

1. A 50-year-old woman complains of headache, dizziness, visual snow, and nausea. The skin of her face is hyperemic. Objectively, her heart rate is 85/min., her blood pressure is 210/120 mm Hg. What is the provisional diagnosis in this case?

- a. Myocardial infarction
- b. Meningococcal infection
- c. Hemorrhagic stroke
- d. Angina pectoris attack
- e. Hypertensive crisis

2. During the two years of working in his position, the pharmacist proved to be a responsible and efficient specialist. The pharmacy's head manager appointed him to the position of the head of the Extemporaneous Compounding Department. What is this type of personnel movement called?

- a. Recruitment
- b. Employee turnover
- c. Helical (vertical) rotation
- d. Spiral (horizontal) rotation
- e. Mixed rotation

3. To identify pilocarpine hydrochloride it is necessary to use reaction with sodium nitroprusside in an alkaline medium (Legal's test). Resulting cherry-red coloring confirms presence of the following in the pilocarpine structure:

- a. Chloride ions
- b. Methylene group
- c. Imidazole ring
- d. Methyl group
- e. Lactonic ring

4. During anti-Helicobacter quadrotherapy patient's feces colored black. What drug could have caused this effect?

- a. Amoxicillin
- b. Metronidazole
- c. Bismuth subcitrate
- d. Clarithromycin
- e. Omeprazole

5. An analytical chemist has conducted a qualitative reaction to confirm the presence of a steroid ring in the prednisolone molecule. For this purpose the following reagent was used:

- a. Concentrated sulfuric acid
- b. Hydroxylamine hydrochloride
- c. Phenylhydrazine sulfate
- d. Copper tartrate reagent
- e. Acetic anhydride

6. Medicinal substances are introduced into multiphase ointments depending on their properties. How to introduce novocaine (procaine) hydrochloride into a vaseline-lanolin base?

- a. Dissolve it in the molten base
- b. First dissolve it in the minimum amount of water
- c. Comminute it with an alcohol or ether
- d. Comminute it with glycerin
- e. Grind it with a part of the molten base

7. Schisandra chinensis seeds contain lignans. What pharmacological effect will the preparations made of Schisandra chinensis have?

- a. Tonic
- b. Antitumor
- c. Reparative
- d. Sedative
- e. Hepatoprotective

8. An analytical chemist performs quantitative analysis of isoniazid by means of direct bromatometry with volumetric solutions of potassium bromate, potassium bromide, hydrochloric acid and methyl red as an indicator. This method is based on the following reaction:

- a. Bromination of the pyridine ring
- b. Oxidation of the hydrazine group with bromine
- c. Reduction of the hydrazine residue with bromine
- d. Opening of the pyridine ring
- e. Oxidation of the hydrazine residue with potassium bromide

9. An analytical chemist performs the identification of ascorbic acid in an injection solution according to the State Pharmacopoeia of Ukraine. Its interaction with a certain solution produces a gray precipitate. Name this solution:

- a. Silver nitrate
- b. Sodium nitrite
- c. Sodium carbonate
- d. Ammonium hydroxide
- e. Calcium chloride

10. A pharmacist at the extemporaneous compounding department of a pharmacy has received a prescription for an infusion marked "Cito". How long such an aqueous extract must be infused in a water bath?

- a. 25 minutes
- b. 10 minutes
- c. 30 minutes
- d. 15 minutes
- e. 45 minutes

11. To replenish its fixed assets, the pharmacy made a decision to arrange a credit with the trading bank. What document must be concluded in writing between the creditor and the debtor in this case?

- a. Credit contract
- b. Auditor's conclusion
- c. License
- d. Full material liability contract
- e. Balance sheet

12. The total turnover of goods at a pharmacy consists of retail and wholesale turnover. What belongs to the wholesale turnover?

- a. Dispensing prescription medicines to the people
- b. Dispensing extemporaneous medicines manufactured by a pharmacy according to the inpatient prescriptions
- c. Dispensing over-the-counter medicines to the people
- d. Dispensing medical products to outpatients
- e. Dispensing medicines according to outpatient prescriptions

13. Medications Passit and Novopassit are used as tranquilizing, sedative and mild hypnotic agents. These medications are produced from the following grass:

- a. Three-lobe beggarticks
- b. Elecampane
- c. Lesser periwinkle
- d. Garden sage
- e. Purple passionflower

14. Genetically induced adverse reaction to a certain drug is caused by various enzyme defects.

Name this reaction:

- a. Rebound effect
- b. Steal syndrome
- c. Dysbiosis
- d. Withdrawal syndrome

e. Idiosyncrasy

15. A pharmaceutical company produces deep-acting ointments. What is the mechanism of action of the active substances contained in resorptive ointments?

- a. Reach the systemic circulation and enhance the effect of drugs
- b. Prevent drying and contamination of the epidermis
- c. Absorbed by the outer layers of the skin
- d. Protect the skin from microbial infection
- e. Protect the skin from external factors

16. To identify a drug, an analytical chemist used the reaction of azo dye formation. What drug was being analyzed in this case?

- a. Procaine hydrochloride
- b. Morphine hydrochloride
- c. Pilocarpine hydrochloride
- d. Clonidine hydrochloride
- e. Papaverine hydrochloride

17. During merchandise analysis a dispensing chemist should reject herbal raw material if it:

- a. Contains other parts of the target plant
- b. Contains poisonous plants
- c. Contains other non-poisonous plants
- d. Contains excessive moisture
- e. Has first-degree vermin infestation

18. A pharmacist prepares powders with riboflavin. How should riboflavin be introduced into the powder mixture?

- a. Riboflavin powder should be sifted in advance
- b. Mix the components in the ascending order based on their amount
- c. "Three layers" method
- d. Riboflavin should be added on the top of the prepared mixture of other ingredients
- e. Mix the components in the descending order based on their amount

19. Thymus serpyllum grass is harvested in Ukraine. At what stage of plant growth is this herbal raw material harvested?

- a. Before the formation of green fruits
- b. After harvesting the fruits
- c. During the flowering stage
- d. When the fruits are ripe
- e. Before the flowering

20. A formaldehyde solution was received for analysis. What reagent should be used to identify this substance?

- a. Benzoic acid
- b. Sulfuric acid
- c. Acetic acid
- d. Tartaric acid
- e. Chromotropic acid

21. Urethral suppositories are being made for a patient. What parameters should be specified by the doctor in the formulation for the pharmacist to be able to calculate the necessary amount of the vehicle correctly?

- a. Diameter, length, and quantity of the suppositories
- b. Diameter and vehicle of the suppositories
- c. Diameter and quantity of the suppositories
- d. Length and quantity of the suppositories
- e. Quantity and vehicle of the suppositories

22. A pharmacy has desided to obtain a license to make extemporaneous preparations. For this

purpose it purchased a refrigerator, a cabinet dryer, and other industrial equipment. The purchased equipment belongs to the following type of assets:

- a. Goods
- b. Non-negotiable tangible assets
- c. Fixed assets
- d. Not accounted as assets
- e. Package

23. Pyridoxine hydrochloride and cyanocobalamin are not recommended to be administered in the same syringe due to their chemical incompatibility. What type of chemical reaction occurs between these compounds?

