1. During harvesting of a herbal raw material (belladonna), the plants had burns and patches of withering and rot. What microorganisms cause this kind of damage in plants?

a. Protozoa
b. Viroids
c. Viruses
d. Mycoplasma
e. Microfungi

2. Який із патогенетичних факторів відіграє провідну роль у розвитку набряків у пацієнтів після тривалого голодування?

a. Зниження онкотичного тиску крові
b. Зниження гідростатичного тиску крові
c. Підвищення осмотичного тиску інтерстиціальної рідини
d. Зниження осмотичного тиску крові
e. Підвищення онкотичного тиску в тканинах

3. What family of viruses has a unique reverse transcriptase enzyme?

a. Retroviruses
b. Flaviviruses
c. Togaviruses
d. Picornaviruses
e. Reoviruses

4. A man came to a doctor complaining of a headache, pain in the throat during swallowing, and an increase in the body temperature. He was diagnosed with tonsillitis. What changes in the patient's blood can be expected in this case?

a. Basophilic leukocytosis
b. Neutrophilic leukocytosis
c. Monocytosis
d. Eosinophilic leukocytosis
e. Lymphocytosis

5. За яким механізмом відбувається приєднання Br_2 до пропену?

a. S_N
b. A_E
c. A_N
d. S_R
e. S_E

6. When harvesting herbal raw material of calendula and chamomile, their inflorescences are being collected. What type of inflorescence is it?

a. Umbel
b. Corymb
c. Flat capitulum
d. Round capitulum
e. Spike

7. У чоловіка з діагнозом: цукровий діабет виявили такі показники артеріальної крові: pH крові – 7,25, pCO2 – 37 мм рт. ст., SB – 19,5 ммоль/л, BB – 39 ммоль/л, BE – (-7) ммоль/л, кетонові тіла крові – 1,9 ммоль/л, титраційна кислотність сечі – 50 ммоль/добу. Яке порушення кислотно-основного стану у пацієнта?

a. Змішаний ацидоз
b. Газовий ацидоз
c. Газовий алкалоз
d. Метаболічний ацидоз
e. Змішаний алкалоз

8. After eating strawberries, a child developed itchy red spots on the skin (urticaria). What type of leukocytosis would be detected in this child?

a. Eosinophilic
b. Basophilic
c. Monocytic
d. Neutrophilic
e. Lymphocytic

9. The majority of live vaccines are made from microbes with reduced virulence. What is the name of such vaccines?
a. Adsorbed vaccines
b. Attenuated vaccines
c. Anatoxin vaccines
d. Adjuvant vaccines
e. Denatured vaccines

10. Which of the listed species of medicinal plants is considered to be a weed?
a. Salvia officinalis
b. Plantago major
c. Mentha piperita
d. Papaver somniferum
e. Convallaria majalis

11. Which of the listed plants is a bush with imparipinnate leaves, decussate leaf arrangement, and juicy black fruits?
a. Urtica dioica
b. Arctostaphylos uva-ursi
c. Sambucus nigra
d. Ledum palustre
e. Chelidonium majus

12. Від якого показника залежть коагулююча здатність електроліту?
a. Концентрації електроліту
b. Густини золю
c. Об’єму золю
d. Ступеня дисперсності золю
e. Заряду іона-коагулятора

13. How many stereoisomeric aldohexoses exist?
a. 2
b. 16
c. 4
d. 6
e. 8

14. What drug should be prescribed to a patient with bronchospasm?
a. Oxytocin
b. Vicasol (Menadione)
c. Salbutamol
d. Insulin
e. Bisacodyl

15. Який спосіб титрування використовують, якщо до розчину досліджуваної речовини додають точно виміряний надлишок допоміжного титранта?
a. Пряме титрування
b. Замісникове титрування
c. Неводне титрування
d. Будь-яке титрування
e. Титрування за залишком

16. Surfactants are compounds that lower the surface tension (or interfacial tension) between two

liquids, between a gas and a liquid, or between a liquid and a solid. Which of the following substances exhibits the properties of a surfactant at the air-water interface?

a. $NaOH$

b. Valeric acid

c. HCl

d. ---

e. Urea

17. What pharmacological effect of diazepam allows using it in the treatment of neuroses?

a. Anxiolytic

b. Antidepressant

c. Analgesic

d. Antipyretic

e. Diuretic

18. A patient with an acute myocardial infarction had been receiving heparin as a component of complex therapy. After a time, the patient developed hematuria. What drug is indicated as an antidote to heparin?

a. Protamine sulfate

b. Vicasol (Menadione)

c. Fibrinogen

d. Neodicoumarin (ethyl biscoumacetate)

e. Aminocaproic acid

19. What drug is a non-selective beta-blocker?

a. Metoprolol

b. Adrenaline hydrochloride

c. Anaprilin (Propranolol)

d. Prozerin (Neostigmine)

e. Atropine

20. A drug solution sterilized by means of boiling was tested for sterility. Inoculation on Kitt-Tarozzi medium revealed clostridia. Clostridia survived the boiling because they are:

a. Acid-fast

b. Prototrophic

c. Anaerobic

d. Spore-formers

e. Thermophilic

21. In the roots of primary structure, the nutrient reserves are stored in the:

a. Pericycle

b. Mesodermis

c. Endodermis

d. Exodermis

e. Central axial cylinder

22. Thiocyanatometric titration method requires secondary standard solution of potassium thiocyanate that is standardized with standard solution of:

a. Sulfuric acid

b. Copper (II) nitrate

c. Silver nitrate

d. Hydrochloric acid

e. Iron (II) sulfate

23. Caffeine is one of the alkaloids contained in tea and coffee. Caffeine is contraindicated in case of:

a. Depression of nervous activity

b. Migraine

c. Hypotension

d. Addiction

e. Essential hypertension

24. An elderly patient suffers from constipation caused by colon hypotonia. What drug should be prescribed?

a. Atropine sulfate
b. Bisacodyl
c. Castor oil
d. Novocainamide (Procainamide)
e. Sodium sulfate

25. When a galvanic cell operates under standard conditions, the chemical energy of the redox process transforms into the following type of energy:

a. Electromagnetic energy
b. Electrical energy
c. Thermal energy
d. Nuclear energy
e. Mechanical energy

26. A patient, who has been suffering from chronic glomerulonephritis for the last 4 years, presents with a large amount of protein (4g/L) that appeared in the urinalysis. The levels of triglycerides and cholesterol increased in the patient's blood. What syndrome has complicated the course of the main disease in this case?

a. Toxic
b. Hypertensive
c. Asthenic
d. Nephrotic
e. Inflammatory

27. Який механізм інгібіторної дії неостигміну (прозерину)?

a. Денатурація фермента
b. Ковалентне зв’язування поза активним центром фермента
c. Ковалентне зв'язування з субстратом ферменту
d. Окиснення іона заліза в активном у центрі фермента
e. Конкуренція з ацетилхоліном за активний центр фермента

28. The presence of antibodies to HIV has been established in the analyzed serum by means of enzyme-linked immunosorbent assay. What method or reaction must be used to confirm the diagnosis of AIDS?

a. Immunofluorescence
b. Immunoblotting
c. Biological method
d. Bacteriological method
e. Virological method

