. *Solanum dulcamara*

135. Iron in the +6 oxidation state acts only as an oxidant because:

A. It is in the maximum oxidation state
B. It has 5 outer shell electrons
C. It falls into VIIIB group
D. It is a *d*-element
E. It is found in the fourth period

136. Before diving experienced divers first take several deep breaths. They do it in order to:

A. Remove as much as possible CO_2
B. Reduce functional residual capacity of lungs
C. Increase lung vital capacity (LVC)
D. Increase total lung capacity (TLC)
E. Increase respiratory volume (RV)

137. A woman in labour has been given a drug that activates contractions of the smooth muscles of uterus. Which hormone is a part of this drug?

A. Oxytocin
B. Gastrin
C. Secretin
D. Angiotensin
E. Bradykinin

138. Perchromic acid formed as a result of chromium oxidation is unstable and dissolves in aqueous solutions. What solvent is used for its extraction?

A. Isoamyl alcohol and ether
B. Chloroform
C. Benzene
D. Nitrobenzene
E. Ethanol

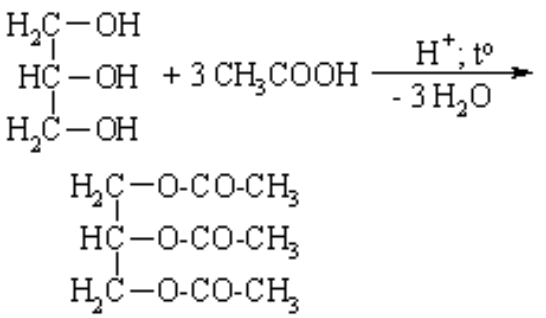
139. When a smear is stained by Burry-Gins method a mucous structure that is tightly bound with the cellular wall of bacteria and has well-defined outer boundaries can be detected. This element of a bacteria cell is called:

A. Capsule
B. Spore
C. Filaments
D. Ribosomes
E. Episomes

140. Sanitary-biologic examination of air in a drugstore revealed a sanitary-indicative microorganism. Name it:

A. Staphylococcus aureus
B. Colon bacillus
C. Fecal enterococcus
D. Alpha-haemolytic streptococcus
E. Citrobacter

141. The product of full acetylation of glycerol relates to the following class of organic compounds:



A. Ester
B. Ether
C. Ketone
D. Acetal
E. Phenol

142. Specify the number of degrees of freedom of the intersection of liquidus line with the ordinate axis of diagram of a two-component system state:

A. C = 0
B. C = 2
C. C = 1
D. C = -1
E. C = 3

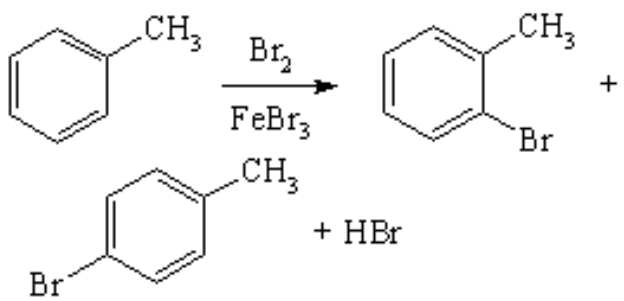
143. What thermodynamic potential is the criterion for the direction of a spontaneous process at constant volume and temperature?

A. Helmholtz energy
B. Entropy
C. Gibbs energy
D. Chemical potential
E. Enthalpy

144. A citrus fruit is characterized by the glandular exocarp, spongiose mesocarp and overgrown endocarp consisting of juice sacs. Such fruit is called:

A. Hesperidium
B. Legume
C. Pod
D. Drupe
E. Bacca

145. What is the mechanism of bromination of toluene aromatic ring?



A. S_E
B. A_E
C. S_R
D. S_N
E. A_N

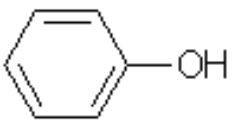
146. A patient fell ill the day before, the disease is acute with a predominance of general toxic symptoms. With an account for the epidemic situation in the city, the doctor diagnosed the patient with influenza A. What emergency etiotropic treatment must be administered to this patient?

