

1. During local anaesthetization novocaine solution is usually compounded with solution of adrenaline hydrochloride. What is the purpose of this action?

- A. Vasoconstriction
- B. Vasodilatation
- C. Increase in smooth muscle tone
- D. Decrease in smooth muscle tone
- E. Algesia reduction

2. Which of the below-listed drugs is used for thrombolytic therapy in case of myocardial infarction?

- A. Streptokinase
- B. Heparine
- C. Phenylinum
- D. Ticlopidine
- E. Acetylsalicylic acid

3. On the 4th day of treatment with indometacin a 55-year-old patient developed gastrorrhagia as a result of gastric mucosa ulcer. Ulcerogenic effect of this drug is explained by the lowered activity of the following enzyme:

- A. Cyclooxygenase-1 (COX-1)
- B. Cyclooxygenase-2 (COX-2)
- C. Lipoxygenase (LOG)
- D. Prostacyclin synthetase
- E. -

4. A 45-year-old patient has been taking neodicumarinum for thrombophlebitis for two weeks. The regular blood test revealed a decrease in prothrombin concentration, microhematuria. Which drug should be used as neodicumarinum antagonist?

- A. Vicasol
- B. Protamine sulfate
- C. Sodium citrate
- D. Heparin
- E. Aminocaproic acid

5. A patient complaining of dry mouth, photophobia and blurred vision has been delivered to the admission ward. Objectively: the skin is hyperemic, dry, mydriatic pupils and tachycardia are present. He has been diagnosed with belladonna alkaloids intoxication. Which of the drugs should be given as an antidote?

- A. Neostigmine
- B. Aceclidine
- C. Pylocarpine
- D. Armin
- E. Dipiroxim

6. A 52-year-old patient was diagnosed with systemic amebiasis accompanied by bowels, liver and lungs affection. What preparation should be administered?

- A. Metronidazole
- B. Chiniofon
- C. Tetracycline
- D. Chingamin
- E. Phthalazol

7. A gravida in her 20th week of gestation got ill with pneumonia. What chemotherapeutical drug may be administered with no risk for the fetus development?

- A. Benzylpenicillinum
- B. Gentamycin
- C. Sulfalenum
- D. Laevomycesinum
- E. Ofloxacinum

8. During a surgical operation the muscle relaxant tubocurarine chloride was used. What antagonist drug should be injected in order to allow the patient to breathe independently?

- A. Neostigmine
- B. Dithylinum
- C. Cytitonum
- D. Aethimizolum
- E. Benzohexonium

9. A pharmacy depot received a batch of common plantain leaves. According to the requirements of the Pharmacopoeia, this herbal raw material is of adequate quality if it contains the following active substances:

- A. Polysaccharides
- B. Flavonoids
- C. Tannins
- D. Anthracene derivatives
- E. Essential oils

10. A pharmacy analyst analyzes distilled water. For this purpose he brings some amount of the sample material to the boiling point, adds 0,02 M solution of potassium permanganate and diluted sulfuric acid. After 5 minutes of boiling the pink colour of the produced solution should not change. The pharmacy analyst tries to detect the following admixture:

- A. Chemical reducing agent
- B. Carbon dioxide
- C. Nitrates
- D. Sulfates
- E. Heavy metals

11. A pharmacy supplies the population with drugs for cash. Specify the VAT on drugs:

- A. 0%
- B. 10%
- C. 15%
- D. 20%
- E. 30%

12. Aerosol production involves application of different groups of propellents. What propellents relate to the group of compressed gases?

- A. Nitrogen, nitrous oxide, carbon dioxide
- B. Freons
- C. Propane, butane, isobutane
- D. Vinyl chloride, methyl chloride
- E. Methylene chloride, ethylene chloride

13. An analytical laboratory carries out quantitative analysis of sodium citrate by method of ion-exchanging chromatography on a cationite. What titrated solution is to be used for the following titration of generated citric acid?

- A. Sodium hydroxide
- B. Iodine
- C. Potassium iodate
- D. Hydrochloric acid
- E. Trilon B

14. Which preparation is the specific antidote in case of intoxication with iron preparations?

- A. Deferoxamium
- B. Protamine sulphate
- C. Bemegridum
- D. Atropinum
- E. Penicillamine

15. A pharmacist revealed incompatibility in the formulation.

*Rp.: Sol. Collargoli 1% - 10 ml*

*Sol. Adrenalini hydrochloridi 0,1% - 1 ml*

*M.D.S. Nasal drops.*

What chemical process underlies this incompatibility?

- A. Oxidization
- B. Neutralization
- C. Precipitation
- D. Hydrolysis
- E. Adsorption

16. A pharmacist made a tincture of Adonis herb. A peculiarity of its preparation is that the active substances are derived in:

- A. In the neutral medium
- B. In the alkalescent medium
- C. In the alkaline medium
- D. In the subacid medium
- E. In the acid medium

17. Coltsfoot preparations are used for upper airways treatment. During procurement of this herbal raw material the following admixture may appear:

- A. Great bur (*Arctium lappa*)
- B. Common plantain (*Plantago major*)
- C. Spring adonis (*Adonis vernalis*)
- D. Marsh mallow (*Althaea officinalis*)
- E. Pot marjoram (*Origanum vulgare*)

18. A pharmacist-technologist received an ointment formulation.

*Rp.: Unguentum Resorcini 1,5% - 10,0*

*Da. Signa. To be applied on the affected skin areas.*

The pharmacist incorporated dry medical substance into the ointment by the following way:

- A. Triturated with a few vaseline oil drops
- B. Triturated with a few ethanol drops
- C. Triturated with a few water drops
- D. Added to molten vaseline
- E. Triturated with a part of vaseline

19. For granule drying different types of dryers are used. The dryer SP-30 relates to the following type:

- A. With fluidized bed
- B. Sublimation
- C. Infrared
- D. With silica gel column
- E. With a forced air circulation

20. Specify the herbal raw material with high concentration of carotinoids which is used for production of phytopreparations:

- A. Sea-buckthorn fruits
- B. Currant leaflets
- C. Caseweed grass
- D. Wild strawberry leaves
- E. Parsley roots

21. For the purpose of sales stimulation on a pharmaceutical wholesale company

grants its customers a discount according to the social contract and on condition of their loyalty. Specify the type of discount:

- A. Bonus
- B. Dealer
- C. Seasonal
- D. Discounts for quantity of purchased goods
- E. -

22. One of the quality indicators for finished ampoules is lack of residual stress in the glass. Which operation at the stage "Preparation of ampoules to be filled" eliminates this imperfection?

- A. Ampoule annealing
- B. Capillary opening
- C. Ampoule washing
- D. Ampoule drying
- E. Ampoule sterilization

23. Companies producing injectable dosage forms apply different methods of ampoule sealing. Sealing against a jet of inert gases (nitrogen, argon, carbon dioxide) is suitable for the following injection solutions:

- A. Easily oxidable
- B. Viscous
- C. Thermostable
- D. Hydrolytically unstable
- E. Photosensitive

24. Quality control of tablets produced at a pharmaceutical enterprise involves quantitative determination of such subsidiary substances as talc and aerosil. What method is applied for such determination?

