

1. During rocking a passenger became seasick. High excitability of which structures causes this phenomenon in the first place?

- A. Vestibular receptors
- B. Vasculomotor centre
- C. Vagus nerves
- D. Vomiting centre
- E. Sympathetic system

2. Microscopic examination of a root cortex in the absorbing zone revealed that it consists mainly of multilayer living loose parenchyma with starch granules. This is:

- A. Mesoderm
- B. Endoderm
- C. Exoderm
- D. Collenchyme
- E. Phellogen

3. Final urine is generated as a result of three sequential processes. Name the most credible sequence:

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

4. A plant under examination has a rhizome, big pinnatisected leaves with sori and sporangia on their undersurface. According to this data the plant should be related to one of the following divisions:

- A. *Polypodiophyta*
- B. *Pinophyta*
- C. *Magnoliophyta*
- D. *Equisetophyta*
- E. *Lycopodiophyta*

5. Leaves of a plant under examination have a distinct main nerve in the middle with regularly diverging side nerves. What type of nervation is it?

- A. Pinnate
- B. Digitate
- C. Arcwise
- D. Parallel
- E. Dichotomic

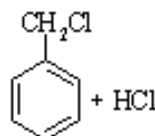
6. A 56 y.o. patient complains of periodical pain attacks in the heart area irradiating to his left arm, sometimes to the left scapula. These pain attacks can be relieved by nitroglycerine. What heart pathology can be suspected?

- A. Stenocardia
- B. Myocardium infarction
- C. Myocarditis
- D. Endocarditis
- E. Pericarditis

7. A 54 y.o. patient with stomach ulcer complains about great weakness, dyspnea caused by the slightest physical exercise. Blood count: erythrocytes - $1,44 \cdot 10^{12}/l$, Hb- 66 g/l, colour index - 1,4. What anemia are these changes of peripheral blood count typical for?

- A. B_{12} -deficiency
- B. Iron-deficiency
- C. Acute posthemorrhagic
- D. Acquired hemolytic
- E. Chronic posthemorrhagic

8. What of the given reagents is applied for determination of aldehyde group?



- A. $[Ag(NH_3)_2]OH$
- B. $Br_2(H_2O)$
- C. $Ca(OH)_2$
- D. Solution of $KMnO_4$
- E. 25% solution of H_2SO_4

9. What intracardiac compensation mechanism is actuated under conditions of cardiac insufficiency and causes blood volume overload?

- A. Heterometric
- B. Tachycardia
- C. Homeometric
- D. Myocardium hypertrophy
- E. Increase of respiratory rate

10. An essential oil plant has a tetraquetrous stem, flowers with bilabiate corolla, its fruit is coenobium. These signs are typical for the following family:

- A. *Lamiaceae*
- B. *Papaveraceae*
- C. *Polygonaceae*
- D. *Solanaceae*
- E. *Scrophulariaceae*

11. Choose reagents for detection of nitrite ions in presence of nitrate ions contained in a pharmaceutical under examination:

- A.** Antipyrin and chlorohydrogen acid (diluted)
B. Iron (II) sulfate (diluted) and potassium iodide
C. Iron (III) sulfate (concentrated) and potassium bromide
D. Iron (II) chloride
E. Iron (III) chloride

12. A chemist in an analytical laboratory needs to standardize a sodium hydroxide solution. What primary standard solution can be used for this purpose?

- A.** Oxalic acid
B. Acetic acid
C. Chlorohydrogen acid
D. Sodium tetraborate
E. Sodium chloride

13. Name the complex compound with antitumour activity:

- A.** $[Pt(NH_3)_2Cl_2]$
B. $[Co(NH_3)_5NO_3]Cl_2$
C. $Na_4[Sn(OH)_3Cl_3]$
D. $[Cu(NH_3)_4(SCN)_2]$
E. $K_2Na[Co(NO_2)_6]$

14. According to Hardy-Weinberg law coagulating effect of coagulant ion is influenced by:

- A.** Ion charge
B. Ion size
C. Adsorbability
D. Hydratability
E. Polarizability

15. Name the type of reaction applied for detection of Fe^{3+} cation:

- A.** Complexing
B. Precipitation
C. Hydrolysis
D. Neutralization
E. Renewing

16. Pharmacologists widely apply drugs in form of colloid-disperse systems. What method of sol production is rated as physical condensation?

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

17. A patient was diagnosed with anacardic gastritis. What enzyme activity will be reduced?

- A.** Pepsin
B. Amylase
C. Lipase
D. Chemotrypsin
E. Trypsin

18. A child with evident hypotrophy has edemata of lower extremities, ascites. What is the main factor 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 liquid
D. Increased permeability of vascular wall
E. Disorder of lymph outflow

19. What factors of humoral regulation stimulate the function of respiratory centre the most actively?

- A.** Carbon dioxide
B. Adrenaline
C. Acetylcholine
D. Thyroxine
E. Insulin

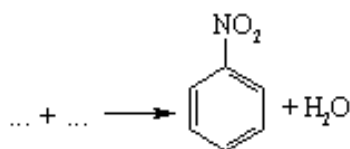
20. In order to keep vitality and stability of eubiotics microorganisms in frozen state are dried under conditions of high vacuum. What method is it?

- A.** Lyophilization
B. Pasteurization
C. Tyndallization
D. Inactivation
E. Hybridization

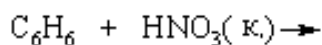
21. Hydrogen is characterized by the following oxidation rates: -1 ; 0 ; $+1$. The -1 oxidation rate hydrogen has in:

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

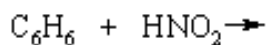
22. What compounds entered into a reaction if its products were nitrobenzene and water:



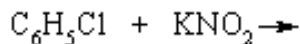
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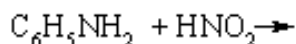
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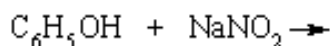
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D.



E.



23. What disease of blood coagulation system is based upon abrupt deceleration of blood coagulation due to disturbed formation of plasma thromboplastin (VIII factor deficit)?

