

# Sample test questions

## **Krok 2** *Pharmacy*



1. To improve iodine solubility in the purified water, iodine must be:
  - A. Dissolved in the saturated solution of potassium iodide
  - B. Dissolved in the boiling water
  - C. Reduced to fine powder
  - D. Dispersed with glycerine
  - E. Comminuted with alcohol
2. What type of moisture remains after the herbal raw material is dried?
  - A. Residual
  - B. Free
  - C. External
  - D. Osmotic
  - E. Equilibrium
3. A pharmaceutical company produces a medicine under the brand name "Corglyconum". What herbal raw material is used in preparation of this drug?
  - A. Lily-of-the-valley grass
  - B. Wormwood grass
  - C. Dandelion roots
  - D. Plantain leaves
  - E. Buckthorn bark
4. The phytochemical department of a pharmaceutical manufacture produces maximally purified extracts. In the process, specific methods are used for the extract purification. Which description corresponds with the dialysis method?
  - A. The characteristic of biopolymer molecules that does not allow them to pass through semi-permeable membranes
  - B. The process of extraction from one liquid using another liquid
  - C. The process of heating the extract
  - D. The process of electrolyte action
  - E. The process of gas absorption
5. A pharmacist prepares a vaseline-based ointment. The base was heated to  $40^{\circ}\text{C}$ . What substance was introduced into the heated base?
  - A. Camphor
  - B. Anesthesin
  - C. Benzoic acid
  - D. Streptocide
  - E. Vinilin (polyvinyl butyl ether)
6. To prepare an ointment, a pharmacist has additionally used paraffin. What is the role of paraffin in the technology?
  - A. Densifier
  - B. Vehicle
  - C. Preservative
  - D. Dispersing agent for powders
  - E. Emulsifier
7. To measure out a small amount of liquid, a stactometer is used. How many drops are there in 1 mL of purified water, if we are to use a standard stactometer?
  - A. 20
  - B. 50
  - C. 30
  - D. 40
  - E. 10
8. A patient measures out a necessary dose of a mixture, using a tablespoon. How many milliliters of liquid does one tablespoon contain?
  - A. 15
  - B. 25
  - C. 10
  - D. 20
  - E. 5
9. A certain type of herbal raw material is being collected in spring during the sap flow. Specify this material:
  - A. Bark
  - B. Flowers
  - C. Buds
  - D. Roots
  - E. Infructescences
10. A pharmacist prepares powders with riboflavin. How should riboflavin be introduced into the powder mixture?
  - A. "Three layers" method
  - B. Riboflavin powder should be sifted in advance
  - C. Mix the components in the ascending order based on their amount
  - D. Mix the components in the descending order based on their amount
  - E. Riboflavin should be added on the top of the prepared mixture of other ingredients
11. In the process of packing and transporting, herbal raw material often becomes partially comminuted or even powdered. Excessive comminution has negative effect on the herbal raw material appearance and its quality. What tool is used to separate these excessively comminuted particles from the rest of the herbal raw material?
  - A. Sieve
  - B. Filter
  - C. Tweezers
  - D. Mortars
  - E. Scalpel
12. Optical rotation angle of substances is determined under the temperature of  $20^{\circ}\text{C}$ , in 1-decimeter-thick layer, with the 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. Specific optical rotation
- B. Optical density
- C. Refractive index
- D. Relative density
- E. Distribution coefficient

13. A pharmacy has received from its supplier a shipment of drugs that are included into the National Essential Drugs List. What is the pricing policy regarding these drugs?

- A. Regulated price
- B. Unregulated price
- C. Fixed price
- D. Negotiated price
- E. Indicative price

14. 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 in autumn
- B. During the whole period of vegetation
- C. Before the bloom
- D. During the bloom
- E. At the end of the bloom

15. An analytical chemist performs the qualitative assessment of mercury(II) chloride. What method is recommended by the State Pharmacopoeia of Ukraine for quantitative determination in this case?