- A. Gravimetric
- B. Titrimetric
- C. Photocolorimetric
- D. Spectrophotometric
- E. Chromatographic

25. Pharmaceutical plants produce enteric-coated tablets. According to the requirements of the State Pharmacopoeia of Ukraine, the coating mustn't disintegrate in the acidic medium within the following period:

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

26. A patient with depression has been administered a drug from the group of tri-

cyclic antidepressants. Specify this drug:

- A. Amitriptyline
- B. Phenazepam
- C. Droperidol
- D. Aminalonum
- E. Caffeine

27. In the medical practice this compound is used as a disinfectant. In case of intoxication with this compound the patient's urine turns olive or olive-black. Specify the compound:

- A. Phenol
- B. Isoamyl alcohol
- C. Iodoform
- D. Ethyl ether
- E. Ethyl benzoate

28. A patient with hypertension has been administered one of antihypertensive drugs. Blood pressure dropped back to normal, but the patient has developed a persistent dry cough. Which of the following drugs has such a side effect?

- A. Enalapril maleate
- B. Propranolol
- C. Clonidine
- D. Furosemide
- E. Nifedipine

29. A patient suffering from ulcer disease was prescribed famotidine. What is the mechanism of its action?

- A. Block of H<sub>2</sub>-histamine receptors
- B. Block of H<sub>1</sub>-histamine receptors
- C. Block of muscarinic cholinoreceptors
- D. Inhibition of adenosine triphosphatase activity
- E. Block of cholinoreceptors of sympathetic ganglions

30. According to the requirements of the State Pharmacopoeia of Ukraine, a pharmacy analyst determines iron admixture in a preparation by means of citric and thioglycolic acids. What staining indicates presence of this admixture?

- A. Pink
- B. Green
- C. Yellow
- D. Blue
- E. Black

31. Name the reason for the reduction of anticoagulant effect of syncumar when it is applied in combination with phenobarbital:

- A. Phenobarbital activates microsomal liver enzymes
- B. Phenobarbital inhibits microsomal liver enzymes
- C. Development of syncumar allergy
- D. These drugs are antagonists
- E. Mutual inactivation

32. Calamus rhizome is likely to be confused with some other plant rhizome that can be found as an admixture in the herbal raw material. Specify the most likely admixture:

- A. Iris rhizome
- B. Valerian rhizome
- C. Elecampane roots
- D. Althaea roots
- E. Phlojodicarpus roots

33. Tannins can be used as an antidote for alkaloid poisoning. What herbal remedy should be applied in case of such intoxication:

- A. Cinquefoil root
- B. Calamus rhizome
- C. Althaea root
- D. Rhizome and roots of madder
- E. Elecampane root

34. Tannins have astringent effect and are used for treatment of colitis, enterocolitis, diarrhea. What herbal raw material contains a lot of tannins?

- A. *Fructus Myrtilli*
- B. *Fructus Sambucci nigri*
- C. *Fructus Ribes nigri*
- D. *Fructus Rhamni catharticae*
- E. *Fructus Frangulae*

35. Cardioglycosides of *Adonis vernalis* are used for heart failure treatment. This plant raw material should be stored:

- A. According to the list B
- B. According to the list A
- C. Under normal conditions
- D. Protected from  $CO_2$
- E. In metal containers

36. A pharmacy manager is writing the monthly "Inventory report". What business transactions should be represented in the expenditure item of the report?

- A. Drug sales
- B. Plant raw material purchases
- C. Payroll payment
- D. Amortization charged to operation
- E. Extra-evaluation of laboratory-packaging works

37. During inventory of a pharmacy the surplus of inventory holdings was revealed. What actions concerning the surplus should be taken by the inventory commission?

- A. Take on charge
- B. Confiscation by superior organization
- C. Abolishment
- D. Immediate realization
- E. Writing-off

38. A pharmacist made eye drops of pilocarpine hydrochloride and adrenaline hydrochloride solution. A peculiarity of the incorporation of the adrenaline hydrochloride solution is that it is added:

- A. After sterilization, aseptic
- B. After dissolving of solids
- C. To the half dose of solvent
- D. In the first place
- E. After isotoning

39. A patient has chronic pancreatitis with apparent manifestations of pancreatic exocrine hypofunction. Which of the following drugs would be the most appropriate in this case?

- A. Pancreatinum
- B. Drotaverine
- C. De-Nol
- D. Omeprazole
- E. Acidin pepsinum

40. Underground organs of medicinal plants that accumulate the most of active substances should be collected:

- A. After the seeds have ripened and the overground parts died off
- B. At the flowering stage
- C. During the green fruiting
- D. At the budding stage
- E. At the stem extension stage

41. In Ukraine the out-patients are supplied with narcotic and psychotropic drugs only by prescription. Medicoprophylactic institutions receive prescription blanks (Form 3) from the following source:

- A. Pharmacy storehouse
- B. City's health department
- C. Wholesale companies
- D. Typography
- E. Pharmaceutical corporation

42. A patient has been administered powders containing menthol. What is the best way to achieve the required extent of menthol comminution?

- A. To triturate it with alcohol or ether
- B. To triturate it with glycerine or chloroform
- C. To triturate it with purified water
- D. To triturate it with other components of the formulation
- E. To triturate it thoroughly with sugar

43. Stability of suspensions can be enhanced by substances which increase the viscosity of the dispersion medium. Specify the substance that exhibits such properties:

- A. Glycerol
- B. Purified water
- C. Ethanol
- D. Dimexid
- E. Ether

44. A doctor prescribed an olive oil emulsion whose composition includes anesthesin. In order that anesthesin can be incorporated into the emulsion it should be dissolved:

- A. In the oil before emulsifying
- B. In the mature emulsion
- C. In the treated water
- D. In the primary emulsion
- E. In the alcohol and add to the primary emulsion

45. O-methylation is an important method of organic substances biotransformation in the body, compounds that are subject to such method contain:

- A. Phenolic groups
- B. Amides
- C. Thiol groups
- D. Nitro groups
- E. Carboxyl groups

46. Which antiseptic preparation has bactericidal effect due to the formation of atomic oxygen?

- A. Potassium permanganate
- B. Chloraminum
- C. Furacilinum
- D. Aethonium
- E. Silver nitrate

47. Styles of maize with stigmata containing fatty acids, vitamins, essential oils, saponins and other substances are used as:

- A. Diuretic and choleric
- B. Sedative and anticonvulsant
- C. Cardiotonic and antiarrhythmic
- D. Expectorant and antiepileptic
- E. Bactericidal and astringent

48. One of the tablet coatings is enterosoluble capsule. They get solved in:

- A. Bowels
- B. Stomach
- C. Oral cavity
- D. Rectum
- E. -

49. It is required to analyse some herbal raw material in form of shiny black drupes up to 6-8 mm in diameter; the bone is large, very firm, spherical, light brown, with a single seed; it has a sweet, slightly astringent taste. This herbal raw material should be qualified as a fruit of:

- A. Bird cherry
- B. Blueberry
- C. Black chokeberry
- D. Buckthorn
- E. Hawthorn

50. Which of the following non-steroid anti-inflammatory agents has the least harmful effect on the mucosa of the gastrointestinal tract?

- A. Nimesulide
- B. Diclofenac
- C. Indomethacin
- D. Piroxicam
- E. Acetylsalicylic acid

51. A pharmacist prepared eyedrops with boric acid. What sterilization method was applied?

- A. Sterilization by saturation vapor pressure
- B. Tyndallization
- C. Sterilization by dry heat
- D. Sterilization by gases
- E. By high-frequency current

52. A pharmacist refused preparation of nasal drops to a patient because of incompatibility between collargol and dimedrol written in the prescription. What is the reason for incompatibility between these ingredients?