29. Microscopy of the smears obtained from the coating on the patient's tonsils was stained according to the Neisser technique. The staining revealed thin yellow bacilli with dark blue grains at their ends, arranged in the form of the Roman numeral V. What pathology can be suspected based on the results of microscopy?

a. Pertussis
b. Diphtheria
c. Measles
d. Influenza
e. Tuberculosis

30. People, who were indoors during a fire, suffer from a carbon monoxide poisoning. What type of hypoxia is observed in such cases?

a. Circulatory hypoxia
b. Hemic hypoxia
c. Respiratory hypoxia

d. Tissue hypoxia
e. Hypoxic hypoxia

31. The type of bacterial respiration is of great importance for the growth and reproduction of bacteria. Some species are unable to reproduce in the presence of oxygen and use sulfate respiration. What are these microorganisms called?
a. Obligate anaerobes
b. Obligate aerobes
c. Macroaerophiles
d. Facultative anaerobes
e. Microaerophiles

32. What reaction occurs according to the free-radical (SR) mechanism?
a. $CH_3CH_2OH+HCl$
b. $CH_3–CH_3+O_2$
c. $C_2H_6+Cl_2$
d. $C_6H_6+Cl_2$
e. $CH_2=CH_2+Cl_2$

33. Action of a number of drugs is based on the effect of competitive inhibition of enzyme activity. Name its characteristic feature.
a. Inhibitor is a structural analogue of the enzyme
b. Inhibition degree does not depend on the substrate concentration
c. Inhibitor is a structural analogue of the substrate
d. Inhibitor forms strong covalent bonds with the active site of the enzyme
e. Inhibitor has no effect on the enzyme's affinity for its substrate

34. Microscopy shows that basidia with basidiospores are formed on the hymenium. What division do these fungi belong to?
a. Zygomycota
b. Lychenophyta
c. Ascomycota
d. Basidiomycota
e. Chytridiomycota

35. Preparations of colloid silver -- Protargol (silver proteinate) and Collargol (colloid silver) -- contain proteine compounds besides their active substance. What is the function of proteins in these preparations?
a. Decreased side effects
b. Protection of colloid solution against coagulation
c. Increased bactericidal action of \\ silver
d. Improved preparation technology
e. Increased storage time

36. Which one of the listed compounds belongs to conjugated dienes?
a. CH_2=C=CH-CH_2-CH_3
b. CH_2=CH-CH_2-CH=CH_2
c. CH_2=CH-CH=CH-CH_3
d. CH_2=C=CH_2
e. CH_2=CH-C(CH_3)_2-CH=CH_2

37. A child had been administered antidiphtheric serum. What resistance was formed in the child?
a. Passive
b. Active
c. Pathologic
d. Physiological
e. Primary

38. What substances can be determined by means of substitution titration using the iodometric

method?
a. Weak reducing agents
b. Unsaturated hydrocarbons
c. Strong oxidizing agents
d. Saturated hydrocarbons
e. Strong reducing agents

39. Sulfanilamides contain a primary aromatic amino group in their structure. What method is used for quantitative determination of these compounds?
a. Nitritometry
b. Permanganatometry
c. Dichromatometry
d. Cerimetry
e. Iodometry

40. What solution is used to determine the mass-volume fraction of ammonia in a solution?
a. Hydrochloric acid solution
b. Iodine solution
c. Sodium hydroxide solution
d. Sulfuric acid solution
e. Potassium permanganate solution

41. Different structures of the bacterial cell perform different special functions. This component provides the adaptive capabilities of the bacterium and its protection against the adverse conditions of the environment. What component is it?
a. Cilia
b. Capsule
c. Inclusions
d. Spores
e. Flagella

42. Plantago major inflorescence grows at the apex, its rachis is long, with sessile flowers. Name this type of inflorescence:
a. Capitulum
b. Thyrse
c. Panicle
d. Spike
e. Spadix

43. You are studying the silvery downy plant of Asteraceae family, which is rich with essential oils and bitters. Harvested are apical sprouts with panicle of small round flower heads. This plant is:
a. Artemisia absinthium
b. Calendula officinalis
c. Bidens tripartita
d. Chamomilla recutita
e. Arctium lappa

44. The main mechanism of ammonia neutralization in the body is the biosynthesis of urea. The cycle of urea synthesis begins with the formation of a certain high-energy compound. What high-energy compound is it?
a. Argininosuccinate
b. Arginine
c. Carbamoyl phosphate
d. Fumaric acid
e. Citrulline

45. Isotonicity is one of the requirements for infusion solutions. What aqueous salt solution is used in clinical practice as an isotonic solution?
a. 10% solution of CaCl_2

b. 4.5-5.0% glucose solution
c. 0.9% solution of MgCl_2
d. 10% solution of NaCl
e. 0.85-0.90% solution of NaCl

46. What indicator is used, when sodium carbonate is being quantified in the preparation by means of acid-base titration?
a. Methyl orange
b. Methylene blue
c. Ferroin
d. Murexide
e. Diphenylamine

47. The mechanism of action of hormones depends on their chemical nature. What hormones can penetrate the membrane and bind with intracellular receptors?
a. Steroid and thyroid hormones
b. Oxytocin and vasopressin
c. Insulin and glucagon
d. Tropic hormones
e. Catecholamines

48. The student is studying a plant organ with radial symmetry, unlimited growth and positive geotropism. It provides nourishment, vegetative reproduction and plant fastening in the soil. Which of the following is described?
a. Root
b. Seed
c. Leaf
d. Stem
e. Rhizome

49. A person came to a doctor with complaints of loss of sensitivity and pain along the peripheral nerves. Blood testing revealed elevated levels of pyruvic acid. What vitamin can cause such changes, if it is deficient in the body?
a. Biotin
b. Vitamin $B1$
c. Vitamin PP
d. Pantothenic acid
e. Vitamin $B2$

50. What can be used to distinguish formic acid from acetic acid?
a. H_2SO_4
b. $[Ag(NH_3)_2]OH$
c. $Br_2 (H_2O)$
d. $NaOH$
e. $NaHCO_3$

51. Первинні та вторинні нітроалкани є таутомерними сполуками. Яка таутомерія характерна для них?
a. Аци-нітротаутомерія
b. Лактам-лактимна
c. Кето-енольна
d. Азольна
e. Аміно-імінна

52. A man has undergone a course of radiotherapy and chemotherapy. The drug complex included 5-fluorodeoxyuridine that is an inhibitor of thymidylate synthase. This drug blocks the synthesis of a certain substance. What substance is it?
a. tRNA
b. rRNA

c. DNA
d. mRNA
e. Protein

53. Яким методом здійснюють кількісне визначення вісмуту в препараті?
a. Меркуриметрії
b. Аргентометрії
c. Комплексонометрії
d. Йодометрії
e. Перманганатометрії

54. The therapeutic properties of activated charcoal are due to its large specific surface area. Name the phenomenon, when gas absorption occurs only at the surface of a solid object:
a. Adsorption
b. Cohesion
c. Desorption
d. Recuperation
e. Adhesion

55. To assess the bacterial contamination of the soil, where humans or animals are the source of contamination, the presence of sanitary indicator microorganisms must be determined. What microorganism indicates old fecal contamination of the soil?
a. Streptococcus faecalis
b. Pseudomonas aeruginosa
c. Salmonella enteritidis
d. Escherichia coli
e. Clostridium perfringens