A. Rimantadine
B. Oxolinic ointment
C. Gentamicin
D. Inactivated influenza vaccine
E. Human gamma globulin

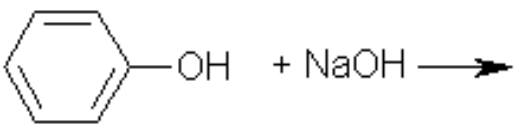
147. Specify the reagents enabling to prove the presence of a primary amino group in a molecule of n-aminobenzoic acid by means of isonitrile test:

A. $CHCl_3$, $NaOH$
B. Br_2, H_2O
C. $NaHCO_3$
D. $KMnO_4$
E. I_2, $NaOH$

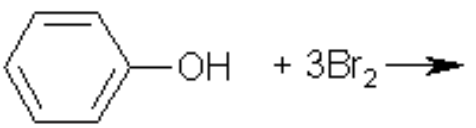
148. Specify the reaction which proves the acidic properties of phenol:



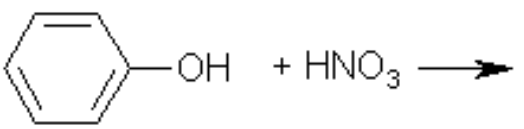
A. Phenol + sodium hydroxide



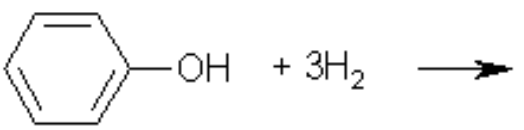
B. Phenol + bromine



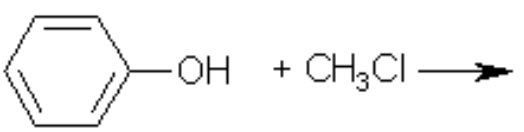
C. Phenol + nitric acid



D. Phenol + hydrogen



E. Phenol + chloromethane



149. Specify the electronic effects of the carboxyl group $(-COOH)$ in a molecule of benzoic acid:

A. $-I$, $-M$
B. $-I$
C. $+I$, $-M$
D. $+I$
E. $-I$, $+M$

150. Butanol-1 (n-butyl alcohol) and 2-methyl-1-propanol (isobutyl alcohol) are the isomers:

A. Of carbon chain
B. Position isomers
C. Optical
D. Geometric
E. Of functional group

151. A leaf of a plant under examination has a membranous ochrea wrapped around the internode base. Presence of such modified stipules is the diagnostic feature of the following family:

A. *Polygonaceae*
B. *Gramineae*
C. *Rosaceae*
D. *Legumes*
E. *Solanaceae*

152. A solution containing the cations of the V analytic group (acid-base classification) has been taken for the analysis. The solution of sodium hydroxostannite has been added to the composition which resulted in formation of black deposition. This is the evidence of presence of the following cation:

A. Bi^{3+}
B. Fe^{2+}
C. Sb^{3+}
D. Fe^{3+}
E. Mg^{2+}

153. Which of the following adsorbents is the most effective for adsorption of a substance from the aqueous solution?

A. Activated carbon
B. Silica gel
C. Quartz
D. Bolus alba
E. Gypsum

154. Choose a plant whose apical sprouts are used in medical practice for sedative drug production:

A. *Leonurus cardiaca*
B. *Glycyrrhiza glabra*
C. *Digitalis purpurea*
D. *Ledum palustre*
E. *Fagopyrum sagittatum*

155. Examination of procured medicinal herbs grown in a warm climate revealed their affection in form of yellowing, overgrowth of lateral shoots, dwarfism, delayed fruiting. Which organisms can cause such changes?