- A. Coagulation
- B. Immiscibility
- C. Adsorption
- D. Dissection
- E. Eutectic formation

**53.** A pharmacist was preparing an ointment with ricin oil and Vaseline but failed to get homogenous system. What is the most likely cause of incompatibility between these components?

- A.** Component immiscibility
- B.** Restricted solubility
- C.** Release of water of crystallization
- D.** Coagulation
- E.** Adsorption

**54.** A doctor wrote a prescription for the tincture of digitalis with hydrochloric acid. What is the reason for their incompatibility?

- A.** Hydrolysis (with no visible change)
- B.** Precipitation
- C.** Gassing
- D.** Change in colour
- E.** Change in odour

**55.** At the initial stage of establishing a pharmaceutical enterprise the internal disciplinary regulations should be adopted. One of the primary matters is the duration of the lunch break for the employees. According to the Labour Code of Ukraine, the break duration must be as follows:

- A.** Up to 2 hours
- B.** Up to 1 hour
- C.** Not less than 3 hours
- D.** 2,5 hours
- E.** -

**56.** A 26-year-old patient was diagnosed with community-acquired pneumonia provoked by mycoplasma. Choose the appropriate antimicrobial preparation for the patient treatment:

- A.** Rovamycine
- B.** Amoxicillin
- C.** Gentamycinum
- D.** Benzylpenicillinum
- E.** Amoksiklav

**57.** A 60-year-old patient has essential hypertension stage II, coronary disease, bronchial asthma. After pharmacotherapy correction the patient exhibited a bronchospastic attack, intensified dyspnea. What drug provoked this complication?

- A.** Propranolol
- B.** Nifedipine
- C.** Euphyllinum
- D.** Mucaltinum
- E.** Salbutamololum

**58.** After an emotional stress a 60-year-old patient presented with chest pain irradiating to the left arm. Specify a drug that relieves pain in this case:

- A.** Nitroglycerine
- B.** Nifedipine
- C.** Diltiazem
- D.** Propranolol
- E.** Metoprolol

**59.** A 70-year-old patient consulted a doctor about elevated arterial pressure. He has a history of benign hyperplasia of prostate. What drug should be administered in this case?

- A.** Doxazosin
- B.** Enalapril
- C.** Propranolol
- D.** Diltiazem
- E.** Losartan

**60.** A pharmacist revealed incompatibility in a prescription for powders with ascorbic acid and hexamethylenetetramine. What process takes place when these components are combined?

- A.** Mixture dampening
- B.** Eutectic formation
- C.** Immiscibility
- D.** Substances adsorption
- E.** Crystallization water exudation

**61.** A pharmacist made a medicinal preparation according to the following formulation:

*Rp.: Chloroformii  
Olei Helianthi  
Methylis salicylatis ana 10,0  
M.D.S. For infriction.*

Specify the kind of disperse system:

- A.** Liniment - solution
- B.** Liniment - combined
- C.** Liniment - emulsion
- D.** Liniment suspension
- E.** Liniment - extractional

**62.** In order to get registered in state authorities pharmacies as legal persons must possess authorized capital stock. What amount is identified as the authorized capital stock?

- A.** The amount recorded in constituent documents
- B.** The amount of noncurrent assets
- C.** The amount of fund formation sources
- D.** Total assets
- E.** The amount of debts of an enterprise

63. According to the current legislation, pharmacists get the sickness benefit in case of temporary disability. Specify the source of payment for the first 5 days of being on the sick leave:

- A. Pharmacy expenditures
- B. Pharmacy revenues
- C. Pension fund
- D. Environment stimulation fund
- E. Reserve fund

64. Which of the listed antibacterial drugs **should NOT be administered** to a patient with diabetes mellitus type II being treated with glibenclamid?

- A. Co-trimoxazolom
- B. Midecamycin
- C. Gentamycinum
- D. Benzylpenicillinum
- E. Doxycycline

65. What drug may cause constipation in a patient undergoing combined therapy for arterial hypertension?

- A. Verapamil
- B. Furosemide
- C. Trimetazidine
- D. Panangin
- E. Acetylsalicylic acid in small dosages

66. A pharmacy plans to purchase and retail goods of different stock record units. Which group of goods does VAT reduction apply to?

- A. Medicaments
- B. Baby food
- C. Optics
- D. Curative cosmetics
- E. Perfumes

67. Preliminary tests involve using various kinds of indicator paper. Blackening of the indicator paper treated with plumbum acetate indicates that the biological object contains:

- A. Hydrogen sulphide
- B. Hydrogen chloride
- C. Ammonium hydroxide
- D. Sulphuric acid
- E. Sodium hydroxide

68. An analytical chemist makes a test for the presence of sodium thiosulphate. Select a reagent which allows to detect the thiosulphate ion:

- A. Hydrochloric acid
- B. Sodium bromide
- C. Potassium iodide
- D. Sodium hydroxide
- E. Magnesium sulfate

69. An analytical chemist determines the admixture of sulphates in the boric acid. What is the main reagent that he has to add:

- A. Barium chloride
- B. Sodium sulphide
- C. Potassium ferrocyanide
- D. Silver nitrate
- E. Ammonium oxalate

70. In order to arrest stenocardia attacks a patient takes nitroglycerin capsules. What is the rational way of the drug introduction?

- A. Sublingual
- B. Peroral
- C. Rectal
- D. Inhalation
- E. Hypodermic

71. Recommend a patient with acute bronchitis a mucolytic drug that ease difficulty in expectoration:

- A. Acetylcysteine
- B. Glaucine
- C. Loratadine
- D. Diclofenac sodium
- E. Drotaverine hydrochloride

72. A patient with atherosclerosis has been administered an anti-atherosclerotic agent. Specify this drug:

- A. Fenofibrate
- B. Ascorbic acid
- C. Pyracetam
- D. Dexamethasone
- E. Phenylbutazone

73. A pharmacy received a batch of medicines from a pharmacy depot. Specify the drug subject to the controlled substance inventory in pharmacies:

- A. Dicaine
- B. Paracetamol
- C. Analgin
- D. Novocaine
- E. Acetylsalicylic acid

74. A pharmaceutical company conducted an age-specific segment analysis of the regional antihistamine market. It revealed the lack of antihistamines for children. The company will consider this segment

as:

- A. A market niche
- B. An unattractive segment
- C. A market share
- D. A segment requiring further research
- E. A market door

75. An obtained mineralisate contains sulphates of lead, barium and strontium in form of white precipitation. What procedure will allow to separate the lead sulphate?

- A. Dissolution in ammonium acetate
- B. Dissolution in concentrated sulphuric acid
- C. Conversion into carbonate
- D. Conversion into diethyldithiocarbamate
- E. Conversion into arsine

76. A pharmacy received the following prescription: 0,0002 g of scopolamine hydrobromide per 1 powder. How much of 1:100 trituration is required for the preparation of 10 powders?

- A. 0,2
- B. 0,04
- C. 4,0
- D. 0,4
- E. 2,0

77. A pharmacy received a prescription for 3% alcohol solution of boric acid. What concentration of ethyl alcohol is required for preparing the drug form?