56. Який основний метод лабораторної діагностики ВІЛ інфекції?
a. Реакція пасивної гемаглютинації
b. Радіоімунний аналіз
c. Реакція коаглютинації
d. Імунофлуоресцентний
e. Імуноферментний аналіз

57. What cation can be detected with Chugaiev's agent (Dimethylglyoxime)?
a. Mn^{2+
b. Ni^{2+
c. K^+
d. Ca^{2+
e. Co^{2+

58. A woman with hypertension came to a doctor complaining of dry cough that developed against the background of her therapy. What antihypertensive drug was she taking?
a. Nifedipine
b. Furosemide
c. Atenolol
d. Dichlothiazide (Hydrochlorothiazide)
e. Lisinopril

59. What has an effect on the coagulating action of the coagulant ion, according to the Schulze-Hardy rule?
a. Ionic size
b. Polarization
c. Adsorbability
d. Ionic charge
e. Hydration ability

60. Для представників якої родини характерні такі ознаки: плівчасті прилистки зростаються в

розтруб, плід псевдомонокарпний горіхоподібний?
a. Rosaceae
b. Lamiaceae
c. Fabaceae
d. Polygonaceae
e. Brassicaceae

61. Coumarins, vitamin K antagonists, suppress the processes of blood coagulation. Synthesis of what protein is blocked by coumarins?
a. Albumin
b. Prothrombin
c. Ceruloplasmin
d. Gamma globulin
e. Transferrin

62. Glycyrrhiza glabra L., a valuable medicinal plant, is widely used in official and folk medicine. What part of the plant is harvested?
a. Inflorescences
b. Roots with rhizomes
c. Seeds
d. Leaves
e. Grass

63. What transformation is accompanied by an increase in entropy?
a. 2H_2S (gas) + 3O_2(gas) = 2SO_2(gas) + 2H_2O(gas)
b. N_2(gas) + O_2(gas) = 2NO(gas)
c. C_2H_2(gas) + H_2(gas) = C_2H_4(gas)
d. CaO(solid) + CO_2(gas) = CaCO_3(solid)
e. NH_4-NO_2-(solid) = N_2(gas) + 2H_2O(gas)

64. In what pair of substances the both of them form a precipitate of metallic silver when Tollens reagent is added (during heating)?
a. Propanol and formic acid
b. Ethanol and formic acid
c. Propanal and formic acid
d. Propanal and acetic acid
e. Acetic acid and formic acid

65. What reagents produce a reaction that follows the free radical (SR) mechanism?
a. Ethane and oxygen
b. Ethane and chlorine in the light
c. Benzene and chlorine in the presence of $AlCl_3$
d. Ethanol and hydrogen chloride
e. Ethylene and chlorine

66. A patient has been hospitalized with signs of carbon monoxide poisoning. What type of hypoxia is characteristic of this condition?
a. Circulatory hypoxia
b. Tissue hypoxia
c. Respiratory hypoxia
d. Hemic hypoxia
e. Hypoxic hypoxia

67. The bacterial culture obtained from a patient does not grow when exposed to oxygen. Conditions suitable for bacterial culture growth can be created in:
a. Pasteur oven
b. Serum-supplemented medium
c. Krotov apparatus
d. Anaerobic culture jar

e. Oxidative medium

68. Interferons are natural antiviral and antitumor agents. What is their mechanism of action?

a. Protein synthesis depression

b. Transcription activation

c. Replication activation

d. Repair activation

e. Protein synthesis increase

69. Preventive examination revealed an enlargement of the patient's thyroid gland, exophthalmos, high body temperature, and an elevated heart rate of 110/min. What hormone levels should be measured in the patient's blood in this case?

a. Insulin

b. Testosterone

c. Glucagon

d. Cortisol

e. Thyroxine

70. What physico-chemical method is used to determine the pH of solutions for injections?

a. Electrolysis

b. Polarography

c. Potentiometry

d. Conductometry

e. Amperometry

71. Elevated levels of ketone bodies were detected in the blood of a patient with diabetes mellitus. Ketone bodies are synthesized from the following compound:

a. Succinate

b. Malate

c. Glucose

d. Lactate

e. Acetyl-CoA

72. Which compound of those listed below is an alicyclic hydrocarbon?

a. Naphthalene

b. Cyclohexene

c. Benzene

d. Anthracene

e. Phenanthrene

73. Cultivated annual plant with glands and indumentum has alternate obovate leaves and flat capitulum inflorescences with orange pseudoligulate ray florets and yellow tubular disc florets. Specify this plant.

a. Artemisia absinthium

b. Centaurea cyanus

c. Echinacea purpurea

d. Arctium lappa

e. Calendula officinalis

74. A study of the microbiological purity of tablet formulations is conducted on the production site. After cultivating samples on mannitol salt agar, golden-yellow colonies grow up. Microscopic examination of colonies establishes the presence of gram-positive bacteria of spherical shape, located in clusters; microorganisms has the ability to coagulate the plasma. The pure culture of which of the following bacteria is discovered?

a. Staphylococcus aureus

b. Pseudomonas aeruginosa

c. Enterobacteriaceae

d. Staphylococcus saprophyticus

e. Staphylococcus epidermidis

75. Який механізм передачі захворювання епідемічного висипного тифу?
a. Фекально-оральний
b. Вертикальний
c. Парентеральний
d. Трансмісивний
e. Повітряно-крапельний

76. In medicine and pharmacy, such phenomena as adsorption, wetting, adhesion, etc. can be observed. What are they called?
a. Optical phenomena
b. Superficial phenomena
c. Electrokinetic phenomena
d. Molecular-kinetic phenomena
e. Physico-chemical phenomena

77. The second stage of detoxification involves joining certain chemical compounds with functional groups of toxins. Select one such compound:
a. Glucose
b. Pyruvate
c. Glucuronic acid
d. Higher fatty acids
e. Cholesterol

78. One hour after a child took polyvitamins in the dosage form of a syrup, the child developed a markedly itching urticaria-type rash all over the body. What type of allergic response can be characterized by this sign?
a. Delayed-type hypersensitivity
b. Cytotoxic
c. Autoallergic
d. Anaphylactic
e. Immune complex

79. In the process of creating vaccines, pathogens of infectious diseases are being attenuated. What is the essence of the attenuation process?
a. Discovering antigenic determinants of the main antigens of the pathogen
b. Isolation of protective antigens from microbial cells
c. Artificial reduction of virulent properties of pathogens
d. Inactivation of pathogens while preserving the antigenic structure of cells
e. Reduction of immunogenicity of the pathogen

80. What parameter takes into account the deviation of the properties of a real solution from an ideal one?
a. Degree of dissociation
b. Concentration
c. Fugacity
d. Isotonic coefficient
e. Activity

81. What type of cardiac arrhythmia occurs as a result of simultaneous disruption of excitability and conduction functions?
a. Sinus tachycardia
b. Atrioventricular block
c. Respiratory arrhythmia
d. Atrial fibrillation
e. Extrasystole

82. Gastric herbal tea contains oval brown lignified "cones" up to 1.5 cm long, which are:
a. Larix cones
b. Cupressus cones

c. Platycladus orientalis cones
d. Juniperus galbuli
e. Alnus infructescences

83. An analytical chemist performs a qualitative analysis of cations that belong to the sixth analytical group. If nickel ions are processed with Chugaiev's reagent (dimethylglyoxime), a colored compound is produced. What is the color of the resulting compound?
a. Yellow
b. Red
c. Green
d. Violet
e. Blue