A. Mycoplasma
B. Viruses
C. Bacteria
D. Fungi
E. Protozoa

156. Molar mass equivalent to barium hydroxide (M($Ba(OH)_2$) = 171 g/mol) is:

A. 85,5 g/mol
B. 34 g/mol
C. 42,8 g/mol
D. 57 g/mol
E. 232 g/mol

157. Sanitary microbiological analysis of the indoor air of a pharmacy carried out in summer revealed presence of *Streptococcus haemolyticus* and *Streptococcus viridians* at the rate of 40 microorganisms per 1 m^3. Specify the microbiological characteristic of the air:

A. Contaminated
B. Within the permissible limits
C. Almost pure
D. Pure
E. These microorganisms are not the determinants of the air quality

158. Each stem node of white deadnettle (*Lamium album*) has two leaves which grow perpendicularly to the leaves of the previous node. Such leaf arrangement is called:

A. Cross-opposite
B. Spiral
C. Verticillate
D. Rosette
E. Leaf mosaic

159. A 3,5-year-old child has been diagnosed with dysbacteriosis in form of critical reduction of gram-positive anaerobic bacteria and increased number of staphylococci and yeast fungi. Which preparation should be used for the correction of dysbacteriosis?

A. Bifidumbacterin
B. Colibacterin
C. Coli-Proteus bacteriophage
D. Furazolidone
E. Lactoglobulin

160. One of saliva functions is the bactericidal one. It can be fulfilled due to the following substance:

A. Lysozyme
B. Amylase
C. Bradykinin
D. Maltase
E. Mucin

161. Morphological analysis of leaves revealed that each vein runs along the lamina separately and the veins join together only at the top of the lamina. This kind of venation is called:

A. Arcuate
B. Pinnate
C. Dichotomous
D. Palmate
E. -

162. During identification of an unknown salt the colorless part of the burner flame turned yellow and green. What cation was the salt formed by?

A. Ba^{2+}
B. Ca^{2+}
C. Sr^{2+}
D. Na^{+}
E. K^{+}

163. A pharmaceutical analyst has to identify potassium acetate. He can prove the presence of potassium cation in the analyzed substance by means of the following solution:

A. Tartrate acid
B. Sodium hydroxide
C. Potassium permanganate
D. Iron (III) chloride
E. Formate acid

164. A pharmacist studies the coagulation process. He adds the minimum concentration of the electrolyte to a sol. Coagulation takes place when this concenration is exceeded. The minimum concentration of the electrolyte is called:

A. Coagulation threshold
B. Sedimentation threshold
C. Sensitivity threshold
D. The threshold of the adsorption-solvation sensitivity
E. Coagulating power

165. Reaction of a group reagent with the cations of the 2nd analytical group results in precipitation of $PbCl_2$ which can be dissolved in:

A. Hot water
B. 0,2 M solution of sodium carbonate
C. Saturated solution of sodium carbonate
D. 2M sulfuric acid solution
E. Ethanol

166. A student had analyzed an inflorescence and found out that the flowers on the developed main axis were set one by one, and due to the various length of pedicels they were located almost in the same plane, so they formed:

A. Corymb
B. Glomus
C. Anthodium
D. Volute
E. Umbel

167. A 50-year-old patient complains of having dyspnea under a considerable physical stress, leg edemata. Examination reveals chronic myocarditis and circulatory failure. What is the evidence of cardiac decompensation in the patient?

A. Decreased cardiac output
B. Increased blood flow velocity
C. Increased vascular resistance
D. Decreased venous pressure
E. Increased hydrostatic pressure in the lumen of blood vessels

168. Study of secretory function of stomach revealed a decrease in hydrochloric acid concentration in gastric juice. This must cause hypoactivity of the following enzyme:

A. Pepsin
B. Hexokinase
C. Amylase
D. Lipase
E. Dipeptidase

169. In order to reduce heart rate during tachycardia alternative medicine doctors recommend to induce artificial vomiting. Specify the efferent nerve of this reflex:

A. Vagus
B. Glossopharyngeal nerve
C. Sympathetic (abdominal) nerve
D. Hypoglossus
E. Phrenic nerve

170. Saffron propagates vegetatively - via corms which are a modification of ...

A. Underground shoot
B. Main root
C. Above-ground shoot
D. Lateral roots
E. Additional roots

171. Mass fraction of Fe^{2+} ions in Mohr's salt can be determined by gravimetric sedimentation method using:

A. NH_4OH
B. Na_2S
C. K_3PO_4
D. $BaCl_2$
E. $ZnCl_2$

172. In order to generate hydrogen by means of Kipp's apparatus the following reagents should be used:

A. Zinc and diluted sulfuric acid
B. Aluminum and potassium chloride solution
C. Magnesium and concentrated sulfuric acid
D. Hydrogen peroxide
E. The compound of hydrogen and carbon

173. Specify a halogen whose reaction with hydrogen causes an explosion:

A. Fluorine
B. Bromine
C. Chlorine
D. Astatine
E. Iodine

174. Inhibition of the synthesis of bile acids from cholesterol in liver of an experimental animals has caused maldigestion of lipids. What is the role of these acids in the enteral lipidic metabolism?