- a. Neutralization
- b. Reduction
- c. Complexation
- d. Hydrolysis
- e. Oxidation

24. Under the current legislation there is a certain list of controlled substances that require keeping of the special inventory log. Select the drug that belongs on this list:

- a. Analgin (Metamizole)
- b. Phenobarbital
- c. Digoxin
- d. Novocaine
- e. Solpadeine

25. A patient has been diagnosed with essential hypertension and prescribed an adequate treatment with antihypertensive drugs. However, two months later the patient began to notice a slight cough. What drug can cause this side effect?

- a. Hypothiazide (Hydrochlorothiazide)
- b. Amlodipine
- c. -
- d. Furosemide
- e. Captopril

26. When should aromatic water be added into a mixture, if it functions as a dispersing medium?

- a. First
- b. Last, because of its essential oil content
- c. After solid medicinal substances are dissolved
- d. Before ethanol-containing liquids are added
- e. After concentrated solutions

27. What quality parameter must be additionally controlled during the industrial production of suspension eye drops?

- a. Sterility
- b. Color
- c. Transparency
- d. Quantitative determination
- e. Particle size

28. A 24-year-old man suffers from exacerbation of chronic bronchitis. This condition is accompanied by production of a small amount of viscous sputum. What drug is indicated to facilitate the expectoration in this case?

- a. Acetylcysteine
- b. Fenoterol
- c. Oxeladin
- d. Budesonide
- e. Ipratropium bromide

29. A pharmaceutical company plans to launch the production of a new medicine. What stage of

product development includes making the cost estimates for its manufacturing and sales and preliminary calculations of the price and planned profits?

- a. Filtration of the ideas
- b. Commercial manufacturing
- c. Test marketing
- d. Generation of the ideas
- e. Economic analysis

30. A pharmaceutical company produces animal-derived biostimulants. Solcoseryl preparation is obtained from the following raw material:

- a. Bovine trachea
- b. Velvet antlers
- c. Bovine blood
- d. Bovine spleen
- e. Human blood

31. A pharmacist prepares rectal suppositories in the pharmacy. Name the acceptable range, within which the average weight of such suppositories may vary:

- a. 2.0-5.0
- b. 5.0-8.0
- c. 1.0-4.0
- d. 3.0-6.0
- e. 4.0-7.0

32. A 63-year-old woman suffering from diabetic nephropathy with functional disturbance of the kidneys needs etiotropic treatment for focal pneumonia. What drug is CONTRAINDICATED in this case?

- a. Aminoglycosides
- b. Natural penicillins
- c. Combined penicillins
- d. Synthetic penicillins
- e. Macrolides

33. A pharmacy has received goods from a warehouse, which were delivered by the warehouse transport. Therefore, goods receipt requires the following accompanying document:

- a. Specifications to the contract of delivery
- b. All of the listed
- c. Financial statement of the supplier
- d. Motor waybill
- e. Contract of delivery

34. What herbal raw material is used as an industrial source of tannins?

- a. Persicaria hydropiper grass
- b. Nettle leaves
- c. Cotinus coggygria leaves
- d. Solidago canadensis grass
- e. Rose hips

35. A pharmacist has prepared a tincture from Adonis vernalis grass. What special technique was necessary in this case to extract the active substances?

- a. They must be extracted in an acidic medium
- b. They must be extracted in a slightly alkaline medium
- c. They must be extracted in an alkaline medium
- d. They must be extracted in a neutral medium
- e. They must be extracted in a weakly acidic medium

36. A herbal raw material (fruits) was sent for analysis. This material consists of glossy black drupes 8 mm in diameter with one large spherical light-brown seed that is very firm. Its chemical analysis showed the presence of condensed tannins. What plant is the source of this herbal raw material?

- a. *Prunus padus*
- b. *Schisandra chinensis*
- c. *Ribes nigrum*
- d. *Rhamnus cathartica*
- e. *Vaccinium myrtillus*

37. A pregnant woman complains of elevated blood pressure up to 160/100. What hypotensive drug should she use in this case?

- a. Bisoprolol
- b. Enalapril
- c. Reserpine
- d. Methyldopa**
- e. Losartan

38. When is it necessary to renew the agreement on collective (team) material responsibility?

- a. When 30% of employees from the original team leave the team
- b. When 50% of employees from the original team leave the team**
- c. When 25% of employees from the original team leave the team
- d. Whenever a new employee joins the team
- e. Whenever an employee leaves the team

39. A pharmaceutical analyst identifies the substance of potassium acetate. What reagent confirms the presence of potassium cation in the substance?

- a. Potassium permanganate
- b. Sodium hydroxide
- c. Tartaric acid**
- d. Iron (III) chloride
- e. Zinc oxide

40. Calendula Ointment is placed on the shelf next to Dr. Theiss Calendula Ointment. What approach to the shelf layout is used in this pharmacy?

- a. Among competitors**
- b. By package size
- c. Corporate block layout
- d. Seasonality
- e. Doubling product facings

41. A patient needs eye drops with riboflavin. What substance should the pharmacist add to the solution to ensure its isotonicity, if there are no specific instructions in the doctor's prescription?

- a. Sodium chloride**
- b. Boric acid
- c. Glucose
- d. Sodium sulfate
- e. Sodium nitrate

42. A pharmaceutical company that specializes in the manufacture of herbal medicines is expanding its scope of work and establishes the production of cosmetics. What development strategy did the company choose?

- a. Diversification**
- b. Modernization
- c. Survival
- d. Stability
- e. -

43. In the course of the pharmacotherapy for exacerbation of chronic bronchitis, the patient developed dyspeptic disorders, photodermatitis, and disturbed hepatic function. Which of the prescribed drugs could have caused these signs?

- a. Ascorbic acid
- b. Doxycycline**

- c. Ambroxol
- d. Acetylcysteine
- e. Codeine phosphate

44. The chalagogue derived from Rosa canina fruit is used in treatment of liver and gallbladder diseases. Name this drug:

- a. Altan
- b. Allochol
- c. Phytolyt
- d. Cholasas**
- e. Chophytol

45. A pharmacy must keep the following receipts for 3 years, not counting the present one:

- a. Narcotic substances in their pure form at the full price
- b. Medicines provided for free or at a discount due to social benefit programs**
- c. Clophelin (clonidine) tablets at the full price
- d. Anabolic steroids at the full price
- e. Psychotropic drugs at the full price

46. A pharmacist prepares a vaseline-based ointment. The vehicle was heated to 40^oC) What substance was introduced into the heated vehicle?

- a. Camphor**
- b. Anesthesin
- c. Vinilin (polyvinyl butyl ether)
- d. Benzoic acid
- e. Streptocide

47. A patient has been receiving palliative treatment with morphine hydrochloride for a week. Following that the patient demands continuation of this treatment. What phenomenon has occurred in this case?

- a. Potentiation
- b. Dependence**
- c. Summation
- d. Cumulation
- e. Tolerance

48. Specify the formula of extractant calculation in the process of creating a tincture:

- a. $\mu = \frac{m_{\text{end product}}}{m_{\text{raw material}}} \cdot 100\%$
- b. $V = V_{\text{tincture}} + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$**
- c. $m_{\text{raw material}} = m_{\text{end product}} + m_{\text{losses}}$
- d. $E = \frac{m_{\text{losses}}}{m_{\text{raw material}}} \cdot 100\%$
- e. $V = V_{\text{tincture}} \cdot n + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$

49. A pharmaceutical factory produces suppositories with hydrophilic bases. What parameter is measured during standardization of such suppositories?