84. To determine the qualitative content of a drug, a sample of the analyte solution was processed with 2M solution of HCl. A white precipitate, soluble in aqueous ammonia solution, was formed. This analytical effect indicates the presence of the following cations:
a. Mercury(II) cations
b. Lead(II) cations
c. Tin(II) cations
d. Silver(I) cations
e. Mercury(I) cations

85. Reaction of sodium ions with potassium hexahydroxoantimonate (V) in a neutral medium produces precipitate. Specify the color of this precipitate:
a. Blue
b. Red
c. Green
d. Yellow
e. White

86. What substance is used as an indicator in the back titration of an aqueous solution of acetic acid?
a. Phenolphthalein
b. Eriochrome black T
c. Murexide
d. Diphenylcarbazone
e. Diphenylamine

87. A patient with signs of mercury poisoning has been delivered into an admission room. What antidote should be prescribed in this case?
a. Unithiol
b. Proserin
c. Atropine sulfate
d. Naloxone
e. Calcium chloride

88. The patient, who suffers from rheumatoid arthritis and concomitant duodenal ulcer should be prescribed a non-steroidal anti-inflammatory drug. What drug is most suitable in this case?
a. Metamizole
b. Celecoxib
c. Acetylsalicylic acid
d. Diclofenac sodium
e. Paracetamol

89. Serology is the leading method of syphilis diagnostics. What test is used to diagnose this disease?
a. Wright test
b. Haddelson test
c. Gruber test
d. Wassermann test
e. Widal test

90. A doctor has prescribed a nonsteroidal anti-inflammatory drug to relieve inflammation and pain syndrome. Name this drug:
a. Loratadine
b. Diclofenac sodium
c. Paracetamol
d. Fentanyl
e. Glibenclamide

91. To what electrode will the protein particle move during electrophoresis, if its isoelectric point is 4.0 and the pH of the solution is 5.0?
a. To the cathode
b. First to the anode, and then to the cathode
c. To the anode
d. There will be no movement
e. First to the cathode, and then to the anode

92. A local general practitioner recommends taking interferon for influenza prevention. What is the mechanism of action of this drug?
a. Blocks virus protein synthesis
b. Prevents adsorption of virus in cell receptors
c. Inhibits virion exit from cells
d. Disrupts the process of virus assembly
e. Blocks virus stripping

93. The fruit is a bright-red juicy follicetum with a sweet-sour taste. Its seeds are kidney-shaped and smell similar to lemon. Such fruits belong to:
a. Citrus limon
b. Schisandra chinensis
c. Viburnum opulus
d. Malus domestica
e. Sorbus aucuparia

94. Який препарат із групи психотропних засобів блокує дофамінові рецептори?
a. Діазепам
b. Аміназин (хлорпромазин)
c. Амітриптилін
d. Кофеїн-бензоат натрію
e. Анальгін (метамізол натрію)

95. The patient is presented to the hospital with the phenomena of growing respiratory failure. He has clinical signs of bilateral subtotal pneumonia. The clinical diagnosis is confirmed by X-ray examination. What type of respiratory failure does this patient most likely have?
a. Thoracic diaphragm
b. Peripheral
c. Obstructive
d. Restrictive
e. Central

96. In common corn (Zea mays), male spikelets are gathered in an apical panicle and female flowering spikelets form dense axillary spadices. What type of plant is Zea mays?
a. Unisexual
b. Dioecious
c. Monandrous
d. Polyecious
e. Monoecious

97. Який патогенез розвитку цукрового діабету 1-го типу?
a. Аутоімунне ушкодження В-клітин
b. Гіперпродукція соматотропіну

c. Гіперпродукція глюкагону
d. Гіперпродукція кортизолу
e. Інсулінорезистентність жирової тканини

98. What is the most common side effect of inhaled corticosteroids?
a. Osteoporosis
b. Arterial hypertension
c. Oropharyngeal candidiasis
d. Increased body mass
e. Subcapsular cataract

99. To stop a fever, the patient was prescribed a centrally acting non-narcotic analgesic that, unlike the other drugs in this group, has relatively weak anti-inflammatory effect. What drug is it?
a. Analgin (Metamizole)
b. Nurofen (Ibuprofen)
c. Aspirin
d. Paracetamol
e. Indomethacin

100. What type of indicators is used in the acid-base method of quantitative analysis?
a. Redox indicators
b. pH indicators
c. Chemiluminescent indicators
d. Metallochromic indicators
e. Adsorption indicators

101. To preserve valuable varietal qualities of peppermint, the optimal method of its propagation was chosen. What method is it?
a. Plantlets
b. Parts of the tuber
c. Leaf cuttings
d. Parts of the rhizome
e. Germinated seeds

102. Cosmetic cream against mimic wrinkles contains "vitamin Q10" --- ubiquinone. What is the metabolic role of this vitamin-like substance?
a. It regulates water-salt exchange
b. It regulates differentiation of epithelial cells
c. It stimulates collagen synthesis
d. It decreases permeability of cell membranes
e. It is a component of the mitochondrial respiratory chain

103. Name the ability of high-molecular compounds to prevent precipitation of lyophobic sols and deposition of cholesterol plaques on the vessel walls:
a. Thixotropy
b. Coacervation
c. Coagulation
d. Colloid protection
e. Sedimentation

104. Salts and esters of oxalic acid are called:
a. Urates
b. Oxalates
c. Malonates
d. Succinates
e. Adipinates

105. До якого виду хроматогафії відносять метод газорідинної хроматографії?
a. Розподільної

b. Афінної
c. Адсорбційної
d. Гель-хроматографії
e. Іоннобмінної

106. Water samples were received by a bacteriological laboratory for determining their coli index. What is the coli index?
a. Number of coliphages in 1 liter of water
b. Number of enterococci in 1 liter of water
c. Number of Escherichia coli in 1 liter of water
d. Number of staphylococci in 1 liter of water
e. Number of pseudomonads in 1 liter of water

107. A patient developed neuritis of the facial nerve after five months of tuberculosis treatment. What drug has caused this side effect?
a. Rifampicin
b. Para-aminosalicylate sodium
c. Benzylpenicillin sodium
d. Ceftriaxone
e. Isoniazid

108. During the assessment of air purity in an aseptic unit of a phamacy, sedimentation analysis resulted in growth of small colonies with areas of hemolysis. What medium was used for inoculation in this case?
a. Levine formulation (eosin methylene blue agar)
b. Endo agar
c. Egg-yolk salt agar
d. Blood agar
e. Ploskirev agar

109. A 53-year-old person has been admitted into the gastroenterology department with complaints of dyspeptic disorders and melena. Objectively, the patient has splenomegaly, ascites, and dilated superficial veins of the anterior abdominal wall. What syndrome can be characterized by these signs?
a. Cholemia
b. Suprahepatic jaundice
c. Portal hypertension
d. Acholia
e. Arterial hypotension

110. A patient was prescribed losartan for treatment of arterial hypertension. What mechanism of action does this drug have?
a. Activation of central α-adrenoceptors
b. Inhibition of phosphodiesterase
c. Angiotensin-receptor blockade
d. Calcium channel blockade
e. Inhibition of angiotensin-converting enzyme