- A. Complexometric titration
- B. Nitritometry
- C. Bromometry
- D. Alkalimetry
- E. Acidimetry

16. Benzoic acid is known to have antiseptic properties. To identify this acid the following should be used:

- A.  $FeCl_3$
- B.  $[NH_4]_2C_2O_4$
- C.  $K_2[HgI_4]$
- D.  $K_2CrO_4$
- E.  $KMnO_4$

17. What technology should be chosen by a pharmacist to make a liquid dosage form, if it contains calcium gluconate?

- A. Dissolve it in hot solvent or heat it up to full dissolution
- B. First grind it into powder when it is dry or grind it with a small amount of solvent added
- C. Dissolve in the water free of redox substances
- D. Add equal amount of sodium chloride
- E. Dissolve in an alkaline medium

18. Name the main indicator that differentiates water for injection from purified water:

- A. Apyrogenicity
- B. pH value
- C. Absence of mechanical inclusions
- D. Absence of heavy metals
- E. The way in which it was obtained

19. To retain full control over its trade operations on the regional market, the "Fitoprom" pharmaceutical company conducts its marketing policy without any intermediate parties. Name the marketing practice that excludes the middleman:

- A. Direct
- B. Combined
- C. Mixed
- D. Mediated
- E. Indirect

20. A pharmacy warehouse has received a shipment of drugs. During quality control by an authorized person, there were some drugs of questionable quality detected. What measures should be taken by the authorized person in this case?

- A. Samples of questionable drugs should be sent to the local inspectorate department, while the rest of the drug shipment should be quarantined with the marking "Do not sell until further notice"
- B. Allow the sale of the drug shipment
- C. Return the shipment to the manufacturer
- D. Draw up a Quality Assessment Report with the defects listed and allow the sale of the drug shipment
- E. Dispose of the shipment that contains questionable drugs

21. Aqueous lanolin consists of:

- A. 70 parts of anhydrous lanolin and 30 parts of water
- B. 90 parts of anhydrous lanolin and 10 parts of water
- C. 80 parts of anhydrous lanolin and 20 parts of water
- D. 50 parts of anhydrous lanolin and 50 parts of water
- E. 5 parts of anhydrous lanolin and 95 parts of water

22. Specify the fluid used to coat the forms for pouring of the suppositories with hydrophilic vehicles:

- A. Vaseline (petroleum jelly)
- B. Glycerine
- C. Purified water
- D. Glycerine-water solution
- E. Dimethylsulfoxide

23. Specify the isotonic concentration of a sodium chloride solution:

- A. 0.9%
- B. 10.0%
- C. 5.0%
- D. 1.8%
- E. 1.0%

24. Several independent intermediaries work in resale of medical equipment. What group of intermediaries includes persons and companies that specialize in sales of durable goods that require considerable after-sales service?

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

25. Specify a potent herbal raw material, infusion from which is made in 1:400 ratio:

- A. Foxglove leaves
- B. Valerian roots and rhizomes
- C. Althaea roots
- D. Motherwort grass
- E. Sage leaves

26. 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. Potassium iodide
- B. Infusion of *Thermopsis* grass
- C. Ammonium chloride
- D. Ambroxol syrup
- E. Mucaltin

27. What medicinal plant has anti-inflammatory and expectorant properties due to its content of triterpene saponins?

- A. *Glycyrrhiza glabra*
- B. *Aralia mandshurica*
- C. *Orthosiphon stamineus*
- D. *Panax ginseng*
- E. *Astragalus dasyanthus*

28. Identification of organic medicinal substances requires the analysis of their functional groups. To identify medicinal

substances that are benzoates, an analytical chemist should use:

- A. Iron(III) chloride solution
- B. Sodium bicarbonate solution
- C. Potassium hydroxide solution
- D. Ammonium chloride solution
- E. Sodium acetate solution

29. What should be used by an analytical chemist in the pharmacopoeial analysis of medicinal substances that contain iron(III)?