- A. Hemophilia
- B. Thrombocytopenic purpura
- C. Hemorrhagic vasculitis
- D. Symptomatic thrombocytopenia
- E. Hemorrhagic purpura

24. To the membrane proteins that contact with this or that biologically active substance transmitting information into the cell belong:

- A. Receptor proteins
- B. Pump proteins
- C. Enzyme proteins
- D. Channel proteins
- E. Glycocalix

25. What segment of digestive tract secretes digestive juice that has acid reaction?

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

26. Concentration of ethyl alcohol in some drug formulations and tinctures can be determined by means of refractometry. For this purpose the following characteristic is measured:

- A. Index of solution refraction
- B. Angle of rotation of plane of polarized light
- C. Angle of total internal reflection of light ray
- D. Light ray angle
- E. Angle of light refraction

27. In order to estimate antibiotic susceptibility of a patient doctors introduced him intracutaneously 0,2 ml of penicilline solution. Ten minutes after introduction there appeared hyperemy and edema. What type does this reaction relate to (according to Coomb's and Gell's classification)?

- A. Anaphylactic reaction
- B. Cytotoxic reaction
- C. Reaction of Arthus phenomenon type
- D. Delayed-type hypersensitivity
- E. Tuberculine reaction

28. Name inhibitory transmitters:

- A. GABA and glycin
- B. Adrenaline and noradrenaline
- C. Noradrenaline and dopamine
- D. Serotonin and glycin
- E. Acetylcholine and GABA

29. Quantitative determination of pharmaceutical substances can be done by method of acidimetry. Its titrant is the secondary standard solution of chloride acid. What compound helps to determine the precise concentration of chloride acid?

- A. Sodium tetraborate
- B. Oxalate acid
- C. Potassium dichromate
- D. Sodium thiosulfate
- E. Magnesium sulfate

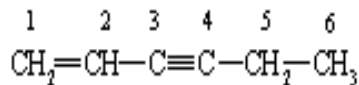
30. Hop sprouts wind around a support and climb upwards. That means that they are:

- A. Creeping
- B. Recumbent
- C. Arrect
- D. Tenent
- E. Trailing

31. A patient was prescribed with bile preparation for the purpose of improvement of rich food digestion. What components of this preparation take part in fat emulsification?

- A. Bile acids
- B. Cholesterol and its ethers
- C. Diglyceride
- D. Bilirubin-glucuronids
- E. Higher fatty acids

32. What carbon atoms in the given compound are in the second valence state of (sp^2 -hybridization)?



- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 3 and 4
- E. 5 and 6

33. 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

34. 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

35. Presence of chlorides in drinking water can be detected by method of mercurimetry. One of the following solutions is used as titrant:

- A. $Hg(NO_3)_2$
- B. $Hg_2(NO_3)_2$
- C. $HgCl_2$
- D. $HgSO_4$
- E. Hg_2Cl_2

36. Under conditions of high temperature of the environment a fan eases being in premises because it intensifies heat transfer by means of:

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

37. What is molecular weight of a gas if its hydrogen density is 15?

- A. 30 g/mole
- B. 7,5 g/mole
- C. 15 g/mole
- D. 45 g/mole
- E. 60 g/mole

38. During an exam arterial pressure of a student rose and his heartbeat accelerated. Name the probable cause of this phenomenon:

- A. Increase of tonus of sympathetic nervous system
- B. Extension of excitability threshold α and β adrenoreceptors
- C. Increase of circulating blood volume
- D. Decrease of tonus of parasympathetic nervous system
- E. Excretion of glucocorticoids

39. Titrant of chelatometry method is trilon B solution that forms complex compounds with metal cations irrespective of their valence at a ratio of:

- A. 1 : 1
- B. 1 : 3
- C. 1 : 2
- D. 2 : 1
- E. 3 : 1

40. Name the type of reaction that takes place during detection of ascorbic acid in a preparation by iodometric method:

- A. Oxidation-reduction
- B. Acylation
- C. Neutralization
- D. Precipitation
- E. Complexing

41. During quantitative estimation of glucose by polarimetric method the following factor is measured:

- A. Angle of rotation of polarized beam plane
- B. Coefficient of light refraction
- C. Rate of polarized beam absorption by a solution
- D. Beam dispersion by a solution
- E. Optical density of a solution

42. An important role during starvation

on diet belongs to gluconeogenesis that helps to maintain normal rate of glucose in blood. Name the main substrate of this process:

- A. Aminoacids
- B. Cholesterine
- C. Nucleic acids
- D. Bile acids
- E. Acetone

43. Interaction of catecholamines with β -adrenoreceptors increases the level of cyclic adenosine monophosphate in tissue cells. Name an enzyme that catalyzes reaction of cyclic adenosine monophosphate generation:

- A. Adenylate cyclase
- B. Phosphodiesterase
- C. Phosphatase
- D. Guanylate cyclase
- E. Creatine kinase

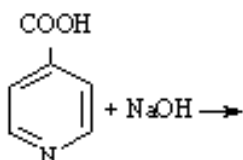
44. Bacteritic preparations are subdivided into groups according to their purpose and production principles. What group do the preparations for initiation of active immunity relate to?

- A. Vaccines
- B. Immune sera
- C. Immunoglobulins
- D. Monoclonal antibodies
- E. Bacteriophages

45. Antivitamins are substances of various structure that limit utilization of vitamins in an organism and have an opposite to them action. Name antivitamin of vitamin K:

- A. Dicumarol
- B. Sulfapyridasine
- C. Deoxyribose
- D. Aminopterin
- E. Isoniazid

46. Salicylic acid relates to the phenol acids. Presence of phenolic hydroxyl can be proved by means of reaction with:



- A. FeCl_3
- B. NaOH
- C. H_2SO_4 (concentrated)
- D. CH_3COOH (ice)
- E. CH_3OH (H^+)

47. What classification criterion incorporates the following types of anemias: posthemorrhagic, hemolytic and anemia induced by disturbed hematogenesis?

- A. Pathogenesis
- B. Etiology
- C. Hematogenesis type
- D. Bone marrow regenerability
- E. Colour index

48. Erythrocytes contain carbonic acid produced from CO_2 and H_2O . What enzyme ensures synthesis of carbonic acid in erythrocytes and its decomposition in pulmonary capillaries?

- A. Carbonic anhydrase
- B. Alkaline phosphatase
- C. Elastase
- D. Lipase
- E. Amylase

49. Sanitary and bacteriological examination of air in drug-store premises revealed increased content of sanitary representative microorganisms. What microorganisms are these?