111. Який препарат належить до групи антихолінестеразних засобів?
a. Дипіроксим
b. Дитилін (суксаметонію хлорид)
c. Ізонітрозин
d. Ацетилхолін
e. Прозерин (неостигмін)

112. Etiological factors of infectious diseases can be infectious agents with diverse ultrastructure. Which of the following groups does not have cellular structure, protein synthesis, enzymatic and energy systems?
a. Viruses
b. Rickettsia

c. Protozoa
d. Bacteria
e. Fungi

113. A dry-heat box is used for sterilization of various materials and instruments in a bacteriological laboratory. This sterilization method can be applied to the following objects:
a. Rubber gloves
b. Glass test tubes
c. Simple nutrient medium
d. Physiological solution
e. Wire inoculating loops

114. Total protein in blood serum is one of metabolic indicators. What test is usually used in clinical laboratories to determine this value?
a. Xanthoproteic test
b. Lead acetate test
c. Ninhydrin test
d. Biuret test
e. Sodium nitroprusside test

115. What cation of the third analytical group can be precipitated using the group reagent H_2SO_4 only in the presence of ethanol (binds water and concentrates the solution)?
a. Ca^2+
b. Ba^2+
c. Na^+
d. Sr^2+
e. K^+

116. A man developed agranulocytosis after pneumonia treatment with sulfonamides. Antibodies to neutrophils were detected in the patient's blood. This pathology belongs to the following type of allergic reactions:
a. Reactive
b. Cell-mediated
c. Anaphylactic
d. Cytotoxic
e. Immune complex

117. During bacteriology of the feces of a patient with diarrhea, a pure culture of rod-shaped, slightly bent microorganisms was isolated. In the microslide, these microorganisms resemble schools of fish. Their inoculation on alkaline media (alkaline peptone water) results in formation of a blue-tinted film after 6 hours. What pathogen has such properties?
a. Mycobacteria
b. Spirochetes
c. Salmonellae
d. Escherichia coli
e. Vibrio cholerae

118. Many serological reactions require strictly aseptic conditions. What method of sterilization is optimal for decontamination of laboratory glassware?
a. Filtration
b. Pasteurization
c. Calcination
d. Dry heat
e. Tyndallization

119. A patient demonstrates symmetrical dermatitis on the palms. A doctor made a diagnosis of pellagra. What vitamin deficiency can result in such symptoms?
a. Folic acid
b. Cholecalciferol

c. Nicotinic acid
d. Cobalamin
e. Ascorbic acid

120. Streptomycin like other aminoglycosides, by binding to the 30S subunit of ribosomes, prevents the attachment of formylmethionyl-tRNA) What process is being disrupted as a result of this effect?
a. Translation initiation
b. Transcription initiation
c. Transcription termination
d. Translation termination
e. Replication initiation

121. Synthesis of a medicinal substance occurs in an isolated system. What is a direction criterion of spontaneous processes?
a. Intrinsic energy
b. Entropy change
c. Enthalpy
d. Helmholtz energy
e. Gibbs energy

122. What tissue can be characterized by permeable cells located within the root of the primary structure?
a. Central axial cylinder
b. Pericycle
c. Exodermis
d. Endodermis
e. Mesodermis

123. Який пігмент утворюється в реакції окиснення гему?
a. Каротин
b. Стеркобіліноген
c. Уробіліноген
d. Білівердин
e. Хлорофіл

124. In order to facilitate usage and achievement of necessary therapeutic effect, the drug or medicinal plant material is given a certain dosage form. Indicate the dosage form in the form of a free-disperse system:
a. Emulsion
b. Membrane
c. Jelly
d. Diaphragm
e. Gel

125. Select the halogenated antiseptic that would be preferable for a child to pack in the first aid kit, when going to a summer camp:
a. Iodine alcoholic solution
b. Brilliant green
c. Formaldehyde solution
d. Copper sulfate
e. Methylene blue

126. The biological study of spores and pollen revealed tetrahedral spores with a semi-circular base and reticular surface in the pollen. There spores belong to:
a. Equisetiphyta
b. Pinophyta
c. Bryophyta
d. Lycopodiophyta
e. Polypodiophyta

127. Vitamins can enhance each other's effects, when taken simultaneously. What vitamin potentiates the activity of vitamin P?

a. D
b. A
c. B_2
d. C
e. B_1

128. The third analitycal group of cations (acid-base classification) includes Ca^{2+, Sr^{2+, Ba^{2+. What acid can function as a precipitator agent (group reagent) for these cations?

a. CH_3COOH
b. HNO_3
c. H_2SO_4
d. $HClO_4$
e. HCl

129. In snake venom there is a substance that causes erythrocyte hemolysis when it is introduced into a human organism. Blood test revealed a large amount of lysolecithin (lysophosphatidylcholine). What enzyme leads to accumulating lysolecithin in blood?

a. Phospholipase C
b. Neuraminidase
c. Phospholipase A1
d. Phospholipase A2
e. Phospholipase D

130. Having examined the patient, the doctor made a diagnosis of tick-borne encephalitis. What is the route of transmission of this disease?

a. Vector-borne
b. Fecal-oral
c. Airborne-droplet
d. Vertical
e. Parenteral

131. A 37-year-old man developed leg edema after prolonged fasting. What pathogenetic factor plays the leading role in the development of edema in this case?

a. Decreased hydrostatic blood pressure
b. Decreased oncotic blood pressure
c. Increased oncotic pressure in the tissues
d. Decreased osmotic blood pressure
e. Increased osmotic pressure of interstitial fluid

132. What drug inhibits cholesterol synthesis in the liver?

a. Fenofibrate
b. Atorvastatin
c. Probucol
d. Parmidinum
e. Colestipol

133. Select ketose from the monosaccharides listed below:

a. Fructose
b. Glucose
c. Arabinose
d. Ribose
e. Mannose

134. What common property of cation compounds Al^{3+, Zn^{2+, Cr^{3+, Sn^{2+ unites them within the IV analytical group (acid-base classification)?

a. Insolubility of salts in water
b. Amphotericity of hydroxides

c. Solubility of hydroxides in an excess ammonia solution
d. Good solubility of some salts
e. Solubility of hydroxides in acids

135. A 55-year-old man came to a doctor with complaints of acute pain in his big toes. Meat and wine remain permanently in his diet. The doctor suspects gout. What substance must be measured in the patient's blood to confirm this diagnosis?
a. Urea
b. Uric acid
c. Bilirubin
d. Lactate
e. Ketone bodies

136. Rhizome of a species belonging to the Asteraceae family is polycephalous, succulent, has lysigenous cavities, accumulates inulin. Such underground organ is characterisic of:
a. Hyoscyamus niger
b. Helianthus annuus
c. Digitalis grandiflora
d. Sorbus aucuparia
e. Inula helenium

137. A woman, who works at a factory that produces phenylhydrazine, came to a hospital with complaints of general weakness, dizziness, and drowsiness. Her blood has signs of anemia with high levels of reticulocytosis, anisocytosis, and poikilocytosis; isolated normocytes are present in the woman's blood. What type of anemia is it?
a. Iron-deficiency anemia
b. Aplastic anemia
c. Protein-deficiency anemia
d. Metaplastic anemia
e. Hemolytic anemia