- A. 70%
- B. 60%
- C. 40%
- D. 90%
- E. 96%

78. A licensed state-owned pharmacy obtains and retails narcotic drugs. Which state authority develops and revises the list of the drugs allowed in Ukraine?

- A. State service on Narcotic Drugs Control of Ukraine
- B. State Inspectorate for Quality Control of Drugs
- C. State Pharmacological Centre
- D. Public Joint Stock Company "Medicaments of Ukraine"
- E. -

79. A pharmacy is engaged in retail sales of drugs. What group of drugs does atropine sulphate relate to?

- A. Toxic
- B. Drastic
- C. Over-the-counter
- D. Narcotic
- E. Psychotropic

80. An employee of a pharmaceutical company has been commissioned with marketing research on the regional market of antiarrhythmic drugs. What stage of research would he prefer in the first place?

- A. Collection and analysis of secondary information
- B. Collection of primary information
- C. Analysis of primary information
- D. Preparation of report
- E. Submission of report

81. A pharmaceutical company "Pfizer" is focused on offering the best quality goods at a high price which should cover the costs of research and development as well as production of high quality products. Despite the high price, the product is still in demand. What are the goals of the company's price policy?

- A. Winning the market leadership in respect of product quality
- B. Ensuring the company's survival
- C. Maintaining status quo
- D. Increasing the market share
- E. Increasing the company's assortment

82. A pharmaceutical company "Pharmasvet" has patented and produces now a new hypoglycemic preparation. The company markets this product directly through the own sales departments, affiliated sales companies, pharmacy network. Marketing policy of this pharmaceutical company can be characterized by the channel of the following level:

- A. Zero level
- B. One-level
- C. Two-level
- D. Three-level
- E. Four-level

83. A patient with cholelithiasis was prescribed the following drug for the purpose of cholesterol gallstone dissolution:

- A. Ursodeoxycholic acid
- B. Gamma-amino-butyric acid
- C. Acetylsalicylic acid
- D. Citric acid
- E. Mefenamic acid

84. Which of the listed methods of filling ampoules with injectable solutions can protect the capillaries from contamination with thick and viscous solutions?

- A. Syringe method
- B. Vacuum method
- C. Turbo-vacuum method
- D. Steam condensing method
- E. Solution squeezing method

85. Production of injection solutions involves an operation of solution filtration. What filters are used for sterile filtration?

- A. Filter candles
- B. Nutsch filters
- C. Filter developed by the Kharkiv Chemo-pharmaceutic Research Institute
- D. Pressure filters
- E. Mushroom filter

86. A 68-year-old female patient has been continuously taking furosemide for heart failure treatment. What drug should be used to prevent hypokalemia in patients taking furosemide?

- A. Panangin
- B. Atp-long
- C. Mildronatam
- D. Trimetazidine
- E. Sustac forte

87. Eye drops are prepared with an ointment base which is an alloy of vaseline and lanolin. Specify the method of its sterilization:

- A. Dry heat
- B. Ethylene oxide
- C. Flowing steam
- D. Pasteurization
- E. Tyndallization

88. Quantitative determination of silver nitrate is done by method of thiocyanometry. What indicator is used in this case?

- A. Iron (III) ammonium sulphate
- B. Phenolphthalein
- C. Potassium chromate
- D. Methylene blue
- E. Sodium eosinate

89. An analytical chemist was identifying xeroform in reaction with sodium sulphide. As a result of reaction a black solid dropped out. What ion was detected?

- A. Bismuth
- B. Lead
- C. Zinc
- D. Copper
- E. Silver

90. During the chemico-toxicological study of the dialysate of an aqueous extract, the ammonia test **IS NOT** carried out if the dialysate includes the following substance:

- A. Hydrogen sulphide
- B. Sulphurous acid
- C. Sulphuric acid
- D. Nitric acid
- E. Nitrous acid

91. A forensic chemical laboratory received an object for analysis. The analysis involves quantitative determination of mercury by means of a reaction with dithizone. What physical-chemical method is used within this analysis?

- A. Extraction photolorimetry
- B. Gas-liquid chromatography
- C. UV spectrophotometry
- D. IR spectrophotometry
- E. Thin layer chromatography

92. A woman in the III trimester of pregnancy has an acute respiratory viral disease accompanied with body temperature rise up to  $39^{\circ}\text{C}$ . Which of the drugs should be recommended?

- A. Paracetamol
- B. Celecoxib
- C. Indomethacin
- D. Acetylsalicylic acid
- E. Diclofenac sodium

93. Suspensions as heterogenous systems can be characterized by kinetic and sedimentary instability. What substance is used for increasing suspension stability with hydrophobic substances?

- A. Gelatose
- B. Sodium chloride
- C. Boric acid
- D. Sodium sulphate
- E. Glucose

94. A patient presents with morphine intoxication. Which drug should be injected as an antidote?

- A. Naloxone
- B. Lobeline hydrochloride
- C. Bemegride
- D. Atropine sulphate
- E. Unithiol

95. Most alkaloids are isolated from the biological material by polar solvents. Which of the listed alkaloids is isolated by the way of distillation with water vapour?

- A. Coniine
- B. Strychnine
- C. Cocaine
- D. Atropine
- E. Quinine

96. Comparative analysis of the performance of two pharmacies showed that the trade stock in terms of days was 20 and 30 days respectively. Which of these indicators is **NOT USED** for calculating the trade stock?

- A. Wage fund
- B. The rate of trade mark-up
- C. Sales volume
- D. Turnover
- E. The left-over goods in terms of settlement prices

97. A pharmacy received drugs that are included in the National List of Essential Medicines. When supplying these drugs to the public hospitals, pharmacies are entitled to mark-up the drug charges at the rate of:

- A. 10%
- B. 50%
- C. 40%
- D. 30%
- E. 20%

98. Sales of medical cosmetics retailed in pharmacies are taxable at the VAT rate of 20%. Who is charged with it?

- A. End consumer
- B. Product manufacturer
- C. Wholesale intermediary company firm
- D. Pharmacy
- E. Customs service

99. A patient who has been suffering from gastric diseases for a long time is found to have hyperchromic anemia. Which of the following drugs is applied for this pathology treatment?

- A. Cyanocobalamine
- B. Ascorbic acid
- C. Unithiol
- D. Ferrum Lek
- E. Oxyferriscorbone

100. Essential oil of rose is used as an anti-inflammatory and antispasmodic agent. It is localized in the following excretory organs:

- A. Glandular spots
- B. Essential oil glandules
- C. Essential oil conceptacles
- D. Secretory cells
- E. Glandular hairs

101. A chemist of an analytic laboratory has to prepare turbidity standards according to the requirements of Pharmacopoeia. What substances are to be used as the reference?

- A. Hexamethylenetetramine and hydrazine sulphate
- B. Calcium sulphate and glycerin
- C. Sodium chloride and calcium nitrate
- D. Potassium chloride and barium sulphate
- E. Furacilinum and calcium chloride

102. A pharmacist plans voluntary termination of the open-ended employment contract for the reason of her husband's transfer to another area. Specify the form and term of notice that should be given to the pharmacy director:

- A. Two-week notice in written form
- B. One-week notice in written form
- C. One-month notice in written form
- D. Five-day notice in written form
- E. Two-day notice in written form

103. A pharmacy makes wholesale purchases of health and hygiene products. An agent works under the contract with the manufacturer and makes deals at the manufacturer's cost. The agent may be entitled to exclusive distribution in some regions. What kind of agent is it?