A. They emulsify dietary lipids
B. They keep balance of alkaline environment in the gut
C. They participate in the synthesis of lipids
D. They are part of LDL
E. They activate the formation of chylomicrons

175. Pheochromocytoma provokes hypersecretion of adrenaline and noradrenaline. The concentration of free fatty acids is higher than normal. In this case hyperlipidemia is caused by activation of the following enzyme:

A. Triglyceride lipase
B. Phospholipase C
C. Phospholipase A_2
D. Phospholipase A_1
E. Glycogen phosphorylase

176. After a 40-year-old patient had changed his body position from vertical to horizontal one his heart rate dropped from 70 to 65 bpm. This reaction was caused by the following reflex:

A. Depressor reflex
B. Pressor reflex
C. Goltz reflex
D. Aschner reflex
E. Bainbridge reflex

177. The microflora of the colon plays an important part in the process of digestion. What vitamins does it synthesize?

A. Vitamins K and B group
B. Vitamin C
C. Vitamin PP
D. Vitamin E
E. Vitamin A

178. Styloids are big single elongate-prismatic needle-like crystals. They are mostly typical for the following plants:

A. Monocotyledonous
B. Dicotyledonous
C. Gymnospermous
D. Lycopodiophyta
E. Equisetophyta

179. The listed below drugs can be used to correct acid-base and ionic balance. Provided that their molar concentration is the same, the following solution will have the maximum value of ionic strength:

A. Calcium chloride
B. Potassium chloride
C. Potassium iodide
D. Sodium chloride
E. Sodium fluoride

180. Examination of a patient revealed an increase in ammonia and citrulline concentration in blood, a decrease in urea concentration in urine as well as citrullinuria. This condition is caused by the deficiency of the following enzyme:

A. Arginine-succinate synthetase
B. Glutamine synthetase
C. Ornithine carbamoyl transferase
D. Glutaminase
E. Arginine-succinate lyase

181. A patient with atherosclerosis has

been prescribed Linaetholum containing essential fatty acids. Which of the following acids is an obligatory part of the preparation?

A. Linolenic
B. Palmitic
C. Crotonic
D. Stearic
E. Oleic

182. What cation of the 4th analytical group is present in a solution, if it is known that the reaction with a group reagent causes formation of yellow precipitate?

A. Cr^{3+}
B. Zn^{2+}
C. Sn^{2+}
D. Al^{3+}
E. $Sn(IV)$

183. A patient complains of general weakness, dyspnea, palpitation. Examination revealed inflammation of the mucous membrane of tongue, lips, especially in the corners of mouth; inflammation and increased vascularization in the external membrane of eye. What is the likely cause of this pathological condition:

A. Hypovitaminosis B_2
B. Hypovitaminosis A
C. Hypovitaminosis C
D. Hypervitaminosis A
E. Hypervitaminosis B_1

184. Examination of a patient revealed an increase in 17-ketosteroid concentration in urine. Hydroxylation of 17-ketosteroids is possible with the enzymes of the following system:

A. Microsomal oxidation
B. Krebs cycle
C. Protein synthesis system
D. Pentose phosphate cycle
E. Ornithine cycle

185. It is necessary to carry out preventive vaccination of a student group because of an occurrence of diphtheria. Which preparation should be used for the creation of the artificial active immunity?