- a. Mechanical strength
- b. Dry residue
- c. Dissolution time**
- d. Resuspension
- e. Boiling point

50. Several species of Polygonum genus are used in medicine. One of these species has rootstocks rich in tanning agents, which are used to treat diarrhea. Name this species:

- a. Polygonum persicaria
- b. Polygonum aviculare
- c. Polygonum alpinum
- d. Polygonum bistorta**
- e. Polygonum hydropiper

51. To decrease business risks, a pharmaceutical company decided to expand its activity and penetrate into new market (to open a fitness center). Name this process:

- a. Intensification
- b. Conglomeration
- c. Integration
- d. Modernization
- e. Diversification

52. How long must a pharmacy keep its logbooks with the records about the balance of narcotic drugs, psychotropic substances, and precursors?

- a. 1 year after the current one
- b. 2 years after the current one
- c. 3 years
- d. 7 years after the current one
- e. 5 years

53. What final document is used for the preparation of the report on the discrepancies revealed in the course of inventory at the pharmacy?

- a. Checklist
- b. Act on the inventory results
- c. Inventory item description
- d. Invoice
- e. Commercial report

54. A patient with atrophic hypoacid gastritis type A has been diagnosed with a complication in the blood system - the development of B₁₂-deficiency anemia. What medicine is pathogenetically justified in this case?

- a. Thiamine
- b. Nicotinic acid
- c. Pyridoxine
- d. Riboflavin
- e. Cyanocobalamin

55. A pharmacy makes aqueous extracts. What extractant is used in preparation of infusions and decoctions?

- a. Peach oil
- b. Ethyl alcohol
- c. Mint oil
- d. Purified water
- e. Glycerin

56. In the course of its development a pharmaceutical company forms its culture. Culture of a pharmaceutical company is typically based on:

- a. License agreement
- b. Values, traditions, and behavioral norms characteristic of company employees
- c. Specifics of manufacturing process
- d. Legislation in force
- e. Relevant pharmaceutical practices

57. For treatment of enteric infection a 36-year-old woman was prescribed a nitrofuran derivative that is poorly absorbed in the intestine and takes its effect along the intestinal tract. Name this drug:

- a. Furacilin (Nitrofurral)
- b. Nifuroxazole
- c. Nalidixic acid
- d. Nitroxoline
- e. Furadonin (Nitrofurantoin)

58. A 65-year-old man has been taking nitroglycerin continuously for 2 months. Lately, he has been observing a gradual decrease in its clinical effect. Name the concept that describes this phenomenon:

- a. Reye syndrome
- b. Tolerance
- c. Idiosyncrasy
- d. Anaphylactic reaction
- e. Withdrawal syndrome

59. Tyndallization is used at a pharmaceutical factory as one of sterilization methods for thermolabile substances. What is the essence of this method?

- a. Autoclaving at 119-121^oC with pressure at 1,0-1,1 atm
- b. Sterilization with flowing steam at 100^oC
- c. Sterilization with high-frequency and microwave frequency current
- d. Triple heating of solution to 40-60^oC with 24-hour-long intervals in between for thermostating**
- e. Sterilization with dry heat at 180-200^oC for a lengthy period of time

60. A patient, who has undergone treatment for community-acquired pneumonia, complains of hearing impairment. What antibacterial drug could result in such a side-effect?

- a. Ciprofloxacin
- b. Amoxicillin/clavulanate
- c. Gentamicin**
- d. Cefazolin
- e. Clarithromycin

61. In the process of inpatient treatment of bronchial asthma, the patient was prescribed Euphylline (Theophylline) intravenously. What side effect of this drug must be managed first?

- a. Hematotoxicity
- b. Cardiotoxicity**
- c. Chondrotoxicity
- d. Nephrotoxicity
- e. Hepatotoxicity

62. What quantification method must be used for the analysis of isoniazid substance, according to the regulations of the State Pharmacopoeia of Ukraine?

- a. Alkalimetry
- b. Photocolorimetry
- c. Bromatometry**
- d. Acidimetry in a non-aqueous medium
- e. Nitritometry after alkaline hydrolysis

63. To ensure the quality of medicines the pharmacy devotes much attention to quality control. The following document is the quality assurance of a drug:

- a. Sanitary-epidemiological certificate
- b. Registration certificate
- c. Sanitary passport
- d. Certificate of compliance with hygiene regulations
- e. Quality certificate**

64. A drug that is subject to reimbursement has been dispensed at a pharmacy based on an electronic prescription. How long such a prescription must be stored in the information and telecommunications system?

- a. 2 years
- b. 3 months
- c. 3 years**
- d. 6 months
- e. 5 years

65. A decoction of Bidens grass has an anti-allergic effect and is often used in pediatrics. What species of this plant is pharmacopoeial?

- a. Bidens cernua
- b. Bidens radiata**

- c. Bidens aurea
- d. Bidens frondosa
- e. Bidens tripartita

66. A doctor has prescribed pessaries of unspecified mass. What mass should be chosen when pessaries are being prepared in a pharmacy?

- a. 6,0
- b. 1,5
- c. 4,0
- d. 3,0
- e. 0,5

67. What type of marketing should be used by a pharmaceutical company in a situation, when the demand for medicines declines?

- a. Evolving marketing
- b. Synchromarketing
- c. Conversion marketing
- d. Remarketing
- e. Stimulational marketing

68. Profitability is one of the economic indicators of the pharmacy's trading activity. It is calculated as a:

- a. Ratio of the sum of profits to the sum of turnover $\times 100\%$
- b. Ratio of the sum of profits to the sum of cost price of the goods $\times 100\%$
- c. -
- d. Ratio of the sum of profits to the sum of expences $\times 100\%$
- e. Ratio of the sum of profits to the total cost of fixed assets $\times 100\%$

69. An important indicator of business activity is profitability of a business. Specify the indicators that can be used to measure the profitability:

- a. Turnover/income
- b. Income/turnover
- c. Turnover/production cost
- d. Profit/turnover
- e. Liquidity/solvency

70. Centaurium erythraea grass increases appetite and is a component of herbal teas for stomach. What active substance causes this effect of the herbal raw material?

- a. Iridoids
- b. Alkaloids
- c. Saponins
- d. Flavonoids
- e. Simple phenols

71. A pharmacist approached the chief manager of the pharmacy with a request for pay raise. The chief manager turned down this request. What type of conflict is it?

- a. Intrapersonal conflict
- b. Intergroup conflict
- c. Conflict between individual and group
- d. Interpersonal conflict
- e. Dysfunctional conflict

72. Sodium and potassium oxides are introduced into the ampoule glass to:

- a. Decrease its melting point
- b. Increase its thermal stability
- c. Increase its chemical stability
- d. Increase its dimming ability
- e. Increase its mechanical stability

73. A pharmaceutical factory prepares syrups for taste-masking of medicines. What substance must be removed from such syrups to prevent jellification of the end product?