- A. Wholesale agent
- B. Consignee
- C. Commission agent
- D. Broker
- E. Dealer

104. How much water should be taken in order to prepare 200 ml of aqueous extract of motherwort (water absorption coefficient = 2 ml/g)?

- A. 240 ml
- B. 220 ml
- C. 200 ml
- D. 160 ml
- E. 210 ml

**105.** During the identification of a drug an analytical chemist of the State Inspectorate for Quality Control performs a lignin test. Specify this drug:

- A. Streptocid
- B. Ascorbic acid
- C. Cortisone acetate
- D. Methionine
- E. Analgin

**106.** A pharmacist-analyst carries out quantitative analysis of procaine hydrochloride. Which of the following solutions is to be used?

- A. Sodium nitrite
- B. Sodium thiosulfate
- C. Sodium edetate
- D. Potassium bromate
- E. Argentum nitricum

**107.** The main active components of hawthorn berries are flavonoids. What is their pharmacological effect?

- A. Hypotensive and sedative
- B. Laxative and sedative
- C. Tonic and antispasmodic
- D. Diuretic and styptic
- E. Antispasmodic and anti-inflammatory

**108.** Name a "metal poison" which is isolated from the biological material by the method of destruction:

- A. Mercury
- B. Stibium
- C. Cadmium
- D. Silver
- E. Arsenic

**109.** Toxic substances can be isolated from the objects of biological origin by different methods. In case of intoxication with pesticides - derivatives of phosphoric acids - the following method is applied:

- A. Infusion with organic solvents
- B. Distillation with water steam from the alkaline medium
- C. Infusion with alkalized water
- D. Infusion with water acidified with chloric acid
- E. Dialysis from alkalized solutions

**110.** A pharmacy analyst carries out purity test of the drug substance "Sodium thi-

osulfate". Violet colour, that comes from reaction with sodium nitroprusside, indicates the presence of the following admixture:

- A. Specific sulfides admixture
- B. Sulphates admixture
- C. Sulfur admixture
- D. Sodium chloride admixture
- E. Iodides admixture

**111.** An analytic laboratory received "Aether anaestheticus" for analysis. Which reagent should be used for detection of acetone and aldehyde admixtures according to the State Pharmacopoeia of Ukraine?

- A. Alkaline solution of potassium tetraiodomercurate
- B. Ammonium solution of argentic nitrate
- C. Aqueous solution of potassium iodide
- D. Sodium hydrosulphite
- E. Hydroxylamine solution

**112.** Activity of an organization depends on various factors. What factors refer to the internal environment of the organization?

- A. Abilities, skills and talent of staff
- B. Economy status
- C. Infrastructure
- D. Public authorities
- E. Consumers

**113.** Financial accountability of pharmacies consists of separate account forms. Which form presents accounts payable for the goods purchased?

- A. Balance sheet, form 1
- B. Financial performance report, form 2
- C. Financial performance report, form 2m
- D. Net worth statement, form 3
- E. Balance assets, form 1

**114.** In Ukraine natural persons as small business entities are allowed to use the simplified tax system. What limit on the number of employees is established for such enterprises?

- A. No more than 10 persons
- B. No more than 20 persons
- C. No more than 30 persons
- D. No more than 40 persons
- E. No more than 50 persons

**115.** For the natural persons being small business subjects the simplified tax system is effective. But there is a limit of annual

proceeds upon sale. What is the boundary amount of proceeds?

- A. Up to 500 thousand UAH
- B. Up to 750 thousand UAH
- C. Up to 100 thousand UAH
- D. Up to 1 million UAH
- E. Up to 5 million UAH

**116.** Simplified tax system implies replacement of several taxes by a single one. What limit on the number of employees is established for the legal persons to implement the simplified tax system?

- A. 50 persons
- B. 10 persons
- C. 25 persons
- D. 100 persons
- E. 75 persons

**117.** Fatty oil containing saturated fatty acids is used for atherosclerosis prevention. Specify the medicinal plant that is used for oil production:

- A. Flax seeds
- B. Fennelflower seeds
- C. Dill seeds
- D. Black chokeberry fruits
- E. Hawthorn fruits

**118.** A tablet shop produces triturati-  
on tablets. What quality indicators **ARE NOT** relevant for these tablets?

- A. Abrasion, resistance to crushing
- B. Disintegration and dissolution
- C. Homogeneity of dosage
- D. Homogeneity of content
- E. Microbiological purity

**119.** A phytochemical production unit produces biogenic stimulators out of different raw materials. Specify the biogenic stimulators of organo-mineral origin:

- A. Peloidinum, Humisolum, Torfotum, Fibs pro injectionibus
- B. Extractum Aloes fluidum, Linimentum Aloes, Succus Aloes, Biosedum
- C. Vitreous body, Placenta injection, Plasmolum, Solcoseryl
- D. Extractum Aloes fluidum, Linimentum Aloes, Plasmolum
- E. Peloidinum, Humisolum, Torfotum, Plasmolum, Solcoseryl

**120.** A pharmaceutical enterprise produces water solutions. The solution of the following substance is produced by method of chemical interaction and

electrochemically:

- A. Aluminum hydroxide acetate
- B. Plumbum hydroxide acetate
- C. Calcium gluconate
- D. Polyvinyl alcohol
- E. Potassium arsenite

**121.** In course of preparation of suppositories by the pumping method the suppository mass became viscous and fluid after the incorporation of chloral hydrate into the cocoa butter. What substance should be added to the suppository mass in order to restore its density and plasticity?

- A. Wax
- B. Glycerine
- C. Purified water
- D. Dimexid
- E. Starch

**122.** Powders make up an important group among the extemporal medicinal preparations. Which of the following components can be incorporated into a powder without being preliminarily ground?

- A. Basic Bismuth nitrate
- B. Ascorbic acid
- C. Camphor
- D. Xeroform
- E. Calcium gluconate

**123.** Qualitative reaction for phenol is the reaction with bromine water. What compound is produced as a result of the interaction of phenol with bromine water and drops out as a white solid?

- A. 2,4,6-tribromophenol
- B. 2-bromophenol
- C. 3-bromophenol
- D. 4-bromophenol
- E. 2,4-dibromophenol

**124.** Upper airways diseases can be treated by means of herbal raw materials containing mucilages. The plant source of this compound class is:

- A. *Radix Althaeae*
- B. *Radix Inulae*
- C. *Radix Ipecacuanhae*
- D. *Radix Rhodiolae*
- E. *Radix Belladonnae*

**125.** The basic structure of steroid hormones is hydrocarbon skeleton - cyclopentane perhydrophenanthrene. What natural compound is used for

testosterone propionate production?

- A. Cholesterol
- B. Indole
- C. Naphthalene
- D. Phenanthrene
- E. Anthracene

**126.** According to the requirements of the State Pharmacopoeia of Ukraine, a pharmacy analyst should determine procaine hydrochloride by nitritometric method. What indicator is to be used for this purpose?

- A. Neutral red
- B. Methyl red
- C. Crystal violet
- D. Xylenol orange
- E. Acid chrome blue

**127.** According to the requirements of the State Pharmacopoeia of Ukraine, a pharmacy analyst should determine fluorouracil by method of nonaqueous titration. What titrated solution is to be used?