A. Diphtheria anatoxin
B. Specific immunoglobulin
C. DTP vaccine
D. Inactivated bacteria vaccine
E. Anti-diphtheria serum

186. A patient consulted a doctor about intolerance to the sun rays. He presents with skin burns, impaired vision. He has been diagnosed with albinism. It is caused by the deficiency of the following enzyme:

A. Tyrosinase
B. DOPA-oxidase
C. Phenylalanine hydroxylase
D. Ornithine carbamoyl transferase
E. Arginase

187. The properties in a series of oxides: Al_2O_3 - SiO_2 - P_2O_5 - SO_3 - Cl_2O_7 change in the following way:

A. The properties increase from left to right
B. The properties decrease from left to right
C. The properties first increase and then decrease
D. The properties do not change
E. The properties first decrease, then increase

188. Select the fruit that meets the description: monocarpic, dry, polyspermous, can be split apart only in the ventral suture. The seeds are located along the ventral suture:

A. Follicle
B. Coccus
C. Fleshy stone fruit
D. Dry stone fruit
E. Follicetum

189. A patient with current coronary heart disease who had had two myocardial infarctions of left ventricular wall presents with bubbling breathing and dyspnea. Pulmonary auscultation reveals moist rales. What kind of heart failure is it?

A. Left ventricular
B. Right ventricular
C. Compensated
D. Subcompensated
E. Combined

190. A healthy 45-year-old man is sitting in a chair reading a newspaper. What muscles ensure breathing in a sitting position?

A. Diaphragm and external intercostal muscles
B. Scalenes
C. Diaphragm and internal intercostal muscles
D. Internal intercostal muscles and straight muscles of abdominal wall
E. Sternocleidomastoid muscles

191. Parents of a 11-year-old boy noticed that he is far behind his peers in the physical development. After the X-ray an endocrinologist revealed that the growth zones of tubular bones had already closed. Under these conditions, the intake of growth hormone can result in the development of:

A. Acromegaly
B. Gigantism
C. Dwarfism
D. Cretinism
E. Myxedema

192. A 46-year-old patient was found to have hyperactivity of creatine kinase in blood serum. What kind of pathology should be suspected?

A. Myocardial infarction
B. Acute pancreatitis
C. Chronic hepatitis
D. Haemolytic anemia
E. Renal failure

193. Colloidal dispersion systems include systems whose particle size is within the range:

A. 10^{-9} - 10^{-7} m
B. 10^{-7} - 10^{-4} m
C. > 10^{-4} m
D. < 10^{-9} m
E. 10^{-9} - 10^{-4} m

194. Drugs that block certain channels can prevent the transmission of excitation from presynaptic membrane to the postsynaptic memebrane of synapse. What channels are blocked?

A. Calcium
B. Sodium
C. Potassium potential-dependent
D. Potassium ATP-dependent
E. Chlorine

195. A patient with obstructive jaundice presents with bradycardia, low arterial pressure, itching, irritability, asthenia. What is the cause of these presentations?

A. Cholemia
B. Anacholia
C. Hypercholesterolemia
D. Hypocholesterolemia
E. Hyperbilirubinemia

196. Humoral immune response to an antigen results in generation of antibodies produced by plasmacytes. Plasmacytes arise as a result of immunostimulated division from the following cells of immune system:

A. B-lymphocytes
B. Monocytes
C. Granulocytes
D. T-helpers
E. T-killers

197. It is known that the leaves of *Eucalyptus globulus* have cavities with well-defined internal boundaries and filled with essential oils. They are called:

A. Schizogenous cavities
B. Non-articulated lacticifers
C. Schizolysigenous cavities
D. Articulated lacticifers
E. Lysigenous cavities

198. Examination of a patient revealed toxic hepatitis developed on the background of the use of medicines. This diagnosis can be confirmed by the activity of the following enzyme of blood serum:

A. Alanine amino transferase
B. Creatine phosphokinase
C. Pyruvate dehydrogenase
D. Maltase
E. Malate dehydrogenase

199. A patient has a mental disorder due to the insufficient synthesis of gamma-aminobutyric acid in the brain. Such pathological changes might be caused by the deficiency of the following vitamin:

A. Pyridoxine
B. Tocopherol
C. Cyanocobalamin
D. Folic acid
E. Riboflavin

200. How many stages has a system consisting of molten salts $NaCl$ and $CaCl_2$, and being in balance with crystals of the respective salts?

A. 3
B. 4
C. 1
D. 2
E. The number of phases changes with time