- A. Potassium thiocyanate solution
- B. Potassium permanganate solution
- C. Ammonia solution
- D. Ammonium chloride solution
- E. Sodium nitrite solution

30. 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. *Vaccinium myrtillus*
- C. *Ribes nigrum*
- D. *Schisandra chinensis*
- E. *Rhamnus cathartica*

31. What drug should be used first in case of anaphylactic shock?

- A. Prednisolone
- B. Loratadine
- C. Dibazol (Bendazol)
- D. Euphyllin (Aminophylline)
- E. Fexofenadine

32. A 25-year-old man is diagnosed with acute pyelonephritis of moderate severity. What drugs should be prescribed for etiotropic therapy?

- A. Antimicrobial agents
- B. Glucocorticoids
- C. Nonsteroidal anti-inflammatory drugs
- D. Anticholinesterase drugs
- E. Antiarrhythmic drugs

33. The chemical name of 2-benzylbenzimidazole hydrochloride corresponds with the following medicinal substance:

- A. Dibazol (Bendazol)
- B. Omeprazole
- C. Indometacin
- D. Phenazepam
- E. Vicasol (Menadione)

34. Select from the list a medical substance that is an indole derivative:

- A. Indometacin
- B. Dibazol (Bendazol)
- C. Glaucine hydrochloride
- D. Isoniazid
- E. Diazepam

35. The marketing department of the "Aphrodite" company that specializes in production of anti-aging cosmetics has divided the customers into groups, based on their age. What principle of segmentation is the basis for this customer classification?

- A. Demographic
- B. Geographical
- C. Social and economic
- D. Psychographic
- E. Behavioral

36. What pharmaceutical factor contributes to the therapeutic activity of active substances?

- A. Adjuvants
- B. Material losses suffered in the course of manufacturing
- C. Drug dosing equipment
- D. Compliance with GMP regulations
- E. WHO directives

37. Because of a power outage, the cash register in a pharmacy has stopped working. What should be used to perform transactions, while the cash register remains inoperable?

- A. Transactions log book
- B. Cash deposit and cash withdrawal receipts
- C. Invoices
- D. Payroll records
- E. Payment orders

38. A pharmaceutical factory produces medicinal syrups. What substances ensure microbial stability of this dosage form?

- A. Preservatives
- B. Thickeners
- C. Solubilizers
- D. Emulsifiers
- E. Pectic substances

39. An alkaloid drug has the chemical name of 1,3,7-Trimethyl-3,7-dihydro-1H-purine-2,6-dione. Name this substance:

- A. Caffeine
- B. Phenazone
- C. Chloramphenicol
- D. Norfloxacin
- E. Ampicillin

40. An analytical chemist determines potassium ions admixture in a medicinal substance with sodium tetraphenylborate according to the State Pharmacopoeia

of Ukraine. What analytical effect would confirm the presence of this admixture?

- A. White opalescence
- B. Yellow coloring
- C. Blue coloring
- D. Pink coloring
- E. Brown coloring

41. The dispensing chemist of a pharmacy has prepared 5 formulations. Which one of them requires total chemical control?

- A. Atropine sulfate eyedrops
- B. Kvater's mixture
- C. Baby powder
- D. Streptocide (sulfanilamide) ointment
- E. Riboflavin-containing powders

42. The reaction of glucose identification produces red precipitate with the following reagent:

- A. Copper-tartrate
- B. Thiocyanogen bromide
- C. Ammoniacal silver nitrate solution
- D. Alkaline potassium tetraiodomercurate solution
- E. Sodium nitroprusside solution

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

- A. Menthol should be dissolved in oil
- B. Menthol should be comminuted in a mortar with ethanol
- C. Menthol should be dissolved in the purified water
- D. Menthol should be comminuted with the emulsifier
- E. Menthol should be introduced as a suspension into the prepared emulsion

44. 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. Doxycycline
- B. Acetylcysteine
- C. Codeine phosphate
- D. Ascorbic acid
- E. Ambroxol

45. A woman with chronic bronchitis was prescribed azithromycin. After a time, she developed complaints of abdominal pain and distension, diarrhea, nausea, and vomiting. What side effect is observed in this patient?