- A. Tetrabutyl ammonium hydroxide
- B. Sodium nitrite
- C. Potassium bromate
- D. Ammonium thiocyanate
- E. Sodium edetate

**128.** An analytical chemist analyses the substance of ethylmorphine hydrochloride. The substance purity is tested by method of semi-microanalysis. What reagent is used to determine the water admixture?

- A. Iodosulphurous
- B. Biuretic
- C. Methoxyphenyl acetic acid
- D. Molybdeno-vanadium
- E. Hypophosphite

**129.** An analytical laboratory carries out an analysis of ferrum sulphate heptohydrate according to the requirements of the State Pharmacopoeia of Ukraine. The test portion of the substance should be titrated with the following solution:

- A. Ammonium cerium sulfate
- B. Argentum nitrate
- C. Ammonium thiocyanate
- D. Sodium edetate
- E. Potassium bromate

**130.** A patient consults a pharmacist about taking acetylsalicylic acid as an

antiaggregant. What is the daily dose that should be recommended for continuous use?

- A. 0,1-0,3 g
- B. 0,5-1,0 g
- C. 1,0-2,0 g
- D. 2,0-3,0 g
- E. Over 4,0 g

**131.** The main active components of senna leaves and fruits are sennosides A, B, C, D. They relate to the following class of biologically active substances:

- A. Anthracene derivatives
- B. Phenolic acids
- C. Flavonoids
- D. Iridoids
- E. Thioglycosides

**132.** A laboratory received some herbal raw material for analysis. It is a composition of ovoid-pointed leaves up to 25 cm long and 20 cm wide; the leaf base is cuneate, the leaf edge is emarginate. The cutting is long and cylindric. The leaf venation is pinnatisect; the midrib and the first-order veins project significantly on the inferior surface of the leaf. The superior leaf surface is dark green, the inferior surface is light green. The plant has a weak narcotic smell. The taste cannot be determined. The plant is poisonous! The described herbal raw material relates to the following plant:

- A. *Datura stramonium*
- B. *Passiflora incarnata*
- C. *Chelidonium majus*
- D. *Vinca minor*
- E. -

**133.** It is necessary to prescribe non-steroid anti-inflammatory drug for patient with rheumatoid arthritis and concomitant duodenal ulcer. Which drug is the drug of choice in this case?

- A. Celecoxib
- B. Acetylsalicylic acid
- C. Paracetamol
- D. Analgin
- E. Diclofenac sodium

**134.** A pharmacist is preparing powders according to the following formulation:

*Rp.: Scopolamini hydrobromidi 0,0003  
Ephedrini hydrochlorodi 0,05  
Sachari 0,15  
M.f. pulvis  
D.t.d. № 10  
S. 1 powder thrice a day.*

Calculate the mass of 1 powder providing that the trituration (1:100) is used:

- A. 0,20
- B. 0,15
- C. 0,23
- D. 0,17
- E. 0,203

135. A pharmacist prepares several different solutions with antibiotics under aseptic conditions. He can sterilize the solution of the following substance:

- A. Chloramphenicol
- B. Benzylpenicillin-sodium
- C. Neomycin sulphate
- D. Benzylpenicillin-potassium
- E. Polymyxin sulphate

136. A pharmacist has revealed an incompatibility in the prescription. What drug substances form an eutectic mixture?

- A. Chloral hydrate + camphor
- B. Antipyrine + analgin
- C. Calcium chloride + sodium chloride
- D. Ephedrine hydrochloride + glucose
- E. Sodium hydrocarbonate + hexamethylenetetramine

137. The risk can arise from some forms of activity connected with production of goods and services, their selling, commodity-money and financial operations, commerce, implementation of socio-economic and scientific-and-technical projects. This is the definition for the following concept:

- A. Business risk
- B. Loss of property
- C. Labour loss
- D. Loss of time
- E. Financial loss

138. While studying the reaction of an "acid"chloroform extraction in acidic medium with sodium nitrite, a forensic toxicologist got a compound stained emerald green. Which of the substances is capable of forming the mentioned nitro compound?

- A. Antipyrine
- B. Analgin
- C. Amidopyrine
- D. Noxiron
- E. Salicylic acid

139. A patient got poisoned with nitrites. Nitrite detection by means of azo dye reaction involves using such acid:

- A. Sulphanilic
- B. Sulphuric
- C. Phosphoric
- D. Hydrochloric
- E. Salicylic

140. Preparations made out of eleutherococcus roots and rhizomes are administered as a tonic and adaptogenic drug. If these preparations cannot be found in a pharmacy, they can be substituted by the analogous preparations made of the following raw material:

- A. Ginseng roots
- B. Elecampane roots
- C. Rhizomes and roots of valerian
- D. Polemonium roots
- E. Acorus calamus roots

141. A patient with bronchial asthma has been administered a drug from the group of beta-adrenergic agonists. Specify this drug:

- A. Salbutamol
- B. Diazepam
- C. Doxycycline hydrochloride
- D. Nitroglycerine
- E. Digoxin

142. An analytical chemist determines the quantitative content of caffeine by method of acidometry in nonaqueous media in compliance with the State Pharmacopoeia of Ukraine. What solution is used as a titrant?

- A. Perchloric acid
- B. Sodium edetate
- C. Potassium bromate
- D. Sodium hydroxide
- E. Sodium nitrite

143. A pharmacy analyst identifies sodium hydrocarbonate. What indicator can confirm the presence of alkalescent medium reaction in the sodium hydrocarbonate solution?

- A. Phenolphthalein
- B. Starch
- C. Tropeolin 00
- D. Ferroun
- E. Naphtholbenzein

144. Substance of calcium pangamate is to be studied in an analytical laboratory. Calcium cation forms a white precipitate with the following reagent:

- A. Ammonium oxalate
- B. Sodium chloride
- C. Potassium permanganate
- D. Potassium bromide
- E. Sodium cobaltinitrite

145. A chemist of an analytical laboratory studies procaine hydrochloride according to the requirements of the State Pharmacopoeia of Ukraine. What method is recommended by the State Pharmacopoeia of Ukraine for the quantitative analysis of this preparation?

- A. Nitritometry
- B. Bromatometry
- C. Acidimetry
- D. Alkalimetry
- E. Chelatometry

146. A patient has been administered a spasmolytic from the group of muscarinic receptor antagonists as a part of the complex treatment for renal colic. Specify this drug:

- A. Atropine
- B. Neostigmine
- C. Galantamine
- D. Dithylinum
- E. Benzohexonium

147. A common method for quantitative determination of drugs from the group of alkali metal halogenides is:

- A. Argentometry
- B. Permanganatometry
- C. Chelatometry
- D. Alkalimetry
- E. Nitritometry

148. A patient has been taking isosorbide for stenocardia prevention for quite a long time. Now he notes a significant decrease in the effect of the drug. What is this phenomenon called?

- A. Tolerance
- B. Cumulation
- C. Physical dependence
- D. Allergy
- E. Potentiation

149. Pharmacy activities are commonly operated by different types of managers. The function of direct control over drug preparation by a pharmacist refers to the following type of management:

- A. Technical
- B. Institutional
- C. Managerial
- D. Administrative
- E. Bureaucratic

150. A pharmacist has applied for a job of a stockkeeper at a wholesale pharmaceutical enterprise. What trial period doesn't require agreement with the trade-union committee?