138. Для яких систем характерна седиментація?
a. Розчинів неелектролітів
b. Суспензій
c. Розчинів електролітів
d. Розчинів ВМР
e. Золів

139. For the symptomatic treatment of diarrhea, the doctor prescribed the patient a drug that inhibits intestinal peristalsis after making sure that the patient's diarrhea was of non-infectious origin. What drug was prescribed in this case?
a. Loperamide
b. Mannitol
c. Augmentin (Co-amoxiclav)
d. Thiamine
e. Dexamethasone

140. For tetanus prevention, a toxin that has been neutralized with formalin (0.4%) at the temperature of 39°C for four weeks is used. What kind of preparation is it?
a. Anatoxin
b. Adjuvant
c. Immunoglobulin
d. Antitoxic serum
e. Inactivated vaccine

141. A human is immune to the plague of cattle and dogs. What type of immunity is it?
a. Artificial active
b. Natural passive
c. Innate

d. Natural active
e. Artificial passive

142. What cardiac glycoside is obtained from lily of the valley?
a. Celanid (Lanatoside C)
b. Corglycon
c. Adoniside
d. Strophanthin K
e. Digitoxin

143. A solution contains calcium, barium, aluminium, potassium, and sodium cations. Into this solution a small amount of ammonium hydroxide and alizarin solution was added, which resulted in production of red precipitate. What ion was detected as the result of this reaction?
a. Potassium
b. Sodium
c. Calcium
d. Barium
e. Aluminium

144. After a physical exertion, a patient developed an angina pectoris attack caused by myocardial ischemia. What definition most accurately describes the concept of ischemia?
a. Discrepancy between the blood supply to the tissues and the need for it
b. Oxygen deficiency in the circulatory system
c. Decreased erythrocyte count in the blood
d. Increased oxygen delivery to tissues
e. Dilation of arterioles

145. A student studies the digestive system of vertebrates. The organ that is being studied is primarily located in the right upper quadrant of the abdomen. It detoxifies various metabolites, produces hormones and digestive biochemicals, regulates glycogen storage, synthesizes proteins, and decomposes red blood cells. What organ is being studied by the student?
a. Liver
b. Kidneys
c. Heart
d. Lungs
e. Pancreas

146. A man has a nitrate poisoning. What type of hypoxia will develop in this case?
a. Tissue hypoxia
b. Hemic hypoxia
c. Respiratory hypoxia
d. Hypoxic hypoxia
e. Circulatory hypoxia

147. Early-flowering rhizomatous ephemeroids include: Tussilago farfara, Convallaria majalis, and:
a. Allium cepa
b. Adonis vernalis
c. Thymus serpyllum
d. Chamomilla recutita
e. Carum carvi

148. During the analysis of the cations that belong to the fourth analytical group (acid-base classification), their processing with a group reagent makes it possible not only to separate, but also to identify the following ions:
a. Sn(IV) ions
b. As(III) ions
c. Cr(III) ions
d. Zn(II) ions
e. Al(III) ions

149. A patient complains of loss of appetite, weight loss, weakness, and abdominal pain. Laboratory blood test shows the following: Hb --- 90 g/L; erythrocytes --- $2.0 · 10^{12$/L; color index --- 1.4. B_{12} deficiency anemia has been diagnosed. What substance is deficient in this patient, causing the anemia?

a. Hydrochloric acid
b. Pepsin
c. Renin
d. Secretin
e. Castle factor

150. В яких структурах рослинних клітин накопичується вторинний крохмаль?

a. Олеопластах
b. Мітохондріях
c. Вакуолях
d. Протеопластах
e. Амілопластах

151. In E) coli cells, the synthesis of pyrimidine nucleotides occurs according to the scheme of the metabolic pathway: $CO_2 + NH_3$ + 2ATP> S1> S2> UTP> CTP. When CTP concentration in the cell increases, the synthesis of pyrimidine nucleotides stops. What type of regulation is described here?

a. Attachment of inhibitor proteins
b. Detachment of inhibitor proteins
c. Partial proteolysis
d. Enzyme molecule phosphorylation
e. Allosteric regulation

152. Pathogenic bacteria in the human body can form structures that protect them from phagocytosis. Name these structures.

a. Spores
b. Flagella
c. Inclusions
d. Capsule
e. Mesosomes

153. What reaction can be classified as a pseudo-first-order reaction?

a. Neutralization
b. Saponification
c. Hydrolysis of sucrose
d. Combustion
e. Etherification

154. There are certain patterns of chemical and biological processes occurring with the drug in the body. Reduced absorption of tetracycline when it is co-administered with antacids is an example of:

a. Pharmacokinetic incompatibility
b. Synergism
c. Functional antagonism
d. Pharmacodynamic incompatibility
e. Pharmaceutical incompatibility

155. What is the mechanism of action of beta-lactam antibiotics?

a. Disruption of DNA synthesis
b. Inhibition of cytoplasmic \\ membrane synthesis
c. Inhibition of cell wall synthesis
d. Inhibition of DNA gyrase
e. Inhibition of protein synthesis \\ in ribosomes

156. Under conditions of prolonged intoxication, a significant decrease in the activity of aminoacyl-tRNA synthetases can be observed. What metabolic process is disrupted in this case?

a. Genetic recombination

b. Protein biosynthesis
c. RNA processing
d. DNA replication
e. DNA repair

157. What drug has a hypoglycemic effect due to stimulation of pancreatic beta cells?
a. Retabolil (nandrolone)
b. Glibenclamide
c. Heparin
d. Adrenaline hydrochloride (epinephrine)
e. Prednisolone

158. In medical practice barbiturates are used as sleeping pills. These substances act similar to rothenone and are inhibitors of tissue respiration. The mechanism of their action takes place on the enzymatic level. Which of the following enzymes do these substances inhibit?
a. Cytochrome oxidase
b. Succinate dehydrogenase
c. NADH-coenzyme Q reductase
d. Adenosine triphosphate synthetase
e. Cytochrome C reductase

159. What reagent can be used to distinguish maltose (a reducing disaccharide) from sucrose (a non-reducing disaccharide)?
a. Tollens reagent
b. Br_2
c. $NaOH$
d. $K_4[Fe(CN_6)]$
e. $FeCl_3$

160. What stage of chronic renal failure can be characterized by metabolic acidosis, azotemia, itching, ammonia breath, and impaired functioning of vital organs?
a. Uremia
b. Acute renal failure
c. Nephrotic syndrome
d. Renal colic
e. Tubulopathy

161. In order to carry out the silver cations identification, HCl was added to the solution. Later, the formed solution was followed by adding the solution of ammonia. Specify which of the below-mentioned compounds are formed in such case?
a. $[Ag(NH_3)_2]Cl$
b. $[Ag_2(NH_3)_3]Cl$
c. AgOH
d. $AgCl$
e. $[Ag(NH_3)_3]Cl$

162. Helmholtz energy is the direction criterion of an arbitrary process at a constant:
a. Temperature and volume
b. Entropy and volume
c. Entropy and pressure
d. Temperature and pressure
e. Internal energy and volume

163. Який збудник викликає захворювання сифіліс?
a. Borrelia recurrentis
b. Mycobacterium tuberculosis
c. Treponema pallidum
d. Corynebacterium diphtheriae
e. Salmonella typhi