- A. Dysbiosis
- B. Allergic response
- C. Photosensitization
- D. Nephrotoxicity
- E. Chondrotoxicity

46. The Financial Report of a pharmacy for the first quarter of 20XX contains the following entries: goods turnover - 45 000 UAH, production cost of products sold - 30 000 UAH, turnover costs - 10 000 UAH. Determine the income:

- A. 5 000 UAH
- B. 30 000 UAH
- C. 40 000 UAH
- D. 15 000 UAH
- E. 35 000 UAH

47. In his line of work a dispensing chemist tries to satisfy a number of contradictory requirements, which has resulted in an emotional overload, stress, and self-doubt. What type of conflict has arisen in this case?

- A. Intrapersonal
- B. Individual vs. group
- C. Interorganizational
- D. Intergroup
- E. -

48. 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. Inhibitors of protein-degrading enzymes
- C. Beta-blockers
- D. Alpha-blockers
- E. Glucocorticosteroids

49. A pharmaceutical company produces galenic preparations. These preparations contain:

- A. A sum of active substances
- B. Only one active substance
- C. Preservatives
- D. Smell-correcting agents
- E. Taste-correcting agents

50. A pharmacy has received a prescription for a colloidal solution. Specify this solution:

- A. Collargol solution
- B. Sodium chloride solution
- C. Nonaqueous solution
- D. 5% glucose solution
- E. Burow's solution

51. To increase the tone and specific rhythmic activity of the uterus, a certain ergot alkaloids-based herbal drug is used. Name this drug:

- A. Ergotamine hydrotartrate
- B. Papaverine hydrochloride
- C. Codeine phosphate
- D. Atropine sulfate
- E. Morphine hydrochloride

52. A 46-year-old man came to a dispensing chemist complaining of a dry cough. What antitussive drug can he be recommended?

- A. Oxeladin
- B. Tripsin
- C. Acetylcysteine
- D. Bromhexine
- E. Sodium bicarbonate

53. To ensure the quality of medicines, the pharmacy pays special attention to the quality control. The following document is the quality assurance of a drug:

- A. Quality certificate
- B. Registration certificate
- C. Certificate of compliance with hygiene regulations
- D. Sanitary-epidemiological certificate
- E. Sanitary passport

54. Essential oil of a certain plant contains up to 80% of cineole. Specify the herbal raw material that is harvested from this plant:

- A. *Folia Eucalypti*
- B. *Folia Betulae*
- C. *Folia Menthae piperitae*
- D. *Folia Melissa*
- E. *Folia Absinthii*

55. An expert from an analytical quality control laboratory performs the quantitative determination of chlorpromazine in the tablets, according to the State Pharmacopoeia of Ukraine. The expert uses the method of ultraviolet spectrophotometry and measures the following with the spectrophotometer:

- A. Optical density
- B. Refractive index
- C. Solution pH
- D. Angle of rotation
- E. Viscosity

56. According to the State Pharmacopoeia of Ukraine monograph, alkalimetry should be used for the quantitative determination of the nicotinic acid. What is used as an indicator in this case?

- A. Phenolphthalein
- B. Potassium chromate
- C. Methylene blue
- D. Sodium eosinate
- E. Calconcarbonic acid

**57.** Analysis of sales volume of a certain drug shows that the drug is being manufactured in large batches and sales volume grows. However, the growth rate gradually slows down and the number of competitors increases. What stage of product life cycle is it?

- A. Maturity
- B. Development
- C. Introduction
- D. Growth
- E. Decline

**58.** A patient with exertional angina pectoris had been taking isosorbide mononitrate orally for 2 months, when this drug lost its effectiveness. What is the likely cause of isosorbide mononitrate being no longer effective in this case?

- A. Tolerance
- B. Cumulation
- C. Sensitization
- D. Psychological dependence
- E. Physical dependence

**59.** A sum of properties that make the medicines capable of meeting the needs of the consumers, when used as intended, is called:

- A. Quality
- B. Trade dress
- C. Appearance
- D. Marking
- E. Pharmacological action

**60.** A patient, who is undergoing treatment for ischemic heart disease, after physical exertion felt an acute pain in the cardiac area. What drug can be prescribed in this case for quick relief of the pain syndrome?