- a. Fructose
- b. Starch
- c. Glucose
- d. Pectin**
- e. Sucrose

74. A pharmacy visitor asked the pharmacist to recommend her an anthelmintic drug that would be effective against Ascaris roundworms. Select one such drug from the list.

- a. Riboflavin
- b. Piperazine**
- c. Pyrazinamide
- d. Calcitonin
- e. Ribavirin

75. To prepare decoctions with the volume of 1000-3000 ml, they should be infused in a boiling water bath for:

- a. 15 minutes
- b. 45 minutes
- c. 30 minutes
- d. 40 minutes**
- e. 25 minutes

76. How long must a pharmacy keep the documents that confirm the fact of sale of medicines and medical products?

- a. 3 months
- b. 10 years
- c. 3 years**
- d. 1 year
- e. 5 years

77. The "Pharmastar" pharmaceutical company develops new dosage forms for its medicines. What type of product policy in marketing is it?

- a. Product modification**
- b. Diversification
- c. Reduction
- d. Differentiation
- e. Modernization

78. A pharmacist has remained working long after the working day was officially over. How is this work period called?

- a. Overtime**
- b. Extended time
- c. Regular hours
- d. Dayshift
- e. Nightshift

79. Licorice roots contain saponins. What reaction can prove their presence in the herbal raw material?

- a. Dragendorff's test
- b. Fehling's test
- c. Reaction with iron(III) chloride
- d. Foaming reaction**
- e. Molisch's test

80. A certain type of herbal raw material is being collected in spring during sap flow. Specify this material:

- a. Bark**

- b. Infructescences
- c. Buds
- d. Roots
- e. Flowers

81. The head manager of Pharmacy №5 that belongs to the <<Hippocrates>> company was transferred to be the head manager of Pharmacy №1 within the same network. What type of human resources movement is it?

- a. Diagonal rotation
- b. Employee turnover
- c. Vertical rotation
- d. Horizontal rotation**
- e. Mixed rotation

82. Purpurea glycoside A and purpurea glycoside B are the main active substances of Digitalis purpurea. They belong to the following class of bioactive substances:

- a. Cardiac glycosides**
- b. Alkaloids
- c. Flavonoids
- d. Phenolic compounds
- e. Anthracene derivatives

83. The management plans to open a new pharmacy in one of the local villages. Such activity can be identified as:

- a. Horizontal integration
- b. Growth strategy**
- c. Vertical integration
- d. Horizontal diversification
- e. Conglomerate diversification

84. A patient from the oncology department came to a pharmacy with a prescription for a drug that is needed for the treatment of his main disease. How will the pharmacist provide this medicine?

- a. With a 25% discount
- b. With a 10% discount
- c. For 50% of the cost
- d. 100% free**
- e. For the full cost

85. A 36-year-old woman with herpetic rash on her lips has come to a pharmacy. Recommend her a drug for topical treatment:

- a. Metronidazole
- b. Levofloxacin
- c. Amikacin
- d. Fluconazole
- e. Acyclovir**

86. A certain drug can be quantitatively assessed by means of direct alkalimetry in glycerine, mannitol, or other polyhydric alcohol medium. This drug is:

- a. Boric acid**
- b. Acetylsalicylic acid
- c. Benzoic acid
- d. Glutaminic acid
- e. Salicylic acid

87. A potassium permanganate solution needs to be prepared for a patient. What solvent should be used in this case?

- a. Mint water
- b. Water for injections
- c. Demineralized water**

- d. Freshly prepared purified water
- e. Ethyl alcohol

88. In his management policy, the head manager of the <>Health Formula<> pharmacy actively uses planning, material incentives and sanctions, pricing, and distribution of profits and capital investments. These means and approaches belong to the following group of management methods:

- a. Psychosocial management methods
- b. Organizational management methods
- c. Indirect control methods
- d. Economic management methods**
- e. Legal management methods

89. An analytical chemist during the identification of phenylephrine hydrochloride (mesaton) performed a reaction with a solution of iron(III) chloride, which resulted in a purple coloring. The presence of what functional group in the structure of the drug was confirmed as a result?

- a. Ester group
- b. Phenolic hydroxyl**
- c. Aliphatic amino group
- d. Carboxyl group
- e. Primary aromatic amino group

90. The management of a pharmaceutical company uses F. Herzberg's two-factor theory of motivation. What is this theory based on?

- a. The need for protection
- b. The need for safety
- c. Hygienic and motivational factors**
- d. The need for existence, connection, growth
- e. The need for power, success, and affiliation

91. A 54-year-old hypertonic patient undergoing pharmacotherapy developed bronchial spasm. His physician considers it to be a therapy-induced complication caused by the drug that belongs to the following group:

- a. Calcium antagonists
- b. beta-adrenergic blockers**
- c. Diuretics
- d. Ganglionic blockers
- e. alpha-adrenergic blockers

92. Birch buds are used as a diuretic. Quality of the herbal raw material is determined by its content of:

- a. Vitamins
- b. Lipids
- c. Essential oil**
- d. Saponins
- e. Iridoids

93. In the process of making an aqueous solution of protargol the pharmacist has used the following technology:

- a. Dissolved in warm water
- b. Dissolved in cold water
- c. Dissolved in purified water in a vial for dispensing
- d. Added the powder onto the water surface and waited until complete dissolution**
- e. Dissolved during comminution

94. Powders made with a certain medicinal substance need to be prepared at a separate workplace, using separate scales and mortar. Name this substance:

- a. Xeroform (bismuth tribromphenolate and bismuth oxide complex)**
- b. Zinc oxide
- c. Magnesium oxide

- d. Ascorbic acid
- e. Glucose

95. At the end of a working day, a cashier prepares the sales proceeds received in cash for the transfer to the bank account through a collecting agent. What document must be issued by the cashier for the cash transfer in this case?

- a. Cash cheque
- b. Cheque payable
- c. Payment request and order
- d. Payment order
- e. Payment summary**

96. A pharmaceutical company produces tablets. Tabletting by means of direct compression requires:

- a. No prior granulation
- b. Formation of masses
- c. Prior homogenization
- d. Application of hydraulic press
- e. Prior granulation

97. Who is responsible for the patient's condition in case of self-treatment?

- a. Pharmacist
- b. Drug manufacturer
- c. Physician
- d. Patient**
- e. Head manager of the retail pharmacy

98. What type of moisture remains after the herbal raw material is dried?

- a. Osmotic
- b. Equilibrium
- c. External
- d. Free
- e. Residual**

99. Inulin improves digestion and has a positive effect on carbohydrate metabolism. What plant is used as a source of inulin?

- a. Althaea officinalis
- b. Hypericum maculatum
- c. Helianthus tuberosus**
- d. Brassica juncea
- e. Astragalus dasyanthus

100. A pharmacist has prepared a compound ointment. What is the correct sequence of its preparation?

- a. Solution - emulsion - suspension
- b. Solution - suspension - emulsion
- c. Suspension - solution - emulsion**
- d. Emulsion - suspension - solution
- e. Emulsion - solution - suspension

101. What medicinal substance must fill only 2/3 of the vial before sterilization?

- a. Sodium chloride
- b. Euphyllin (Aminophylline)
- c. Hexamethylenetetramine
- d. Sodium bicarbonate**
- e. Calcium chloride

102. The herbal raw material of a foxglove is a source, from which cardiotonic agents are obtained. What organs of the Digitalis purpurea are harvested as a herbal raw material?