164. A benzimidazole derivative, omeprazole, has been prescribed to a patient with a duodenal ulcer accompanied by an increased secretion of gastric juice. What is the mechanism of action of this drug?

a. Stimulation of H^+, K^+ -ATPase

b. Irreversible blockade of H^+, K^+ -ATPase

c. Blockade of H2-histamine receptors

d. Blockade of M1-cholinergic receptors

e. Stimulation of H2-histamine receptors

165. Essential oils are used both in pharmaceutical and cosmetic industry. To extract essential oils from herbal raw material the following technology is used:

a. Potentiometry

b. Calorimetry

c. Steam distillation

d. Colorimetry

e. Conductometry

166. What value determines the degree to which foreign ions can influence the potential of an ion-selective electrode?

a. Selectivity coefficient

b. Osmotic coefficient

c. Diffusion coefficient

d. Activity coefficient

e. Electrical conductivity \\ coefficient

167. In the patient, a gallstone lodged in the common bile duct has blocked the flow of bile into the intestine. What digestive process will be disturbed in this case?

a. Digestion of fats

b. Digestion of proteins

c. Digestion of carbohydrates

d. Absorption of proteins

e. Absorption of carbohydrates

168. A patient suffers from intense cough with production of viscous sputum. What drug can thin the sputum and facilitate expectoration?

a. Prenoxdiazine

b. Butamirate

c. Glaucine

d. Acetylcysteine

e. Codeine phosphate

169. To obtain exotoxins of some microorganisms, these microorganisms are inoculated into liquid nutrient medium, where microbial cultivation occurs and toxins are produced. At a certain stage it is necessary to remove the microbial cells from the medium, that is, to separate the toxins from microbes. What method should be applied in this case?

a. Disinfectants (chloramine)

b. Autoclaving

c. Boiling

d. Bacteria-excluding filters

e. Ultraviolet irradiation

170. According to Van't Hoff rule, when the temperature is raised by 10 degrees, the reaction rate increases by:

a. Temperature does not affect reaction rate

b. 10 times

c. 1.5 times

d. 5 times

e. 2--4 times

171. What type of fruit is characteristic of Atropa belladonna?

a. Berry
b. Capsule
c. Silique
d. Legume
e. Hesperidium

172. До якого класу сполук належить Цитохром Р450?
a. Гемопротеїн
b. Ліпопротеїн
c. Флавопротеїн
d. Піридинопротеїн
e. Нуклеопротеїн

173. What is the vapor pressure of a liquid at its boiling point?
a. Equal to saturated vapor pressure at 273 K
b. Minimum
c. Maximum
d. Equal to saturated vapor pressure at room temperature
e. Equal to atmospheric pressure

174. Який препарат належить до групи блокаторів Н2 – гістамінових рецепторів?
a. Алохол
b. Фамотидин
c. Омепразол
d. Альмагель
e. Гастроцепін

175. CH_3-CH_2-OH and CH_3-O-CH_3 are a pair of compounds that can be classified as isomers of the following type:
a. Functional group isomers
b. Carbon chain isomers
c. Mirror (optical) isomers
d. Geometric (cis-trans) isomers
e. Tautomers

176. A patient, who was prescribed famotidine for peptic ulcer disease, came to a pharmacy. What mechanism underlies the action of this medicine?
a. H_2-histamine receptors blockade
b. Inhibition of the H^+K^+ ATPase activity
c. H_1-histamine receptors blockade
d. Muscarinic cholinoreceptor blockade
e. Cholinergic receptors blockade in the sympathetic ganglia

177. In the course of an experiment in the mesenteric vein of a toad a trombus was created with a crystal of common salt. What processes occurred during the first stage of trombus formation?
a. Production of fibrin monomer
b. Production of active thromboplastin
c. Production of fibrin polymer
d. Adhesion, aggregation, agglutination of platelets
e. Production of thrombin

178. What adsorbent is used as a suspension to relieve the intoxication caused by alkaloid poisoning?
a. Kaolin
b. Silica gel
c. Activated charcoal
d. Bentonite
e. Starch

179. Як називаються реакції в яких багаторазово повторюється цикл елементарних актів за

участю активних частинок?
a. Пов'язані
b. Ланцюгові
c. Послідовні
d. Паралельні
e. Фотохімічні

180. A patient with gingivitis was prescribed oral cavity irrigation with 0.02% potassium permanganate solution. What group of antiseptics does this drug belong to?
a. Detergents
b. Nitrofurans
c. Oxidants
d. Alcohols
e. Dyes

181. A patient has been diagnosed with acute pancreatitis. For diagnostic purposes, it is necessary to measure the activity of a certain enzyme in the patient's blood. What enzyme is it?
a. Amylase
b. Pepsin
c. Creatine kinase
d. Aldolase
e. Lactate dehydrogenase

182. A woman in the state of ketoacidotic coma has loud rapid respiration: a labored expiration with active participation of expiratory muscles occurs after a deep inspiration. What type of pathological respiration is it?
a. Gasping
b. Biot
c. Stenotic
d. Cheyne-Stokes
e. Kussmaul

183. An analytical chemist conducts a qualitative analysis of cations of the second group. What reagent can be used to separate lead chloride from chlorides of other cations of the second group?
a. Sodium chloride
b. Sodium hydroxide
c. Hydrochloric acid
d. Ammonia
e. Hot water

184. Proteins are the catalysts of biochemical processes. What type of homogeneous catalysis includes the processes with their participation?
a. Coordination catalysis
b. Acid-base catalysis
c. Redox catalysis
d. Enzyme catalysis
e. Gas-phase homogeneous catalysis

185. Osmotic pressure is an important characteristic of biological fluids. Semipermeable membranes are necessary for penetration of solvent molecules. What substance cannot be used as a semipermeable membrane?
a. Biological membrane
b. Collodion film
c. Parchment
d. Gelatine
e. Glass

186. During photosynthesis within plant cell chloroplasts there is short-term retained starch being produced, which rapidly hydrolyzes into glucose. This starch is called:

a. Secondary
b. Resistant
c. Primary
d. Reserve
e. Transitory

187. A patient presents with hypoxia. What metabolic process activates when oxygen supply is insufficient?
a. Oxidative decarboxylation of keto acids
b. Anaerobic glycolysis
c. Urea cycle
d. Tricarboxylic acid cycle
e. Pentose-phosphate pathway

188. The method consisting in removal of low-molecular impurities from colloidal systems and high-molecular compound solutions by semipermeable membrane diffusion is called:
a. Ultrafiltration
b. Electrodialysis
c. Compensatory dialysis
d. Dialysis
e. Decantation

189. What drug should not be prescribed for the treatment of arterial hypertension in a patient with gout?
a. Atenolol
b. Cozaar (Losartan)
c. Enalapril
d. Hydrochlorothiazide
e. Amlodipine

190. What enzyme allows for synthesys of various genes from template RNA to DNA in genetic engineering (this enzyme catalyzes the process observed in RNA-viruses)?
a. DNA-ligase
b. Exonuclease
c. Reverse transcriptase
d. Endonuclease
e. Helicase

191. Various types of immunobiological agents are used for immunoprophylaxis of infectious diseases. What type of prophylaxis involves the use of immune sera and gamma globulins?
a. Immunotropic
b. Specific active
c. General
d. Specific passive
e. Non-specific