- A. Golden staphylococcus and hemolytic streptococcus
- B. Diphtheria and tuberculosis bacilli
- C. Colon and blue pus bacilli
- D. Epidermal staphylococcus and sarcina
- E. Enterococci and cyrobacter

50. Synthesis of steroid hormones arises from a precursor that contains cyclopentane perhydrophenantrene ring. Name this precursor:

- A. Cholesterine
- B. Acetyl-CoA
- C. Malonyl-CoA
- D. Levulinic acid
- E. Tyrosine

51. In pharmaceutical production synthesis of preparations takes place under various conditions. In what process does the entropy stay unchanged?

- A. Adiabatic
- B. Isothermal
- C. Isochoric
- D. Isobaric
- E. Polytopic

52. 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

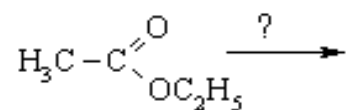
53. Pulp of a needle leaf consists of living tissue with internal ansiform outgrowths of membrane. Along these outgrowths the chloroplasts are placed. Name the type of this leaf's parenchyma:

- A. Folded
- B. Spongy
- C. Palisade
- D. Storage
- E. Aeriferous

54. Bacteriological control of unsterile drugs assumes the possibility of presence of some microorganism groups. What groups are these?

- A. Sarcina
- B. Colon bacillus
- C. Blue pus bacillus
- D. Aurococcus
- E. Hemolytic streptococcus

55. Choose a reagent for production of an acetic acid hydrazide from ethyl acetate:



- A. $\text{H}_2\text{N}-\text{NH}_2$
- B. NH_3
- C. $\text{H}_2\text{N}-\text{CH}_3$
- D. $\text{C}_6\text{H}_5\text{NH}_2$
- E. $\text{C}_6\text{H}_5\text{NHNH}_2$

56. What expression corresponds with the state of chemical equilibrium under constant pressure and temperature?

- A. $\Delta G=0$
- B. $\Delta F=0$
- C. $\Delta H=0$
- D. $\Delta U=0$
- E. $\Delta S=0$

57. A patient had an attack of calculous cholecystitis that was accompanied by saponated feces, steatorrhea. These changes are the evidence of disturbance of the following stage of lipometabolism:

- A. Digestion and absorption
- B. Transport
- C. Intermediary metabolism
- D. Adipose tissue exchange
- E. Depositing

58. Labels of some drugs have the following inscription: "shake before use!". This warning is induced by:

- A. Sedimentation
- B. Coagulation
- C. Solubility of disperse systems
- D. Insolubility of disperse systems
- E. -

59. Quantitative content of calcium chloride can be measured by method of direct chelatometric titration. Choose an indicator for registering the end point of titration:

- A. Eriochrome black T
- B. Phenolphthalein
- C. Methyl red
- D. Eosin
- E. Starch

60. A plant under examination has a storage root; its stems are ribbed and channelled, hollow; leaves are many times pinnatisected, leafstalk has a boot; inflorescence is the compound umbel; fruit is the cremocarp with essential oil canaliculi in the pericarp. Such characteristics are typical for the plants of the following family:

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

61. One of fleshy fruits under examination is characterized by essential oil exocarp, spongy mesocarp and overgrown endocarp consisting of juice sacs. What fruit was examined?

- A. Hesperidium
- B. Pepo
- C. Cinarodium
- D. Drupe
- E. Bacca

62. Sodium and potassium chlorides in preparations can be detected by means of:

- A. Argentometry, More's method
- B. Oxidation-reduction titration
- C. Alkalimetry
- D. Acidimetry
- E. Chelatometry

63. Adding of a diluted solution of chlorohydrogen acid to a solution under examination resulted in formation of white caseous sediment. It is the evidence of presence of the following ions:

- A. Silver
- B. Ammonium
- C. Iron (II)
- D. Barium
- E. Iodine

64. Which of the following cyclic compounds is ranked with carbocyclic compounds?

- A. Benzene
- B. Furan
- C. Tetrahydrofuran
- D. Pyridine
- E. Hexane

65. Addition reaction accompanied by cycle opening is typical for the following cycloalkane:

- A. Cyclopropane
- B. Cyclohexane
- C. Cyclopentane
- D. Methyl cyclopentane
- E. Cyclodecane

66. A sour cherry has shortened principal axis of inflorescence, pedicles have nearly equal length and emerge like from the same point. It is typical for the following type of inflorescence:

- A. Umbel
- B. Corymb
- C. Truss
- D. Ear
- E. Anthodium

67. Section of *Helianthus annuus* root has a secondary fascicular formation, it means that the section was made in the zone of:

- A. Fortification and conduction
- B. Growth and elongation
- C. Absorption
- D. Fissionable cells
- E. Root cap

68. When fats get into an organism they are digested and absorbed. What products of fat hydrolysis are absorbed in an intestine?

- A. Glycerine, fatty acids
- B. Amino acids
- C. Monosaccharides
- D. Lipoproteids
- E. Polypeptides

69. Analysis of urine composition revealed changed concentration of sodium ions. Which of hormones provides regulation of sodium ions reabsorption in nephron canaliculi?

- A. Aldosterone
- B. Vasopressin
- C. Somatostatin
- D. Adrenaline
- E. Parathormone

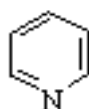
70. When manufacturing the medicinal preparations their yield can be raised by correct choice of temperature conditions. What equation determines dependence of equilibrium constant upon temperature under constant pressure?

- A. Isobars of chemical reaction
- B. isotherms of chemical reaction
- C. Kirchhoff equation
- D. Isochors of chemical reaction
- E. Gibbs-Helmholtz equation

71. It is known that indirect bilirubin generated as a result of heme disintegration is detoxicated in liver. What organic compound takes part in bilirubin detoxication in hepatocytes?