- A. Up to three months
- B. Up to one month
- C. Up to two months
- D. Up to four months
- E. Up to six months

151. Marketing manager at a pharmaceutical factory is planning its communication policy. Which component of the marketing communication systems has the highest value for one contact?

- A. Personal sale
- B. "Public relations"
- C. TV advertising
- D. Periodical advertising
- E. Sales promotion

152. During the treatment of chronic heart failure with digoxin in a patient having bradycardia, nausea, vomiting, blurred vision. Which drug is the antidote in this case?

- A. Unithiol
- B. Tetacium calcium
- C. Diproximum
- D. Amyl nitrite
- E. Atropine sulphate

153. A biennial or perennial plant from the Apiaceae family has a blue-grey stem branching in its lower part. Its leaves are also blue-grey, finely dissected, with the ultimate filiform segments. The flowers are yellow, in compound umbels. Its fruit is used for production of "dill water". What plant is it?

- A. *Foeniculum vulgare*
- B. *Carum carvi*
- C. *Petroselinum crispum*
- D. *Coriandrum sativum*
- E. *Conium maculatum*

**154.** Incoming control is conducted in the course of wholesale and retail trade, such control is carried out during receipt of goods by visual inspection or analysis of drug. Incoming control is carried out by authorized person, which is assigned by:

- A. Managers order
- B. State inspection of drugs quality control
- C. Head of regional structure
- D. Proprietor of an enterprise
- E. The order of head of territorial inspection

**155.** When a pharmacy records goods as received, it normally specifies the amount of the markup intended for expenditure coverage and profit gaining. Give the definition for the markup:

- A. The difference between the sale price and purchase price of goods
- B. The difference between the sales price and markup
- C. The difference between the sales price and the customs price
- D. The amount of goods sold
- E. Rummage (goods remains) at the end of the month

**156.** Before the raw plant material is taken over from the supplier, it must be checked for compliance. Which document is the ground for recording raw plant material as received in the pharmacy in case of its approval?

- A. Acceptance certificate
- B. Consignation note
- C. Write-off certificate
- D. Invoice
- E. -

**157.** The relationships between the demand, supply and price level is studied within the following field of complex market research:

- A. Studies of economic environment
- B. Studies of market and product requirements
- C. Analysis of market segmentation
- D. Studies of market structure of companies
- E. Analysis of sociopsychological features of buyers

**158.** According to the Labour Code, compulsory deductions from the salaries of pharmacy employees include:

- A. Pension contributions
- B. Alimony
- C. Excess payments
- D. Amounts to be withheld under writs of execution
- E. Trade union contributions

**159.** According to the basic regulations for supply of medical products, pharmacies should be supplied with medicaments having a remaining shelf life of no less than ...%, and bacterial preparations of no less than ...%:

- A. 60%, 40%
- B. 80%, 60%
- C. 50%, 40%
- D. 40%, 20%
- E. 60%, 30%

**160.** A patient with chronic bronchitis wants to buy glaucine hydrochloride at a pharmacy. What typical side effect of the drug should the patient be warned against?

- A. Drop of arterial pressure
- B. Excitation of the central nervous system
- C. Irregular heartbeat
- D. Rise of intraocular pressure
- E. Allergic skin rash

**161.** A 30-year-old patient with a sleep disorder and psychoemotional disbalance has been administered diazepam. What is the mechanism of its psychosedative action?

- A. Activation of GABAergic system
- B. Inhibition of the limbic system
- C. Inhibition of the reticular formation
- D. Reduction of noradrenaline amount in the CNS
- E. Inhibition of opioid receptors

**162.** Benzylpenicillin sodium is not used per os, because this drug:

- A. Destroys gastric *HCl*
- B. Poorly absorbed in the intestine
- C. Irritates gastric mucosa
- D. Reduces formation of gastric *HCl*
- E. Is destroyed by penicillinase

**163.** Select the reductant required for the determination of arsenic impurity in drugs (method 2):

- A. Sodium hypophosphite
- B. Hydrochloric acid solution
- C. Sodium sulfite solution
- D. Sodium hydroxide solution
- E. Potassium iodide solution

164. A pharmacy received a prescription for powders with a too high single dose of phenobarbital not justified by proper documentation. What actions should a pharmacist take?

- A. Put the stamp "invalid" and return the prescription to the patient
- B. Supply 1/3 of the maximum single dose
- C. Supply the maximum single dose, multiplied by the number of powders
- D. Supply the highest single dose
- E. Supply 1/3 of the maximum single dose, multiplied by the number of powders

165. When heroin comes into an organism, it metabolizes chiefly to:

- A. Morphine and 6-monoacetylmorphine
- B. Codeine
- C. Morphine
- D. 6-acetylmorphine
- E. 3-acetylmorphine and morphine

166. A pharmacy received a prescription for a topical powder including a substance that is hard to disperse. Which of the listed fluids may be used for dispersing the substance?

- A. Diethyl ether
- B. Purified water
- C. Water for injections
- D. Dimexid
- E. Isopropyl alcohol

167. A female has prolonged labour. Select a drug that stimulates labour activity due to its physiological effect from the listed below:

- A. Oxytocin
- B. Neostigmine
- C. Pachycarpine
- D. Progesterone
- E. Estrone

168. A pharmacist has to prepare suppositories with a glycerine gelatin base by the molding method. What is the ratio of gelatin, water and glycerine required for the base?

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

169. While filling hard gelatin capsules such glidants as 0,1% - 0,3% aerosil or magnesium stearate along with 0,5% - 1% talc are often added to the filling agent in order to improve the following properties:

- A. Flowability
- B. Homogeneity
- C. Regulation of moisture content
- D. Homogeneity of mixing
- E. Ability to contact molding

170. Prescriptions for drugs being subject to the stocktaking and supplied on favourable terms or free of charge except for narcotic (psychotropic) drugs and tramadol are written out:

- A. In 2 copies of form F-1
- B. On the pink form
- C. On the form F-3
- D. On the form F-1
- E. On the forms F-3 and F-1

171. What management style is characterized by manager's particular compliance, when manager initiates goals formation by his subordinate and is ready to accept it without reservations?

- A. Laissez-faire management style
- B. Democratic management style
- C. Bureaucratic style
- D. Collective style
- E. Combined style

172. Activity of pharmaceutical institutions is subject to licensing. What is the duration of licence for drugs and healthcare products sale?

- A. Five years
- B. One year
- C. Two years
- D. Four years
- E. Three years

173. In case of loss of license a pharmacist should address an application for a duplicate to a licensing authority. The licensing authority is obliged to issue the duplicate to the applicant no later than:

- A. Three working days from the date of application receipt
- B. One month from the date of application receipt
- C. Two months from the date of application receipt
- D. Three months from the date of application receipt
- E. The duplicate isn't issued

174. Which component of the marketing communication system focuses on creating a positive image of a company?

- A. Public relations
- B. Advertising
- C. Personal sales
- D. Retail logistics
- E. Merchandising

175. Select a loop diuretic of strong, emergency and short-term action from the listed below:

- A. Furosemide
- B. Clopamide
- C. Acetazolamide
- D. Spironolactone
- E. Triamterene

176. A laboratory received some herbal raw material for analysis. The plant had flowerheads up to 4 cm in diameter, the marginal flowers were agamic, blue, funnel-shaped; the inner flowers were bisexual, purple, tubular. What plant has these features?