- a. Fruits

- b. Leaves
- c. Seeds
- d. Roots
- e. Rhizomes

103. Digoxin is given to the patients with chronic heart failure. What medicinal plant that contains cardiac glycoside is a source of this medicinal substance?

- a. Convallaria majalis
- b. Erysimum canescens
- c. Strophanthus kombe
- d. Adonis vernalis
- e. Digitalis lanata

104. What is the name of the settlement document printed by the registrar of settlement operations, when making settlements for the goods sold or services provided?

- a. Invoice
- b. Cash register fiscal receipt
- c. Sales receipt
- d. Receipt
- e. Settlement receipt

105. What variable of the internal environment of the "Provisor" pharmacy can be described as the ways of transformation of component materials (medicinal agents "an gross") into end product (various dosage forms)?

- a. Human resources
- b. Structure
- c. Tasks
- d. Technologies
- e. Mission

106. A pharmacist has a labour dispute with the pharmacy administration about rescheduling his annual vacation leave. The employee can appeal against the decision of the pharmacy administration to the following body:

- a. Trade union committee
- b. The Ministry of Public Health of Ukraine
- c. Commercial court
- d. Labour disputes committee (LDC)
- e. Highest management bodies of pharmaceutical service at the regional level

107. A 45-year-old man complains of wet cough. He has been suffering from chronic bronchitis for 20 years. The patient is a smoker. He needs a mucolytic agent that will facilitate expectoration and production of surfactant. What drug can be recommended to the patient in this case?

- a. Ambroxol
- b. Licorice root
- c. Potassium iodide
- d. Proteolytic enzymes
- e. Thermopsis preparations

108. A 70-year-old patient with stenocardia claims that the pharmacy had sold him a drug that relieved an attack of stenocardia but instead caused an acute bursting headache. What antihypertensive drug is this side-effect typical of?

- a. Metoprolol
- b. Amlodipine
- c. Nitrosorbid
- d. Trimetazidine
- e. Nifedipine

109. To confirm the presence of sulfat ions in the medicinal preparation of magnesium sulfate an analytical chemist of a pharmacy uses the following solutions:

- a. Benzenesulfonic acid
- b. Diphenylamine
- c. Barium chloride and hydrochloric acid
- d. Silver nitrate and nitric acid
- e. Ammonium chloride and ammonium hydrate

110. A patient with arterial hypertension has been taking a beta-blocker (bisoprolol) for a long time. After his condition improved, he suddenly stopped taking this drug, which caused a sharp increase in the blood pressure. What complication of the therapy has occurred in this case?

- a. Withdrawal syndrome
- b. Reduced sensitivity
- c. Bradycardia
- d. Bronchospasm
- e. Dysbacteriosis

111. Representatives of two pharmaceutical companies - partners from Ukraine and China - for some time had communication problems due to the use of words and verbal symbols with different meanings. What caused the deformation of the communication process and hindered the exchange of information in this case?

- a. Lack of understanding of the information's importance
- b. Psychological distance
- c. Semantic barriers
- d. Poor feedback
- e. Nonverbal barriers

112. Several cholesterol gallstones are detected in the gallbladder of a woman. Choose the drug to dissolve and excrete the stones:

- a. Ursodeoxycholic acid
- b. Platiphyllin
- c. Domperidone
- d. Loperamide
- e. Papaverine

113. Solutions of protected forms of colloids are used in medical practice. What substance is a protected colloid?

- a. Camphor
- b. Sodium chloride
- c. Potassium iodide
- d. Protargol
- e. Basic bismuth nitrate

114. During a practical session in pharmaceutical chemistry, a pharmaceutical student performs quantitative determination of caffeine substance. What method according to the State Pharmacopoeia of Ukraine should be used for this purpose?

- a. Cerimetry
- b. Acid-base titration in nonaqueous medium
- c. Complexometric titration
- d. Bromometry
- e. Permanganatometry

115. Herbal raw material quality depends on the period when it was harvested. Subterranean organs - roots, rhizomes, subterranean tubers - should be harvested:

- a. In early spring or autumn
- b. At the end of the bloom
- c. Before the bloom
- d. During the period of vegetation
- e. During the bloom

116. An analytical pharmacist quantifies the ascorbic acid substance using the iodometric method.

What indicator must be used in the process?

- a. Starch
- b. Phenolphthalein
- c. Murexide
- d. Methyl orange
- e. Bromophenol blue

117. What should be used by a dispensing chemist-analyst for identification of bismuth-containing medicinal substances?

- a. Thiourea solution
- b. Beta-naphthol solution
- c. Potassium permanganate solution
- d. Cobalt nitrate solution
- e. Iron(III) sulfate solution

118. A 43-year-old woman has come to a pharmacy with complaints of sharp headache in the occipital area, palpitations, "visual snow" in her eyes, nausea; her BP is 180/110 mm Hg. These symptoms correspond with:

- a. Hypertensic crisis
- b. Migraine attack
- c. Acute conjunctivitis
- d. Exertional angina pectoris attack
- e. Cervical osteochondrosis

119. An analytical pharmacist analyzes a chloramphenicol (levomycetin) substance and uses the specific absorption parameter value to calculate its quantitative content. What method was used for quantification in this case?

- a. Polarography
- b. Photocolorimetry
- c. Spectrophotometry
- d. Polarimetry
- e. Refractometry

120. Name the document where the actual hours worked by the pharmacy employees are recorded:

- a. Payroll
- b. Medical certificate
- c. Work schedule
- d. Material aid log book
- e. Employee time sheet

121. What is the function of anhydrous lanolin in the suppository mass used for suppositories prepared via hand rolling?

- a. Solvent
- b. Emollient
- c. Plasticizer
- d. Solubilizer
- e. Preservative

122. Various types of dryers can be used for granule dehumidification. Specify the type of "СП-30" dryer:

- a. Infrared dryer
- b. Silica gel dryer
- c. Fluidized bed dryer
- d. Freeze dryer
- e. Forced air dryer

123. Suspension stability increases, when the substances that increase the viscosity of a continuous medium are introduced to a suspension. Specify a substance that has such a property:

- a. Purified water

b. Dimexide (dimethyl sulfoxide)

c. Glycerine

d. Ethyl alcohol

e. Atropa belladonna tincture

124. Preparations of Panax roots have tonic and adaptogenic properties and improve mental and physical working ability. If there is no Panax tincture in the pharmacy, it can be substituted with preparations of:

a. Glycyrrhizae radices

b. Calami radices

c. Tormentillae radices

d. Araliae mandshuricae radices

e. Taraxaci radices

125. What is the medicine of choice for treatment of acute pyelonephritis in a woman, who is at the I trimester of her pregnancy?

a. Gentamicin

b. Norfloxacin

c. Amoxicillin

d. Co-trimoxazole

e. Ofloxacin

126. The phytochemical workshop of a factory produces extraction preparations. For what purpose are concentrated extracts used?