- A. Uridine diphosphate glucuronic acid
- B. Urea
- C. Mevalonic acid
- D. Lactic acid
- E. Glycin

72. Pyridine can be characterized by reactions of (S_E) electrophilic and (S_N) nucleophilic substitution. Low reactivity of pyridine in S_E reactions is caused by:



- A. Electron-acceptor properties of nitrogen atom
- B. Aromatic nature of pyridine nucleus
- C. Alkaline properties
- D. Hybridization of carbon atoms
- E. Cycle size

73. Argentum nitrate solution was added to a solution containing anions of the second analytical group. It resulted in generation of light yellow precipitate that was insoluble in nitric acid and partly soluble in ammonium solution. What anions are contained in the solution?

- A. Bromide-ions
- B. Iodide-ions
- C. Chloride ions
- D. Sulfide-ions
- E. Arsenite-ions

74. It is known that bluish purple petal coloration of a plant under examination varies up to pink or light pink according to pH of cellular fluid of vacuole. It is caused by presence of:

- A. Anthocyanins
- B. Carotins
- C. Xanthophylls
- D. Phycobilins
- E. Chlorophylls

75. Microscopic examination of a stem of a perennial plant revealed integumentary tissue of secondary origin that was formed as a result of activity of:

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

76. Choose a reagent that can be used for generation of propanol-2 from acetone:

- A. H_2
- B. CH_3OH
- C. CH_3I
- D. HCN
- E. $HCOH$

77. Three enumerated test tubes contain solutions of glucose, fructose and starch. What reagent can help to detect fructose?

- A. Selivanov's
- B. Lugol's
- C. Fehling's
- D. Chempure
- E. Tollens'

78. A smear from frothy and purulent vaginal discharges of a 42 y.o. woman was stained by Romanovsky-Giemsa method. Its analysis revealed some microorganisms of flagellates class. What microorganisms were the most probably revealed?

- A. *Trichomonas vaginalis*
- B. *Leishmania donovani*
- C. *Trypanosoma gambiense*
- D. *Trichomonas hominis*
- E. *Lamblia intestinalis*

79. During bacteriological examination of sputum of a child with choking cough and fever there were revealed glossy smooth colonies growing on casein-charcoal agar and reminding of mercury drops. Microscopic examination revealed short Gram-negative bacteria. What microorganism was secured from the sputum?

- A. *Bordetella pertussis*
- B. *Haemophilus influenzae*
- C. *Corynebacterium diphtheriae*
- D. *Klebsiella pneumoniae*
- E. *Streptococcus pyogenes*

80. It was suspected that among workers of serum medications factory of regional hemotransfusion station there are carriers of pathogenic aurococcus. What medium should the material from nasopharynx of workers be inoculated of in order to reveal aurococcous carriage?

- A. Yolk-salt medium
- B. Endo agar
- C. Beef-extract broth
- D. Ressler's medium
- E. Blood agar

81. According to Pharmacopoeia requirements all drugs for topical administration should be monitored for "microbiological purity". Detection of the following microorganisms is the evidence of uselessness of this drug group in medical practice:

- A. Aurococci
- B. Yeast fungi
- C. Humicular staphylococci
- D. Mold fungi
- E. -

82. A premises has high content of carbonic gas. A man who entered this premises would experience the following changes of his respiration (depth and rate):

- A. Increased respiration rate and depth
- B. Decreased respiration rate and depth
- C. Decreased respiration rate and increased respiration depth
- D. Increased respiration rate and decreased respiration depth
- E. Respiration would stay unchanged

83. What class is represented by nitroglycerine medication used for stenocardia treatment?

- A. Ester
- B. Nitrogen-containing alcohols
- C. Ethers
- D. Nitroalkanes
- E. Polyatomic alcohols

84. What of the given compounds makes the reactions of electrophilic substitution (S_E) the easiest?

- A. Phenol
- B. Toluol
- C. Chlorobenzene
- D. Benzaldehyde
- E. Benzene sulfacid

85. During studying a medicinal herbal mixture a culture in form of black fluffy film grew on the nutrient medium. Examination of specimen smears revealed non-septate mycelium threads with globular thickenings at the tips. Name these microorganisms:

- A. Mucor
- B. Black molds fungus
- C. Candida
- D. Aspergill
- E. Ray fungi

86. Name a standard solution of iodometric determination of reducing agents (direct titration)?

- A. Solution of I_2
- B. Solution of $KMnO_4$
- C. Solution of $Na_2S_2O_3$
- D. Solution of $K_2Cr_2O_7$
- E. Solution of KI

87. Choose a pair of electrodes for $FeSO_4$ determination by method of potentiometric titration:

- A. Platinum and chlorosilver
- B. Copper and glass
- C. Chingidron and zink
- D. Hydrogen and glass
- E. Antimonial and silver

88. Under certain conditions of qualitative analysis $K_4[Fe(CN)_6]$ is a specific reagent to Fe^{3+} cations. What colour is the precipitate?

- A. Blue
- B. White
- C. Brown
- D. Red
- E. Black

89. During bacteriological examination of solutions prepared in a drug-store there appeared red colonies with metallic lustre that grew on Endo agar. What bacteria can they be?

- A. Escherichiae
- B. Shigellae
- C. Staphilococci
- D. Streptococci
- E. Salmonellae

90. In the technology of medicinal preparation temperature and pressure are sustained constant very often. What is this process called?

- A. Isobaric-isothermal
- B. Isochoric-isothermal
- C. Isobaric
- D. Isochoric
- E. Isothermal

91. Technology of pharmaceutical preparations requires sometimes that some processes take place at low temperatures. In which solution will the crystallization be the first to begin provided that solutions have equal molality?

- A. $C_6H_{12}O_6$
- B. $NaCl$
- C. $CaCl_2$
- D. $Al_2(SO_4)_3$
- E. KBr

92. What compound can be synthesized from bromobenzene and bromoethane by Wurtz-Fittig's reaction?

- A. Ethylbenzene
- B. Methylbenzene
- C. Bromoethyl benzene
- D. O-Bromoethyl benzene
- E. P-Diethylbenzene

93. What standard solution (titrant) is

used in Folgard's method of direct titration?