- A. *Centaurea cyanus*
- B. *Solidago virgaurea*
- C. *Polygonum persicaria*
- D. *Scutellaria baicalensis*
- E. *Viola tricolor*

177. Specify the type of the following liniment: *Ol. Helianthi 7,4*

*Sol. Ammonii caustici 25 ml*

*Ac. Oleinici 0,1*

*M.f. linimentum*

*D.S. To be rubbed in.*

- A. Liniment, emulsion o/w
- B. Combined liniment
- C. Liniment-solution
- D. Liniment-suspension
- E. Liniment, emulsion w/o

178. A patient who has been undergoing combined drug therapy for peptic ulcer presents with black feces. Specify a drug that might have caused such a change:

- A. Bismuth subcitrate
- B. Omeprazole
- C. Actovegin
- D. Metronidazole
- E. Ranitidine

179. A man with a long history of chronic hepatitis has been diagnosed with pneumonia. Which of the following antibacterial drugs can be applied in this clinical situation?

- A. Amoxicillin
- B. Tetracycline
- C. Biseptol
- D. Rifampicin
- E. Vancomycin

180. A 57-year-old female patient was diagnosed with rheumatoid arthritis; she has also a history of stomach ulcer. What drug from the group of nonsteroid anti-inflammatory drugs may be recommended this patient?

- A. Celecoxib
- B. Diclofenac
- C. Aspirin
- D. Indometacin
- E. Mefenamic acid

181. An internship doctor prescribed his patient nifuroxazid from the group of nitrofurans for the treatment of urinary tracts infection. The doctor made a mistake because:

- A. It cannot be absorbed from the digestive tract
- B. It is excreted with urine in the inactive state
- C. It has nephrotoxic effect
- D. It has bacteriostatic effect
- E. It is excreted from the organism very slowly

182. Which of the following is the drug of choice for bronchial asthma attacks prevention?

- A. Cromolyn sodium
- B. Salbutamol
- C. Drotaverine
- D. Diphenhydramine hydrochloride
- E. Ambroxol

183. A pharmacist needs to sterilize 250 ml of glucose solution for injections. How many minutes should the solution undergo sterilization in the autoclave under the temperature of 120°C?

- A. 12
- B. 8
- C. 15
- D. 25
- E. 30

**184.** Grinding equipment is classified by the way of grinding. What kind of machines does a roller crusher relate to?

- A. Crushing
- B. Cutting
- C. Abrasive
- D. Impact
- E. Impact-centrifugal

**185.** Antacid gastritis can be treated with plantain juice. What is the way of its extraction?

- A. High-pressure compression
- B. Extraction with condensed gases
- C. Maceration with aqueous ethanol solution
- D. Dissolution of concentrates
- E. Repercolation

**186.** Oxidation of some toxins within the body results in generation of compounds that increase their toxicity. Thus, due to the oxidation of heptachlor in the body the following compound is formed:

- A. Heptachlor epoxide
- B. Carbon monoxide
- C. Carbon dioxide
- D. Heptachlor oxide
- E. Hexachlorocyclohexane

**187.** A pharmacy has sulfonamide bisepitol on sale. What chemical compounds are the main components of this drug?

- A. Sulfamethoxazole, trimethoprim
- B. Sulfazin, salazodimethoxinum
- C. Sulgin, norsulfazol
- D. Phthalazolium, sulfadimezin
- E. Urosulfan, sulfapiridazin

**188.** In course of isoniazid identification a pharmacy analyst boiled thoroughly the substance with 2,4-dinitrochlorobenzene. The substance turned yellow, after adding alkaline solution it turned first violet and then brownish-red. As a result of this reaction the following aldehyde derivative is produced:

- A. Glutakon
- B. Gluconic
- C. Glutamic
- D. Glyoxylic
- E. Hexanic

**189.** A routine inventory revealed a cash shortage. Who must reimburse the sum of the identified shortage?

- A. Cashier
- B. Pharmacy director
- C. Deputy director of pharmacy
- D. Department head
- E. Deputy head of Department

**190.** A pharmaceutical factory produces herbal juice out of fresh raw material. What operation should be performed at the stage of juice purification?

- A. Heating followed by quick cooling
- B. Sedimentation
- C. Adsorption
- D. Filtration
- E. Crystallization

**191.** A patient suffering from stomach ulcer was prescribed an antiulcer drug that also reduces secretion of hydrochloric acid and inhibits *Chelicobacter pylori*. What drug is it?

- A. Omeprazole
- B. Gastrocepine
- C. Maalox
- D. Famotidine
- E. Almagel

**192.** Quantitative determination of nitrofuril (furacilin) can be done by method of spectrophotometry. A pharmacy analyst can calculate quantity by measuring:

- A. Optical density
- B. Refractive index
- C. Rotation angle
- D. pH of solution
- E. Fusion temperature

**193.** An edema can be relieved by means of hypertonic solutions. What phenomenon takes place in the blood cells after injection of such solution?

- A. Plasmolysis
- B. Hydrolysis
- C. Hemolysis
- D. Lipolysis
- E. Electrolysis

**194.** A consulting pharmacist informed a patient about possible side effect of metronidazole that is normally provoked by alcohol intake. What is the mechanism of this phenomenon?

- A. Enzyme alcohol dehydrogenase blocking
- B. Enzyme alcohol dehydrogenase activation
- C. Enzyme acetylcholinesterase blocking
- D. Enzyme acetylcholinesterase activation
- E. Enzyme glucose 6-phosphate dehydrogenase activation

**195.** An anaesthesiologist has to perform an operation under neuroleptanalgesia. Which of the following drug combinations should be used in this case?

- A. Fentanyl with droperidol
- B. Droperidol with prednisolone
- C. Fentanyl with diazepam
- D. Diazepam with aminazine
- E. Promedol with amitriptillin

**196.** Common juniper is applied as a diuretic, anti-inflammatory and cholagogic agent. This plant gives the following medicinal raw material:

- A. Fruits
- B. Sprouts
- C. Leaves
- D. Roots
- E. Seeds

**197.** Which of the following reagents should be added to the isoniazid to achieve blue colour and precipitation that turns light-green and emits gases when heated?

- A. Copper sulfate solution
- B. Silver nitrate solution
- C. Alkaline solution
- D. Hydrochloric acid solution
- E. Iron (III) chloride solution

**198.** For accounting business transactions

carried out in a pharmacy the synthetic accounts are used. Their list is given in the Chart of Accounts. Balances of the I, II and III account classes are used for completion of the following document:

- A. Assets
- B. Profit and Loss Account
- C. Liabilities
- D. First section of the liabilities balance sheet
- E. Fourth section of the liabilities balance sheet

**199.** A 40-year-old patient suffers from bronchial asthma and cardiac rhythm disturbance in form of bradyarrhythmia. Drugs of which pharmacological group should be administered for bronchospasm suppression?

- A. M-cholinergic antagonists
- B. Beta-blockers
- C. M-cholinomimetics
- D. Cholinesterase inhibitors
- E. Muscle relaxant

**200.** A patient who has taken phenobarbital for a long time was prescribed diclofenac sodium. However the anti-inflammatory effect of diclofenac appeared to be less than expected due to the pharmacokinetic interaction of these drugs. Such interaction might be the result of the following processes:

- A. Accelerated drug metabolism in liver
- B. Decelerated drug metabolism in liver
- C. Reduced protein concentration in plasma
- D. Change of receptor sensibility
- E. Increased drug dosage