a. For preparation of tinctures

b. For preparation of thick extracts

c. To be used as ready-made medicines

d. For quick preparation of infusions and decoctions in pharmacy practice

e. For preparation of dry extracts

127. A woman with diabetes mellitus has injected herself with 30 units of insulin. After that she developed weakness and came to the pharmacy to ask for help. In the pharmacy she lost her consciousness and developed convulsions. What should she be given immediately?

a. Metformin

b. Insulin

c. Glibenclamid

d. Glucose

e. Butamide (Tolbutamide)

128. A doctor prescribed the drug simvastatin to the patient to correct hyperlipidemia. Why should the selected daily dose be taken once in the evening?

a. Catabolism rate of low-density lipoproteins increases

b. Risk of myopathy decreases

c. Cholesterol biosynthesis occurs mainly at night

d. Absorption of the drug increases at night

e. Receptor sensitivity to low-density lipoproteins increases

129. A doctor has asked a dispensing chemist for consultation on free dispensation of medicines.

What free drugs can the doctor prescribe to an epileptic patient for outpatient treatment?

a. Only drugs produced domestically

b. Any drugs registered for distribution in Ukraine

c. Only imported drugs

d. Only the drugs from the list of approved procurements for budget-financed healthcare facilities

e. Only vital drugs

130. To check the authenticity of Helichrysum arenarium flowers, magnesium powder and concentrated HCl were added to the extract obtained from the herbal raw material. What class of compounds is indicated in this case, if this reaction produces a red coloring?

a. Vitamins

- b. Alkaloids
- c. Polysaccharides
- d. Flavonoids**
- e. Tannins

131. What antibacterial drug is most effective against chronic gastritis associated with Helicobacter pylori infection?

- a. Ceftriaxone
- b. Levomycetin (Chloramphenicol)
- c. Clarithromycin**
- d. Lincomycin
- e. Co-trimoxazole

132. To identify cardiac glycosides there are usually three groups of color reactions being performed: for steroid nucleus, for lactonic ring, and for carbohydrate component. Specify the reaction for identification of butenolide ring:

- a. Stahl's reaction
- b. Reaction of sublimation
- c. Mayer's test
- d. Legal's test**
- e. Dragendorff's test

133. Brassica juncea seeds are the raw material for the production of drugs with a distracting and warming effect. What class of bioactive substances causes such effect of the drugs?

- a. Polysaccharides
- b. Alkaloids
- c. Fatty oil
- d. Thioglycosides**
- e. Flavonoids

134. Pharmacological properties and bioavailability of drugs is determined by their chemical structure. What medicinal substance contains simultaneously a carboxyl group and an ester group?

- a. Acetylsalicylic acid**
- b. Benzoic acid
- c. Sodium benzoate
- d. Salicylic acid
- e. Phenyl salicylate

135. A pharmacist needs to prepare eyedrops with pilocarpine hydrochloride. Specify the optimal isotonic agent in this case:

- a. Sodium nitrite
- b. Sodium chloride**
- c. Glucose
- d. Boric acid
- e. Sodium sulfate

136. A "Sunrise" pharmacy chain has changed the placement of medical products on its shelves and in the shop windows, to study what effect would this merchandising tactics have on the sales amount. What method of marketing research was used by this pharmacy chain?

- a. Experiment**
- b. Observation
- c. -
- d. Survey
- e. Panel

137. After lifting a load, a man developed sharp lumbar pain that intensifies during movements and radiates into the left leg. The patient was diagnosed with lumbosacral radiculopathy. What drug can be recommended in this case?

- a. Atropine sulfate**

- b. Enterosgel
- c. Drotaverine hydrochloride
- d. Diclofenac sodium**
- e. Cyanocobalamin

138. A domestic pharmaceutical company introduces to the market a generic drug at a significantly lower price than its imported brand name counterparts. What pricing strategy has this domestic company chosen?

- a. "Skim-the-cream" strategy
- b. Deep penetration into the market**
- c. Following the leader
- d. Tender pricing strategy
- e. -

139. Atropa belladonna grass extract is a component of compound antispasmodic drugs. Select such drug from the list:

- a. Solutan
- b. Bellasthesin**
- c. Olimetinium
- d. Herbogastrine
- e. Urolesan

140. According to the State Pharmacopoeia of Ukraine regulations, valine amino acid should be identified by means of thin-layer chromatography. To develop a chromatogram, the following reagent should be used:

- a. 2,4-Dinitrophenylhydrazine
- b. 2,4-Dinitrochlorobenzene
- c. Cyanogen bromide
- d. Ninhydrin**
- e. Concentrated ammonia

141. A 44-year-old man was diagnosed with chronic hyperacid gastritis. What pharmacological group of drugs would be the most advisable in this case?

- a. Proton pump inhibitors**
- b. Alpha-blockers
- c. Beta-blockers
- d. Glucocorticosteroids
- e. Inhibitors of protein-degrading enzymes

142. A woman with diabetes mellitus has developed hypoglycemia after insulin overdose. What measures should be taken at the first signs of hypoglycemia?

- a. Give nitroglycerine sublingually
- b. Make an insulin injection
- c. Make an intramuscular injection of caffeine
- d. Introduce 0.1% adrenaline solution subcutaneously
- e. Give the patient a sugar lump to eat and a cup of warm sweetened tea**

143. According to the State Pharmacopoeia of Ukraine quantitative content of salicylic acid is to be determined by means of:

- a. Alkalimetry**
- b. Acidimetry
- c. Complexometric titration
- d. Argentometry
- e. Nitritometric titration

144. The management of a pharmaceutical company takes into account the presence of informal groups within the organization. What is characteristic of informal groups?

- a. -
- b. Have a clear formal structure**

c. Resist changes in the organization

d. Are formed for the implementation of the manufacturing process

e. Are formed upon the request of the head of the organization

145. What is the amount of the value added tax (VAT) on the medical products sold by a pharmacy.

a. 15%

b. 10%

c. 5%

d. 7%

e. 25%

146. According to the State Pharmacopoeia of Ukraine, phthalylsulfathiazole is quantitatively determined by means of alkalimetry in non-aqueous medium. The following substance is used as a solvent in this case:

a. Benzene

b. Anhydrous acetic acid

c. Chloroform

d. Ethyl alcohol

e. Dimethyl formamide

147. A pharmaceutical company focuses on selling a diverse range of products covering different customer groups and regions. What kind of organizational structure is typical for such company?

a. Divisional

b. Functional

c. Decentralized

d. Bureaucratic

e. Centralized

148. Cross-section of the leaf of a medicinal plant shows cystoliths and stinging hairs with a multicellular base and a large cell on the apex that ends in a widened tip that breaks off. What herbal raw material has such microscopic characteristics?

a. Mentha piperita

b. Atropa belladonna

c. Capsella bursa-pastoris

d. Origanum vulgare

e. Urtica dioica

149. Optical rotation angle of substances is determined under the temperature of 20^oC, in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ($\lambda = 589,3$ nm), and is calculated with reference to a solution containing 1 g of the substance per ml. It is called:

a. Optical density

b. Relative density

c. Refractive index

d. Distribution coefficient

e. Specific optical rotation

150. A pharmaceutical warehouse received a herbal raw material that consists of "cones" with loose scales that are attached to a firm twig with or without fruits. Its collective fruits are pale green, fragrant, and bitter. Name the plant from which this herbal raw material was harvested:

a. Humulus lupulus

b. Olea europaea

c. Alnus incana

d. Juniperus communis

e. Rubus idaeus

151. Chloride of lime is identified by calcium cations after boiling with acetic acid in order to eliminate active chlorine. What reagent is used?

a. Sodium nitrite

b. Magnesium sulfate

- c. Ammonium molybdate
- d. Ammonium oxalate
- e. Potassium chloride

152. A pharmaceutical company provides its employees with free lunches. What needs does it try to satisfy according to Maslow's theory of motivation?