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

94. When studying a stem covered with periderm a researcher came to conclusion that gaseous exchange takes place through:

- A. Lenticels
- B. Stomata
- C. Pores
- D. Throughput cells
- E. Hydatodes

95. In order to identify phenol and salicylic acid we use a solution of:

- A. Sodium hydrogen carbonate
- B. Ferrum chloride (III)
- C. Sodium hydroxide
- D. Sodium chloride
- E. Bromine

96. An acid was added to the solutions of the given salts. In what case does the gas emission take place?

- A. Na_2CO_3
- B. K_2SO_4
- C. $CuSO_4$
- D. Na_2SiO_3
- E. $Ca_3(PO_4)_2$

97. Quantitative content of iron (II) can be determined by non-indicator method of:

- A. Permanganometry
- B. Chelatometry
- C. Argentometry
- D. Iodometry
- E. Nitritometry

98. One of the causes of optical activity is that molecule structure contains an organic compound:

- A. Asymmetric carbon atom
- B. Double bond
- C. Triple bond
- D. Functional group
- E. Asymmetry plane

99. Urea is a derivative of carbonic acid. Choose the name that is adequate for urea:

- A. Diamide of carbonic acid
- B. Malamic of carbonic acid
- C. Ethyl ether of carbamic acid
- D. Diethyl ether of carbonic acid
- E. Dimethyl ether of carbonic acid

100. Refinement of glycerin that is a component of many drug formulations can be done by means of activated carbon. What phenomenon underlies this process?

- A. Adsorption
- B. Cohesion
- C. Adhesion
- D. Wetting
- E. Capillary condensation

101. What form of hypoxia can result from shock and collapse?

- A. Circulatory
- B. Respiratory
- C. Hypoxic
- D. Hemic
- E. Histic

102. Intravenous injections are performed with water solution $CaCl_2$ with mass concentration 10%. What is the maximum value of isotonic coefficient $CaCl_2$ in a water solution?

- A. 3
- B. 4
- C. 2
- D. 5
- E. 1

103. Laboratorians from a physicochemical laboratory prepared water solutions of urea, glucose, sodium sulfate, aluminium sulfate and sodium benzoate with the same molar concentration. Which of the given solutions has the highest osmotic pressure under 298^0K ?

- A. Aluminium sulfate
- B. Urea
- C. Glucose
- D. Sodium benzoate
- E. Sodium sulfate

104. During determination of fruit type *Hypericum perforatum* it was found that: the fruit is coebocarpous, dry, opens with valves and contains a big number of seeds. Therefore the fruit of *Hypericum perforatum* is:

- A. Fruitcase
- B. Multifollicle
- C. Follicle
- D. Coenobium
- E. Aggregate achene

105. A pharmaceutical factory received a batch of phytogenic raw materials for manufacturing of phytomedications. What microbiological test should be applied in order to estimate quality of these raw materials?

- A. General amount of microorganisms in 1 g of raw material
- B. Coli titer
- C. Coli index
- D. Antibacterial activity
- E. Pyrogens

106. First leukocytes that appear in the inflammation focus are:

- A. Neutrophils
- B. Monocytes
- C. Eosinophils
- D. Lymphocytes
- E. Basophils

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

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

108. Permanganatometric determination of H_2O_2 can be done in a very acid medium. What acid allows to produce medium for permanganatometric determination?

- A. H_2SO_4
- B. HCl
- C. HNO_3
- D. CH_3COOH
- E. H_3PO_4

109. Coulometry is based upon measurement of electric that is spent on electrode reaction. What law underlies coulometric method?

- A. Faraday law
- B. Archimedes' principle
- C. Newton law
- D. Stokes law
- E. Bouguer-Lambert-Beer law

110. To determine mass concentration of calcium in a medical preparation the gravimetric precipitation method was

applied. Solution of ammonium oxalate was used as a precipitator. The gravimetric form in this case is:

- A. Calcium oxide
- B. Anhydrous calcium oxalate
- C. Monohydrated calcium oxalate
- D. Calcium carbonate
- E. Calcium hydroxide

111. A patient ill with pheochromocytoma has high secretion of the following hormone:

- A. Adrenaline
- B. Glucagon
- C. Insulin
- D. Thyroxin
- E. Somatotropin

112. What of the following metals displaces hydrogen from hydrochloric acid?

- A. Aluminium
- B. Copper
- C. Mercury
- D. Aurum
- E. Platinum

113. Some products of amino acid decarboxylation are biologically active substances. What CNS inhibition mediator is formed by decarboxylation of glutamic acid?

- A. GABA
- B. Putrescine
- C. Histamine
- D. Cadaverine
- E. Asparagine

114. Choose an initial compound for one-stage synthesis of phthalic acid:

- A. O-xylol
- B. Salicylic acid
- C. 1,2-dichlorobenzene
- D. 2-chlorobenzoic acid
- E. M-xylol

115. A patient with chronic calculous cholecystitis complains of acute pains in the right subcostal area, itch and icteritiousness of skin, multiple punctuate hemorrhages, saponated and discoloured feces (steatorrhea). What type of jaundice is it?

- A. Mechanic
- B. Hemolytic
- C. Parenchymatous
- D. Hepatic
- E. -

116. Presence of pathogenic microorganisms in the air can be detected by presence of sanitary representative bacteria. Choose bacteria that are indicators of direct epidemiological danger:

- A. Hemolytic streptococci
- B. Sarcina
- C. Molds
- D. Yeast fungi
- E. Micrococci

117. 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

118. In order to prevent adipose liver degeneration after viral hepatitis it is necessary to prescribe the patient lipotropic factors. Name one of them:

- A. Choline
- B. Tryptophane
- C. Allopurinol
- D. Contrical
- E. Vicasol

119. In order to determine CO_2 content in the air you can use:

- A. Water solution of $Ca(OH)_2$
- B. Water solution of $NaOH$
- C. CaO
- D. $Fe(OH)_2$
- E. Crystalline $NaOH$

120. Blood analysis of a patient revealed high content of the following enzymes: creatine kinase (MB-isoform), aspartate aminotransferase and LDH 1,2. What pathology should be suspected in this case?