- A. Nitroglycerine
- B. Captopril
- C. Prazosin
- D. Corglycon (convallatoxin)
- E. Enalapril

**61.** A 24-year-old patient after a thorough examination was diagnosed with type 1 diabetes mellitus for the first time. What antihyperglycemic agent should be prescribed in this case?

- A. Insulin
- B. Metformin
- C. Glibenclamide
- D. Etacrynic acid
- E. Urea

**62.** A patient was diagnosed with peptic ulcer disease of the stomach and prescribed a combined pharmacotherapy. Several days later, his feces turned black. What medicine

is likely to cause this phenomenon?

- A. Bismuth subcitrate
- B. Omeprazole
- C. Lansoprazole
- D. Famotidine
- E. Ranitidine

**63.** A woman with open tuberculosis is undergoing in-patient treatment in the tuberculosis clinic. What drug was prescribed by her physician for etiotropic treatment?

- A. Isoniazid
- B. Acyclovir
- C. Metronidazole
- D. Doxycycline hydrochloride
- E. Benzylpenicillin (Penicillin G)

**64.** The phytochemical workshop of a factory produces liquid extracts. What extractants are used in the manufacturing process?

- A. Aqueous-alcoholic solutions
- B. Chloroform
- C. Ammonia solution
- D. Dichloroethane
- E. Water

**65.** The head manager of a pharmacy has determined the salary of a dispensing chemist for the work performed according to the labor norms. What type of payment is it?

- A. Base salary
- B. Additional salary
- C. Reimbursement
- D. Incentive pay
- E. Pension benefit

**66.** A patient with iron-deficiency anemia was prescribed iron sulfate. What side effect is characteristic of iron preparations?

- A. Constipation
- B. Dysbiosis
- C. Elevated blood pressure
- D. Osteoporosis
- E. Bradycardia

**67.** When obtaining individual substances, the choice of an extractant is determined mainly by its:

- A. Selectivity toward active substances
- B. Cost
- C. Pharmacological inertness
- D. Thermostability
- E. Anti-hydrolysis effect

**68.** Due to the fact that most animal-derived injection preparations are thermolabile, they are sterilized by means of:

- A.** Filtration through a membrane
- B.** Addition of buffer solutions
- C.** High frequency current
- D.** In autoclave chamber with high-pressure steam
- E.** Ultrasound

**69.** Alkaloids are used in medical practice for treatment of various diseases. Based on its chemical composition, the following substance can be classified as a quinolizidine alkaloid:

- A.** Pachycarpine hydroiodide
- B.** Scopolamine hydrobromide
- C.** Caffeine monohydrate
- D.** Quinine sulfate
- E.** Codeine phosphate

**70.** 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

**71.** A patient receives heparin for acute myocardial infarction. On the third day the patient developed hematuria and subcutaneous hematomas. What medicine should be prescribed as an antidote in this case?

- A.** Protamine sulfate
- B.** Vicasol (Menadione)
- C.** Streptokinase
- D.** Clopidogrel
- E.** Acetylsalicylic acid

**72.** An accountable person has received a sum of money from the pharmacy cash desk to buy a calculator. What document records the cash flow in such a transaction?