192. A patient has been warned that the medicine prescribed to him can cause a cough. Name this medicine:
a. Dichlothiazide (Hydrochlorothiazide)
b. Lisinopril
c. Metoprolol
d. Phenyhydin (Nifedipine)
e. Clophelin (Clonidine)

193. A 10-year-old child has height of 178 cm and body mass of 67 kg. These presentations are caused by the functional disturbance of the:
a. Gonads
b. Parathyroid glands
c. Adrenal glands

d. Thyroid gland
e. Pituitary gland

194. What hormonal drug is used in cases of atonic uterine bleeding?
a. Insulin
b. Oxytocin
c. Prednisolone
d. Progesterone
e. L-thyroxine

195. Corolla of a zygomorphic hermaphroditic flower consists of 5 petals: the largest one is called the banner, the two lateral petals are called the wings, and the two fused petals are forming the keel. Such corolla is characteristic of medicinal plants of Leguminosae family. Name the type of corolla:
a. Saucer-shaped
b. Funnelform
c. Tubular
d. Labiate
e. Papilionaceous

196. On X-ray examination of the 59-year-old patient, in the lower lobe of the right lung there was detected a distinct shadow, differential for tumor. It was pre-determined that the tumor is benign. Which of the following features characterizes the tumor as benign?
a. Cancer cachexia
b. Expansive growth
c. Invasion in surrounding tissues
d. Infiltrating growth
e. Metastasis

197. After the examination, the patient was diagnosed with typhus. What is the route of transmission of this disease?
a. Vertical transmission
b. Parenteral transmission
c. Fecal-oral transmission
d. Vector-borne transmission
e. Airborne droplet transmission

198. What reference electrode can be used in the potentiometric analysis of a medicinal substance?
a. Zinc electrode
b. Antimony electrode
c. Glass electrode
d. Quinhydrone electrode
e. Silver chloride electrode

199. In the process of asexual reproduction, higher spore-forming plants have the ability to form spores, which is an adaptation to life on dry land. What set of chromosomes do their spores have?
a. Triploid
b. Tetraploid
c. Haploid
d. Diploid
e. Polyploid

200. A dissected flower has numerous stamens that are united by the stamen filaments into several bundles. What is this type of androecium?
a. Didynamous
b. Polyadelphous
c. Monadelphous
d. Diadelphous
e. Tetradynamous

201. The researcher while conducting the qualitative analysis that involves sulfates precipitation of the third analytical group cations (Ca^{2+, Sr^{2+, Ba^{2+) has to reduce solubility of sulfates. What substance should he use for this purpose?

a. Ethyl alcohol
b. Chloroform
c. Benzene
d. Distilled water
e. Amyl alcohol

202. A patient with Cushing syndrome has persistent hyper- \\ glycemia and glucosuria. In this case, increased synthesis and secretion of a certain hormone can be observed. What hormone is it?

a. Glucagon
b. Thyroxine
c. Insulin
d. Adrenaline
e. Cortisol

203. A 50-year-old patient in a poor condition was presented to the hospital. Objectively, the skin and visible mucous membranes are cyanotic, arterial blood saturation --- 88%, NiBP --- 90/60 mm Hg, pulse is 117 per minute, respiratory rate is 22 per minute. From the history it is known that the patient suffers from chronic heart failure. Which of the following types of hypoxia is most likely to develop in this case?

a. Anemic
b. Hypoxic
c. Tissue
d. Hemic
e. Circulatory

204. Який із нижченаведених антигіпертензивних препаратів призначається пацієнтам із бронхіальною астмою?

a. Надолол
b. Анаприлін
c. Фармадипін
d. Лабеталол
e. Метопролол

205. In redox titrimetry, the indicators that are added to the reaction system respond to the changes in the:

a. Degree of ionization of the substance being analyzed
b. Ionic strength of the solution
c. Redox potential of the system
d. Concentration of hydroxyl ions
e. Concentration of hydrogen ions

206. Sclerenchyma fibers, formed by procambium or parenchyma around vascular bundles or secretory cavities, strengthen and protect them. What type of fibers is it?

a. Xylem fibers
b. Cortical fibers
c. Pericyclic fibers
d. Perivascular fibers
e. Phloem fibers

207. What pair of compounds can be classified as functional group isomers?

a. Pentene-1 and pentene-2
b. Butane and isobutane
c. Benzene and methylbenzene
d. Hexane and cyclohexane
e. Propanal and propanone

208. In cases of severe pancreatitis, physicians usually prescribe the drugs that help prevent pancreatic autolysis. These drugs inhibit the following type of enzymes:
a. Amylases
b. Lipases
c. Dehydrogenases
d. Proteases
e. Phosphatases

209. A person has been stung by a bee. The stung area developed redness and edema. What is the main mechanism of edema development?
a. Increased hydrostatic blood pressure
b. Decreased oncotic blood pressure
c. Increased permeability of the \\ capillaries
d. Disturbed lymphatic efflux
e. Decreased osmotic blood pressure

210. Який вид лікарських речовин належить до групи бур'янів?
a. Plantago major
b. Salvia officinalis
c. Convallaria majalis
d. Mentha piperita
e. Papaver somniferum

211. During examination it appeared that the patient's sclera and oral mucosa are icteric. What biochemical blood value can be expected to be increased?
a. Bilirubin
b. Amylase
c. Cholesterol
d. Albumin
e. Glucose

212. What cations belong to the IV analytical group according to the acid-base classification?
a. Sodium, potassium, ammonium, silver, lead
b. Calcium, strontium, barium, potassium, bismuth
c. Magnesium, calcium, strontium, barium
d. Aluminum, zinc, chromium(II), tin(II), tin(IV), arsenic(III), arsenic(V)
e. Silver, lead, nickel, potassium, barium, bismuth

213. Total content of chloride, bromide, and iodide ions in the investigated solution can be quantitatively determined with the following titrant:
a. Potassium permanganate solution
b. Sodium nitrite solution
c. Sodium thiosulfate solution
d. Potassium dichromate solution
e. Silver nitrate solution

214. Pastes are used in medicine to treat skin diseases. What type of disperse systems are they?
a. Emulsions
b. Aerosols
c. Suspensions
d. Foams
e. Powders

215. Hyperlipemia can be observed in 2--3 hours after eating fatty food. 9 hours later lipid content normalizes again. How can this condition be characterized?
a. Transport hyperlipemia
b. Retention hyperlipemia
c. Hypertrophic obesity
d. Alimentary hyperlipemia

e. Hyperplastic obesity

216. What titrimetric method of analysis uses both external and internal indicators?

a. Alkalimetry

b. Nitritometry

c. Complexonometry

d. Argentometry

e. Permanganatometry

217. A patient with gout has been prescribed allopurinol. What is the mechanism of action of this drug?

a. Inhibition of COX-2 enzyme

b. Stimulation of uric acid breakdown

c. Inhibition of xanthine oxidase enzyme, inhibition of uric acid synthesis

d. Activation of microsomal oxidation in the liver

e. Intensification of uric acid excretion by the kidneys

218. Select a nucleophile among the particles and molecules given below.

a. AlCl_3

b. ddotNH_3

c. CH_3Cl

d. H^+

e. NO_2^+