- A. Myocardium infarction
- B. Muscular dystrophy
- C. Liver cirrhosis
- D. CNS affection
- E. Pancreatitis

121. Some medicinal preparations are colloid solutions. Particle size of colloid disperse systems is in 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

122. To prepare 50 g of hypertonic sodium chloride solution with mass concentration 10% it is necessary to take:

- A. 5 g of $NaCl$
- B. 0,5 g of $NaCl$
- C. 1 g of $NaCl$
- D. 25 g of $NaCl$
- E. 50 g of $NaCl$

123. 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. $NaNO_3$

124. In order to prepare 1 L of 0,1 M solution of sulfuric acid ($M(H_2SO_4) = 98$ g/mole) it is necessary to take:

- A. 9,8 g of H_2SO_4
- B. 980 g of $NaCl$
- C. 0,098 g of $NaCl$
- D. 49 g of $NaCl$
- E. 98 g of $NaCl$

125. What vessels have the minimal linear speed of sanguimotion?

- A. Capillaries
- B. Aorta
- C. Arterioles
- D. Veins
- E. Large arteries

126. Osmotic pressure is an important characteristic of biological liquids. Name a solution in which the osmotic pressure has nonconstant value:

- A. Sol of of argentum chloride
- B. Glucose
- C. Calcium sulfate
- D. Sodium chloride
- E. Magnesium sulfate

127. What salt does the expression $K_{\Gamma} = \frac{K_w}{K_a}$ for hydrolysis constant correspond with?

- A. $NaCN$
- B. Na_2SO_4
- C. $(NH_4)_2SO_4$
- D. $(NH_4)_3PO_4$
- E. CH_3COONH_4

128. Choose reagents for detection of sulphate-ions in a solution that contains carbonate-, sulfate-, thiosulfate-, phosphate-anions:

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

129. Some proteins in the human organism have buffer properties. Which aminoacid allows hemoglobine to reveal its buffer properties in blood?

- A. Histidine
- B. Alanine
- C. Isoleucine
- D. Valine
- E. Threonine

130. Thyroid hormones are related to aminoacid derivatives. What aminoacid is the structure of these hormones based upon?

- A. Tyrosine
- B. Proline
- C. Tryptophane
- D. Serine
- E. Glutamine

131. Biochemical meaning of transamination is that amino groups of different aminoacids are assembled in form of one of aminoacids. What aminoacid is it?

- A. Glutamine
- B. Asparaginic
- C. Valine
- D. Leucine
- E. Arginine

132. A macroscopic alga of brown colour with trunk, rhizoids and foliaceous part rich in alginates and iodine is ranked with genus of:

- A. *Laminaria*
- B. *Chlorella*
- C. *Chlamydomonas*
- D. *Spirogira*
- E. *Ulothrix*

133. What pathology of tissue growth is characterized by cellular and tissue atypia from the point of histomorphology?

- A. Malignant tumour
- B. Dystrophy
- C. Degeneration
- D. Benign tumour
- E. Regeneration

134. Temperature coefficient of reaction rate equals 2. By how many times will the reaction rate change if the temperature is increased by $40^{\circ}C$?

- A. By 16 times
- B. By 8 times
- C. By 4 times
- D. By 32 times
- E. By 24 times

135. Before aniline nitrating it is first acidified in order to protect amino groups from oxidation processes. What of the following reagents is used for this purpose?

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

136. Transport of some substances is accompanied by utilization of metabolic energy (ATP energy). This process is called:

- A. Active transport
- B. Simple diffusion
- C. Filtration
- D. Osmosis
- E. Facilitated diffusion

137. What equation can be applied for calculation of surface tension of propionic acid water solution?

- A. Shishkovsky's
- B. Freundlich's equation
- C. Gibbs' equation
- D. Helmholtz-Smoluchowski
- E. Rayleigh equation

138. What of the following compounds belongs to ketose representatives?

- A. Fructose
- B. Mannose
- C. Iodose
- D. Galactose
- E. Talose

139. Preventive examination of a woman revealed enlargement of her thyroid gland, exophthalmos, high body temperature, increase of heart rate up to 110 times per minute. It is advisable

to determine content of the following hormone in blood:

- A. Thyroxine
- B. Noradrenaline
- C. Adrenaline
- D. Insulin
- E. Cortisol

140. A plantation of medicinal plants was affected by a disease that caused yellow spots and necrosis areas on the leaves. Juice of affected plants remains infectious after passing through bacterial filter, but after its inoculation of nutrient media growth of causative agent is not registered. What group of phytopathogenic microorganisms does the causative agent of this disease belong to?

- A. Viruses
- B. Fungi
- C. Actinomycetes
- D. Bacteria
- E. Mycoplasmas

141. Microscopic examination of a leaf revealed on its serratures some water stomata that serve the purpose of liquid-drop moisture excretion, that is the process of:

- A. Guttation
- B. Gaseous exchange
- C. Internal secretion
- D. Transpiration
- E. Photosynthesis

142. What osmotic pressure have medical solutions that are used as isotonic against blood?

- A. 740 - 780 kPa
- B. 420 - 448 kPa
- C. 900 - 960 kPa
- D. 600 - 670 kPa
- E. 690 - 720 kPa

143. Examination of a patient revealed neutrophilic leukocytosis with shift of leukogram to the right. It is typical for:

- A. Acute inflammatory process
- B. Chronic inflammatory process
- C. Autoimmune process
- D. Allergy
- E. Rheumatism

144. Destruction of intercellular substance and cell breakaway in overripe fleshy fruits is a result of:

- A. Maceration
- B. Lignification
- C. Mineralization
- D. Sliming
- E. Gummosis

145. A vegetational microspecimen was treated with Sudan III solution. As a result of it cell membranes turned pink that means they contain:

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

146. For dichromatometric determination of $FeSO_4$ content in the solution with potentiometric fixation of equivalence point the following indicator electrode is applied:

- A. Platinum
- B. Glass
- C. Quinhydrone
- D. Argential
- E. Chloroargentic

147. 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

148. Ions of heavy metals are very toxic. They block SH -groups that are a part of active centre of enzymes. What is the type of their inhibition mechanism?

- A. Noncompetitive
- B. Allosteric
- C. Competitive
- D. Uncompetitive
- E. Substrate

149. ATP synthesis in glycolysis under anaerobic conditions takes place by means of substrate phosphorylation. In course of this process the energy of other high-energy compounds is used. Name such a substance:

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

150. One of the common characteristics of subfamily *Prunoidea* representatives (family *Rosaceae*) is that their fruit is:

- A. Drupe
- B. Aggregate-accessory fruit
- C. Bacca
- D. Pome
- E. Pepo

151. A patient with provisional diagnosis "acute gastroenteritis" was admitted to infectious department. Inoculation of feces on bismuth-sulfite agar resulted in growth of black colonies with metallic lustre. What microorganisms might they be?