- A.** Cash withdrawal order
- B.** Cash deposit order
- C.** Invoice
- D.** Note
- E.** Remains unregistered documentarily

**73.** A pharmaceutical factory produces ointments. Name the stage of the manufacturing process that allows to obtain a uniform ointment:

- A.** Homogenization
- B.** Vehicle production
- C.** Dispersion
- D.** Mixing components with the vehicle
- E.** Ointment concentrate production

**74.** Where on the shop floor of a pharmacy should various nutritional supplements and health food be placed?

- A.** On separate shelves and in separate shopwindows
- B.** By their pharmacotherapy group
- C.** By their route of administration
- D.** Alongside medicines
- E.** By their Anatomical Therapeutic Chemical Classification

**75.** Based on the results of marketing research, the head of a pharmaceutical company and a team of marketologists have decided to take measures toward improvement of the competitive ability of the company's medical products. This kind of decision can be characterized as:

- A.** Collegial
- B.** Intuitive
- C.** Autocratic
- D.** Personal
- E.** -

**76.** A woman suddenly developed an angina pectoris attack. To arrest the attack, she took a medicine that caused her a severe headache, facial hyperemia, and tachycardia. Such side effects are characteristic of the following group of drugs:

- A.** Nitrates
- B.** Antispasmodics
- C.** Beta-adrenergic antagonists
- D.** Calcium channel blockers
- E.** Alpha-adrenergic agonists

**77.** A 60-year-old man has come to a pharmacy with complaints of impaired twilight vision, dry sclerae, cracked and peeling skin. The dispensing chemist suspected hypovitaminosis and recommended the customer to take the following drug after a consultation with the physician:

- A.** Retinol acetate
- B.** Tocopherol acetate
- C.** Ergocalciferol
- D.** Vicasol (Menadione)
- E.** Ascorbic acid

**78.** A new medicine has appeared on the Ukrainian pharmaceutical market. It is characterized by low sales, low profits, and large marketing expenses for advertising. What stage of the product life cycle is it?



- A. Introduction
- B. Growth
- C. Maturity
- D. Saturation
- E. Decline

79. A pharmaceutical warehouse has received a batch of herbal raw material - hawthorn flowers. Merchandise analysis revealed in one of the sacks a significant amount of bird-cherry flowers besides the hawthorn flowers. What parameter of the raw material quality should be determined?

- A. Acceptable admixtures
- B. Mineral admixtures
- C. Moisture content
- D. Ash values (Total ash)
- E. Extractive values

80. The chief manager of a pharmacy designs its organizational structure and draws up job descriptions for its employees. These arrangements correspond with the following management method:

- A. Organizational
- B. Economic
- C. Legal
- D. Simulation
- E. Psychosocial

81. A pharmacy supplies the surgical ward of a hospital. What document enables the dispensing chemist to supply the goods:

- A. Purchase order
- B. Product revaluation notice
- C. Report on the movement of packaging
- D. Consolidated register
- E. Receipt accounting log book

82. In the process of price formation, a pharmaceutical company takes into account both internal and external factors. What factor is an external one?

- A. State regulation of price formation
- B. Manufacturing costs
- C. Marketing goals of the company
- D. The stage of the product life cycle
- E. Marketing strategy of the company

83. If the vehicle is not specified, an eye ointment should be prepared with the following sterile vehicle:

- A. 10 parts of anhydrous lanolin - 90 parts of vaseline *For Eye Ointments*
- B. Vaseline *For Eye Ointments*
- C. 40 parts of anhydrous lanolin - 60 parts of vaseline *For Eye Ointments*
- D. 30 parts of lanolin - 70 parts of vaseline
- E. Lanolin: vaseline - 1:1

84. What activity of a pharmaceutical company includes improvement of employees' working and living conditions, healthcare and medical insurance, and other means of social development?

- A. Social responsibility
- B. Commercial activity
- C. Financial activity
- D. Manufacturing activity
- E. Charity

85. A patient with heart failure has developed an electrolyte imbalance against the background of diuretic treatment with furosemide. What imbalance has the patient developed?

- A. Hypokalemia
- B. Hyperkalemia
- C. Hyponatremia
- D. Hypermagnesemia
- E. Hypocalcemia

86. An analytical quality control laboratory needs to analyze streptomycin powder for injections. To identify it according to the State Pharmacopoeia of Ukraine, sodium hydroxide is added into the dissolved powder, the resulting substance is heated, and then iron(III) chloride solution is added, which results in violet coloring. This test is known as:

- A. Maltol test
- B. Ninhydrin test
- C. Vitali-Morin reaction
- D. Biuret test
- E. Thiochrome test

87. A patient with chronic heart failure, who has been taking cardiac glycosides, developed the signs of glycoside intoxication. What antidote would be advisable in this case?