- a. Self-actualisation
- b. Safety and protection
- c. Esteem
- d. Social (involvement in the events)
- e. Physiological

153. Advertising is the most popular and widely used part of marketing communications system.

What cannot be included into the advertisements for medicines?

- a. General warnings about the usage of medicines and medical products
- b. Full pharmacological name of the medicine and the name of its manufacturer
- c. Recommendation to always read the instructions for the medicines
- d. Objective information about the medicines, presented in such a way that the advertising nature of the message is obvious to the consumers
- e. Claims that the effect of the medicines is guaranteed

154. Accounts receivable develop in the process of pharmaceutical company work. Specify where in the balance book they are recorded:

- a. Liabilities
- b. Debit
- c. Credit
- d. Assets
- e. Account

155. A pharmacy offers to its customers a chance to measure their blood pressure. What type of goods is it?

- a. Specialty goods
- b. Nondurable goods
- c. Convenience goods
- d. Unsought goods
- e. Service

156. Who is responsible for the acceptance of goods and medical products with accompanying incoming quality control?

- a. Pharmacy head manager
- b. Supplier pharmacist
- c. Dispensing chemist
- d. Authorized representative
- e. Analyst

157. A marketing study found that the main group of consumers of venotonics are women aged 40 to 60 years. What principle is used for market segmentation in this case?

- a. Psychographic approach
- b. Demographic approach
- c. Geographical approach
- d. -
- e. Behavioral approach

158. An analytical chemist performs collargol identification by means of ashing. Obtained residue is then dissolved in hydrochloric acid. Specify the analytical effect that is observed in this case:

- a. Blue precipitate
- b. Black precipitate
- c. Yellow precipitate
- d. White precipitate

e. Light green precipitate

159. For better coverage of various markets the Lubnyfarm company sells a portion of its production through its chain of pharmacies, another portion is being sold through distributors, and the third - through pharmacies of another owners. What marketing system of distribution is used by this company?

- a. Administered
- b. Multichannel
- c. Contractual
- d. Horizontal
- e. Corporate

160. Collective labour agreement is concluded by a trade union committee with the business owner on behalf of the workforce. Any collective agreement is worked out in written form. Which article of the Labour Code regulates the duration of the collective agreement?

- a. 40
- b. 41
- c. 38
- d. 17
- e. 36

161. A pharmacist at the extemporaneous compounding department of a pharmacy has prepared 100 mL of an infusion of Leonurus grass. What amount of the herbal raw material and purified water is necessary to prepare this infusion, if water absorption coefficient is 2.0?

- a. 0.25 g and 100 mL
- b. 10.0 g and 120 mL
- c. 20.0 g and 140 mL
- d. 10.0 g and 100 mL
- e. 5.0 g and 110 mL

162. Which of the following antibiotics can be identified by means of maltol test?

- a. Streptomycin sulfate
- b. Kanamycin monosulfate
- c. Amoxicillin
- d. Lincomycin hydrochloride
- e. Doxycycline hydrochloride

163. What is the purpose of injectablettae tablets?

- a. Sublingual use
- b. Obtaining injectable solutions
- c. Obtaining solutions for various pharmaceutical purposes
- d. Oral use
- e. Implantation

164. A pharmaceutical company produces warious medicines. Name the dosage form consisting of separate hard dry particles disintegrated to varying degree:

- a. Powders
- b. Emulsions
- c. Dried extract
- d. Tablets
- e. Suspensions

165. A patient diagnosed with acute rhinitis was using xylometazoline drops. After 7 days of treatment, the patient notes that the effect of the medicine decreased and was not restored after an increase in the dosage. What medical term characterizes a sudden decrease in the sensitivity to a medicine?

- a. Tolerance
- b. Tachyphylaxis
- c. Withdrawal syndrome

- d. Synergism
- e. Antagonism

166. The quality control analytical laboratory analyzes a medicine with sodium benzoate. What reagent will form a pink-yellow precipitate with the medicine being analyzed?

- a. Potassium permanganate solution
- b. Magnesium sulfate solution
- c. Iron(III) chloride solution
- d. Sodium bicarbonate solution
- e. Sodium nitrate solution

167. An analytical chemist conducts a thiochrome formation reaction to identify thiamine bromide. What reagent should be used in this case?

- a. Potassium bromide
- b. Potassium ferrocyanide
- c. Iron(II) sulfate
- d. Sodium hydroxide
- e. Calcium chloride

168. A pharmaceutical company lowered its price for a certain drug due to strong competition and decreasing demand for this drug. What is the purpose of such price policy?

- a. To gain leadership due to high quality of manufactured medicines
- b. -
- c. To create the image of high-quality medicine manufacturer
- d. To ensure business survival
- e. To maximize profits

169. An analytical chemist investigates a 3% hydrogen solution. What reagent is recommended by the State Pharmacopoeia of Ukraine for identification of this substance?

- a. Magnesium sulfate
- b. Calcium chloride
- c. Potassium chromate
- d. Sodium chloride
- e. Zinc oxide

170. What side effect is observed in cases of long-term use of digoxin?

- a. Hypotension
- b. Hypertension
- c. Constipation
- d. Hypokalemia
- e. Bradycardia

171. Tell the patient, what side effect is associated with systemic glucocorticosteroid therapy.

- a. Hypoglycemia
- b. Hypotension
- c. Jaundice
- d. Constipation
- e. Osteoporosis

172. Who determines the amount of cash that may remain in the cash register at the end of a workday?

- a. A revenue and duties authority
- b. A statistics authority
- c. The company itself
- d. The National Bank of Ukraine
- e. The Ministry of Finance

173. Proper harvesting of *Frangula alnus* herbal raw material greatly influences the quality and quantity of its active substances. Therefore the optimal time for buckthorn bark harvesting is the

period of:

- a. Defoliation
- b. Sap flow
- c. Flowering
- d. Dormancy
- e. Fruiting

174. A pharmacist needs to make a 5% sodium bicarbonate solution for injections. What is the optimum temperature for sodium bicarbonate dissolution that allows avoiding its forceful stirring?

- a. 45-55^oC
- b. 15-20^oC
- c. 30-45^oC
- d. 25-35^oC
- e. 80-100^oC

175. Tussilago farfara leaves are a component of drugs that exhibit coating, expectorant, and softening effect. What class of bioactive substances determines such pharmacological characteristics of this raw material?

- a. Vitamins
- b. Phenolic glycosides
- c. Polysaccharides
- d. Saponins
- e. Essential oils

176. A 58-year-old patient with persistent bronchial asthma receives long-term inhalation therapy. Within a week, symptoms of candidiasis appeared in her oral cavity. What medicines could have caused this side effect?