- A. Salmonella
- B. Shigella
- C. Escherichia
- D. Yersinia
- E. Brucella

152. What substance can be used only as a reducing agent in oxidation-reduction reactions?

- A. Na_2S
- B. Na_2SO_3
- C. Na_2SO_4
- D. $Na_2S_2O_7$
- E. $Na_2S_2O_3$

153. Potassium permanganate $KMnO_4$ is applied in medicine as an antibacterial agent. What chemical properties of $KMnO_4$ provide its bactericidal action?

- A. Oxidative
- B. Acidic
- C. Alkaline
- D. Reducing
- E. Heat-activated dissociability

154. Solution with $NaCl$ mass concentration of 0,95% is a part of a saline and can be used in case of significant blood loss. Name reaction of this solution's medium:

- A. Neutral (pH = 7,0)
- B. Acidic (pH < 7,0)
- C. Alkaline (pH > 7,0)
- D. Very acidic (pH = 1,0)
- E. Very alkaline (pH = 12,0)

155. Choose a disulfate acid from the given acids:

- A. $H_2S_2O_7$
- B. $H_2S_2O_5$
- C. $H_2S_2O_8$
- D. H_2S
- E. $H_2S_4O_6$

156. What of the following compounds has acidofuge properties?

- A. Pyrrole
- B. Pyrazole
- C. Pyridine
- D. Pyrimidine
- E. Imidazole

157. A patient was diagnosed with right lung cancer and doctors administered him surgical treatment. After right-sided pneumonectomy 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

158. Essential oil glandules that consist of 8 secretory cells placed in 2 lines and 4 tiers are typical for most plants of the following family:

- A. *Asteraceae*
- B. *Apiaceae*
- C. *Lamiaceae*
- D. *Rosaceae*
- E. *Scrophulariaceae*

159. Antibiotics are classified by sources of production. Name an antibiotic of bacterial origin:

- A. Gramicidin
- B. Penicillin
- C. Tetracycline
- D. Lysozyme
- E. Gentamycin

160. What substances can be derived by alkaline hydrolysis of tripalmitine?

- A. Sodium palmitate and glycerin
- B. Glycerin and palmitic acid
- C. Palmitic acid and sodium hydroxide
- D. Glycerin and sodium stearate
- E. Sodium palmitate and water

161. When a man is excited his salivation is reduced, there is a sensation of dry mouth. What mediator is excreted from nerve endings that innervate salivary glands?

- A. Noradrenalin
- B. Acetylcholine
- C. Serotonin
- D. Histamine
- E. GABA

162. Roentgenological examination of a patient revealed delayed transition of contrast material from the stomach to the duodenum. It is caused by disturbance of the following function of digestive tract:

- A. Evacuatory function of stomach
- B. Secretory function
- C. Membrane digestion
- D. Water absorption
- E. Protein digestion

163. Sulfation of naphthaline by concentrated sulfuric acid at the temperature over 160°C leads to formation of:

- A. 2-naphthaline sulfacid
- B. 1-naphthaline sulfacid
- C. 3-naphthaline sulfacid
- D. 4-naphthaline sulfacid
- E. 5-naphthaline sulfacid

164. The second Konovalov's law is applied to azeotropic solutions that have extreme points on phase diagrams and are called:

- A. Azeotropic mixtures
- B. Ideal solutions
- C. Miscible in all proportions liquids
- D. Partially miscible liquids
- E. Mutually insoluble liquids

165. A patient complains of belting pain in epigastrium. Examination revealed high diastase content in urine, as well as undigested fat in feces. What pathology are these occurrences typical for?

- A. Acute pancreatitis
- B. Gastritis
- C. Infectious hepatitis
- D. Acute appendicitis
- E. Enterocolitis

166. A patient was prescribed L-carnitine preparation. This preparation provides transmembrane transfer of the following substances:

- A. Higher fatty acids
- B. Aminoacids
- C. Purine nucleotides
- D. Pyrimidine nucleotides
- E. Glucose

167. Coordination number of iron in

potassium ferricyanide (II) $K_4[Fe(CN)_6]$ equals:

- A. 6
- B. 2
- C. 4
- D. 3
- E. 8

168. A 50 y.o. patient suffers from hypovitaminosis C (scurvy) as a result of continuous improper feeding. Reduced activity of which enzyme is the cause of connective tissue affection in this pathology?

- A. Proline hydroxylase
- B. Alanine aminotransferase
- C. Pyruvate carboxylase
- D. Tryptophane hydroxylase
- E. Glutaminase

169. Decreased rate of B_6 vitamin in dietary intake results in disorder of protein metabolism. What biochemical processes in the patient's organism will become less active?

- A. Transamination
- B. Oxidation-reduction
- C. Phosphorilation
- D. Methylation
- E. Hydrolysis

170. Examination of a patient revealed symptoms of myocardial insufficiency. What is the possible cause of cardiac insufficiency of myocardial type?

- A. Infectious myocarditis
- B. Aorta coarctation
- C. Pulmonary emphysema
- D. Mitral stenosis
- E. Essential hypertension

171. Reaction of mercury excess with diluted nitric acid results in release of the following gas:

- A. NO
- B. NH_3
- C. N_2
- D. NO_2
- E. N_2O

172. Chloride lime is used in medicine as a disinfectant. Its formula is:

- A. $CaCl(OCl)$
- B. $CaCl_2$
- C. $Ca(ClO_3)_2$
- D. $Ca(ClO_4)_2$
- E. $CaOCl$

173. Dehydrogenases are enzymes

that detach hydrogen atoms from the substrate. What enzyme class is lactate dehydrogenase related to?

- A. Oxidoreductases
- B. Transferases
- C. Hydrolases
- D. Isomerases
- E. Lipases

174. Skin diseases can be treated with pastes. What class of disperse systems can the pastes be related to?

- A. Suspensions
- B. Emulsions
- C. Powders
- D. Foams
- E. Aerosols

175. A patient has been suffering from diabetes mellitus for 10 years. He was delivered to the hospital in grave condition. On the 2nd day of staying at the hospital his condition has become abruptly worse: he lapsed into a coma, there appeared noisy deep breathing when deep inspirations took turns with forced expirations with participation of expiratory muscles. What form of respiratory impairment is it?

- A. Kussmaul's respiration
- B. Stenotic respiration
- C. Tachypnea
- D. Cheyne-Stokes respiration
- E. Biot's respiration

176. A woman in labour was given a preparation that activates contractions of smooth uterine muscles. What hormone is contained in this preparation?

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

177. Patients ill with tuberculosis take a drug that is an antivitamin of nicotinic acid. Name this substance:

- A. Isoniazid
- B. Sulfanilamide
- C. Acrichine
- D. Isoriboflavin
- E. Oxythiamine

178. What is the maximum valence of nitrogen taking into account the donor-acceptor mechanism of covalent bond formation?

- A. 4
- B. 1
- C. 2
- D. 3
- E. 5

179. Nitritometric determination of primary aromatic amines in acidic medium results in generation of the following reaction product:

- A. Diazonium salt
- B. Nitrosoamine
- C. Nitrose arylenamine
- D. Nitrose antipyrine
- E. Azide

180. A medicinal plant under examination has a pistil formed by a big number of carpels, and a fruitcase that opens with small orifices. This is:

- A. *Papaver somniferum*
- B. *Chelidonium majus*
- C. *Zea mays*
- D. *Mentha piperita*
- E. *Sanquisorba officinalis*

181. A leaf of a plant under examination has a membranous ocrea that envelops the bottom of internode. Presence of such modified stipules is a diagnostic sign of the following family:

- A. Buckwheat
- B. Gramineae
- C. Rosaceae
- D. Legumes
- E. Solanaceae

182. A pharmaceutical company received from a laboratory a delivery order of diagnostic medications used for studying antigenic properties of causative agent. Name these preparations:

- A. Diagnostic sera
- B. Allergens
- C. Diagnosticums
- D. Immunoglobulins
- E. Bacteriophages

183. Nutrients are transported to a bacterial cell by different mechanisms. One of them is facilitated diffusion that is realized by special membrane carrier proteins. What are they called?

- A. Permeases
- B. Lyases
- C. Oxidoreductases
- D. Isomerases
- E. Ligases

184. A patient was prescribed with an anti-tumoral antibiotic that inhibits synthesis of nucleic acids in the cells. What of the following antibiotics has such a mechanism of action?

- A. Actinomycin
- B. Tetracycline
- C. Nystatin
- D. Lincomycin
- E. Erythromycin

185. Natural fats have liquid or solid existence. What is the main cause of their existence in this or that aggregate state:

- A. Ratio of saturated and unsaturated acids
- B. Presence of hydrogen bonds
- C. Molecule sizes
- D. Molecule solvation
- E. Way of production

186. What thermodynamic value is a criterion of direction of spontaneous processes under conditions of constant volume and temperature?

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

187. In course of an experiment a branch of vagus that innervates heart is being stimulated. What changes of heart activity will appear in the first place?

- A. Heart rate fall
- B. Heart force fall
- C. Increase of heart rate
- D. Increase of heart force
- E. Rise of arterial pressure

188. Introduction of a hormone into a man's organism resulted in increased water reabsorption in kidneys, high vascular tone, rise of arterial pressure. What hormone was introduced?

- A. Vasopressin
- B. Adrenaline
- C. Thyroxine
- D. Aldosterone
- E. Noradrenaline

189. In order to restore a man's circulating blood volume he was transfused with blood substitute - isotonic solution *NaCl*. What is the concentration of this solution?

- A. 0,9%
- B. 0,3%
- C. 0,5%
- D. 1%
- E. 3%

190. 3 years ago a patient was diagnosed with chronic glomerulonephritis. Within last 6 months there have been appearing edemata. What underlies their development?

- A. Proteinuria
- B. Hyperaldosteronism
- C. Introduction of nonsteroid anti-inflammatory medications
- D. Treatment with glucocorticoids
- E. Vasopressin hyperproduction

191. Quantitative determination of iodide can be done by method of:

- A. Oxidation-reduction titration
- B. Acid-base titration
- C. Chelatometry
- D. Spectrophotometry
- E. Precipitating titration

192. Bile contains of bile acids. choose one of them:

- A. Cholic
- B. Glutamine
- C. Lactic
- D. Arachidonic
- E. Pyruvic acid

193. A process that is characterized by chemical interaction between adsorbate and adsorbent is called:

- A. Chemical adsorption
- B. Solvation
- C. Absorption
- D. Desorption
- E. Sedimentation

194. A set of elements form allotropic modifications. Name an allotropic modification of oxygen:

- A. Ozone
- B. Phosgene
- C. Quartz
- D. Corundum
- E. Diamond

195. Hydrogen compounds of which element can form hydrogen bonds?

- A. *F*
- B. *C*
- C. *Si*
- D. *P*
- E. *I*

196. Optic isomerism is possible for one of the following compounds:

- A. Iodofluorochloromethane (CH_2FCl)
- B. Methane (CH_4)
- C. Chloroform ($CHCl_3$)
- D. Dichloromethane (CH_2Cl_2)
- E. Tetrachloromethane (CCl_4)

197. Stability of concentrated emulsions can be increased by adding surface-action substances and high-molecular compounds that are:

- A. Emulsifiers
- B. Activators
- C. Catalysts
- D. Solvents
- E. Absorbents

198. Pancreas secretes an enzyme that is able to break up $\alpha - 1,4$ -glycosidic linkages in a glycogen molecule. What enzyme is it?

- A. α -amylase
- B. Phosphatase
- C. Enterokinase
- D. Chemotrypsin
- E. Lysozyme

199. Solution of a medicinal preparation under examination contains cations of magnesium (II) and aluminium (III). What reagent will help to separate these cations during analysis of this preparation?

- A. Alkali solution
- B. Hydrogen peroxide in acidic medium
- C. Argentum nitrate solution
- D. Hydrogen peroxide in ammoniac medium
- E. Chloride acid solution

200. What method ensures reliable sterilization of biological liquids (serums, solutions, enzymes, vitamins etc.) that cannot be exposed to high temperatures?

- A. Tyndallization
- B. Dry heat
- C. Flowing steam
- D. Moist steam under pressure
- E. Flaming