- a. Inhaled glucocorticosteroids
- b. Inhaled beta₂-adrenergic agonists
- c. Inhaled muscarinic antagonists
- d. Herbal antiseptics
- e. Mucolytics

177. One of the most important market characteristics is a goods economic trend. What economic trend can be characterized by relative stability of high prices and the highest activity of manufacturers and customers?

- a. Downward
- b. Low
- c. Sluggish
- d. High (stable)
- e. Subsiding

178. A pharmacist prepares an oil emulsion with menthol. How should menthol be introduced in this case?

- a. Menthol should be dissolved in the purified water
- b. Menthol should be comminuted in a mortar with ethanol
- c. Menthol should be dissolved in oil
- d. Menthol should be comminuted with the emulsifier
- e. Menthol should be introduced as a suspension into the prepared emulsion

179. Senna leaves decoction is being prepared in a pharmacy. The following is characteristic of the process of making an aqueous infusion of senna leaves:

- a. Infusion is made by means of cold maceration
- b. Infusion is made in a slightly alkaline medium
- c. Decoction is made and filtered immediately without cooling
- d. Decoction is made and filtered after complete cooling
- e. Infusion is made and acidated with hydrochloric acid

180. A 53-year-old woman suffers from ischemic heart disease and angina pectoris. What drug can be

used to stop angina pectoris attacks?

- a. Nitroglycerine
- b. Dipiridamol
- c. Drotaverine hydrochloride
- d. Acetylsalicylic acid
- e. Propranolol

181. The <>Violet<> pharmacy chain operates in the pharmaceutical market for over 20 years. In difficult market environment, the company's management actively uses elements of crisis management, diversification, and attraction of investments. What component of the successful activity of the pharmaceutical organization does the company provide?

- a. Survival
- b. Effectiveness
- c. Productivity
- d. Efficiency
- e. Practical implementation of management decisions

182. During identification these active substances form precipitates in gelatin and alkaloid solutions and produce precipitates with heavy metal salts. These active substances are:

- a. Lipids
- b. Tannins
- c. Carbohydrates
- d. Glycosides
- e. Iridoids

183. What drug, due to beta-lactam ring in its structure, has positive reaction with hydroxylamine hydrochloride solution in the presence of sodium hydroxide with subsequent addition of iron (III) chloride solution?

- a. Metronidazole
- b. Papaverine hydrochloride
- c. Amoxicillin trihydrate
- d. Phenazone
- e. Dibazol (Bendazol)

184. A pharmacist has prepared an ascorbic acid solution for injections. What stabilizer was used in this case?

- a. 0.1 M solution of sodium hydroxide
- b. Weibel stabilizer
- c. Sodium sulfite
- d. 0.1 M solution of hydrochloric acid
- e. Boric acid

185. Which of the following diuretics SHOULD NOT be given to the patients with impaired hearing?

- a. Chlorthalidone
- b. Indapamide
- c. Furosemide
- d. Spironolactone
- e. Clopamide

186. At the phytochemical workshop, percolation method is used to produce Crataegus tincture. What percolation rate is necessary for this purpose?

- a. 1/24 or 1/48 part of the percolator's working volume per hour
- b. 1/20 of the percolator's volume per hour
- c. 1/40 of the percolator's volume per hour
- d. 1/10 of the percolator's volume per 20 minutes
- e. 1/30 of the percolator's volume per 30 minutes

187. At what cost will protargol nasal drops be dispensed at a pharmacy if a pediatrician prescribes it

for treatment of a 2-year-old child?

- a. With 50% discount
- b. At full cost
- c. With 30% discount
- d. With 70% discount
- e. Free of charge

188. Why are leavening agents introduced into the tablet mass?

- a. Improvement of the granulation process
- b. Ensuring rapid mechanical destruction of the tablets in a liquid medium
- c. Making it easier to push the tablets out of the matrix
- d. Taste improvement
- e. Obtaining tablets of the required weight

189. A pharmaceutical company develops the manufacture of new products. What part of the production procedures contains the description of the end product and lists its physical and chemical properties?

- a. Characteristics of the auxiliary raw stock and materials
- b. Description of the manufacturing process
- c. Characteristics of the raw stock, materials, and intermediate products
- d. Information materials
- e. Characteristics of the end product

190. A patient, who has been taking an expectorant, has developed complaints of hypersalivation, rhinitis, and itching skin rashes (signs of iodism). What medicine can cause these side effects?

- a. Infusion of Thermopsis grass
- b. Potassium iodide
- c. Ambroxol syrup
- d. Mucaltin
- e. Ammonium chloride

191. An analytical pharmacist analyzes a cefazolin sodium substance. What solution is used for identification of sodium ions?

- a. Sodium nitrite solution
- b. Barium chloride solution
- c. Potassium pyroantimonate solution
- d. Magnesium sulfate solution
- e. Ammonium oxalate solution

192. According to the State Pharmacopoeia of Ukraine, the herbal raw material used in production of plantaglucide should be tested by means of thin-layer chromatography. The resulting chromatogram will have a weak blue zone, which will indicate the presence of:

- a. Acteoside
- b. Acorone
- c. Azulene
- d. Aucubin
- e. Atropine

193. What reagent can confirm that alanine is an alpha-amino acid?

- a. Barium hydroxide solution
- b. Ninhydrin solution
- c. Saturated sodium bicarbonate solution
- d. Sulfuric acid solution
- e. Sulfosalicylic acid solution

194. A patient complaining of stuffy nose, fatigability, and headache came to a dispensing chemist. What medicine should be recommended to treat stuffy nose in this case?

- a. Dexamethasone
- b. Acyclovir

- c. Paracetamol
- d. Lactulose
- e. Xylometazoline

195. Production of tablets requires stage-to-stage quality control. What devices are used to determine the particle size distribution (fraction) of granules?

- a. Standard set of sieves
- b. Laboratory identifiers
- c. Microscope
- d. Friabilators
- e. Various vibrosieves

196. One of the numerical parameters of herbal raw material quality is the amount of extractive substances that can be measured using:

- a. Titrimetry
- b. Chromatography
- c. Gravimetry
- d. Biological standardization
- e. Spectrophotometry

197. Injection solutions are being produced in an ampoule workshop. Injection solution of ascorbic acid belongs to the following group of solutions:

- a. Solutions of the substances that need special purification
- b. Solutions of the salts formed by weak bases and strong acids
- c. Solutions of the salts formed by strong bases and weak acids
- d. Easily oxidized solutions
- e. Solutions of the substances that cannot be thermally sterilized

198. What department of a pharmaceutical wholesaler analyzes the demand for medicines and implements measures to stimulate their sales?

- a. Marketing
- b. Automated accounting
- c. Procurement
- d. Transport
- e. Storage

199. To check the identity of a herbal raw material, several drops of an alcoholic solution of alpha-naphthol and concentrated sulfuric acid were applied to the root section of *Cichorium intybus* L.. It resulted in pink-violet coloring that indicates the presence of the following in the herbal raw material:

- a. Slime
- b. Fatty oils
- c. Essential oils
- d. Pectin
- e. Inulin

200. Local anesthetic benzocaine can be identified using the reaction of iron(III) hydroxamate formation. What functional group makes it possible to conduct this reaction?

- a. Carboxylic group
- b. Ketone group
- c. Sulfamide group
- d. Esther group
- e. Aldehyde group