- A. Unithiol (2,3-Dimercapto-1-propanesulfonic acid)
- B. Vicasol (Menadione)
- C. Protamine
- D. Naloxone
- E. Methionine

88. What effect will anthracene derivatives have, if -OH- groups are located in both benzene rings of anthraquinone?

- A. Laxative
- B. Diuretic
- C. Litholytic
- D. Sedative
- E. Choleric

89. Polyethylene oxide base belongs to the following group:

- A. Hydrophilic
- B. Hydrophobic
- C. Amphiphilic
- D. Emulsion
- E. Fatty

90. How many mL of nitrofurazone (furacilin) is it necessary to measure out for preparation of 250 mL of nitrofurazone solution (1:5000)?

- A. 0.05
- B. 0.5
- C. 5.0
- D. 0.025
- E. 0.25

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

- A. Employee time sheet
- B. Medical certificate
- C. Material aid log book
- D. Payroll
- E. Work schedule

92. After mineralization of bromocamphor with zinc dust, bromide-ions can be detected in the filtrate in the presence of  $CHCl_3$  by performing a reaction with:

- A. Chloramine
- B. Chloromethane
- C. Chloral hydrate
- D. Sodium chloride
- E. Acetyl chloride

93. The preparations of *Silybum marianum*, "Silibor" and "Carsil" have hepatoprotective action. What parts of *Silybum marianum* are the herbal raw material from which these medicines are being made?

- A. Seeds
- B. Roots
- C. Grass
- D. Leaves
- E. Flowers

94. 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. *Urtica dioica*
- B. *Capsella bursa-pastoris*
- C. *Atropa belladonna*
- D. *Origanum vulgare*
- E. *Mentha piperita*

95. A herbal raw material was sent for analysis: rounded cordate leaves with

incised margins that are irregularly, coarsely, and finely toothed; the upper leaf surface is naked, while its lower surface is covered in white down. Leaf petioles are thin, with a groove on the upper part, often downy. Leaf blade length is usually 8-15 cm, a petiole is approximately 5 cm long. The upper leaf surface is green, while the lower leaf surface is whitish-gray. No odor. The taste is slightly bitter with a slimy texture. What herbal raw material is it?

- A. *Folia Farfarae*
- B. *Folia Uvae-ursi*
- C. *Folia Urticae*
- D. *Folia Menthae*
- E. *Folia Eucalypti*

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

- A. Physiological
- B. Safety and protection
- C. Social (involvement in the events)
- D. Esteem
- E. Self-actualisation

97. Employees of a pharmaceutical company have formed a group consisting of cycle sport fans. Such group is called:

- A. Informal
- B. Formal
- C. Manufacturing
- D. Commercial
- E. Committee

98. A marketing consultancy was comparing various drugs containing salbutamol. It was using such parameters as the cost of a treatment course, width of a distribution channel, frequency of medications, etc. The consultancy was determining the:

- A. Competitiveness of the drugs
- B. Quality of the drugs
- C. Novelty of the drugs
- D. Life cycle stage of the drugs
- E. Market stability

99. 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.** Inulin
- B.** Pectin
- C.** Slime
- D.** Essential oils
- E.** Fatty oils

**100.** What method is used to prepare a suspension with basic bismuth nitrate?

- A.** Dispersion with turbidization
- B.** Physical condensation
- C.** Chemical condensation
- D.** Solvent substitution
- E.** Continental method

**101.** A pharmaceutical company produces sterile aqueous solutions for eye rinsing and moisturizing, as well as for impregnation of the materials that are applied to the eyes topically. Name these solutions:

- A.** Eye lotions
- B.** Eye ointments
- C.** Eye drops
- D.** Eye inserts
- E.** Eye sprays

**102.** During visual inspection of a product, the authorized person developed doubts about the quality of the received medicines. What should the authorized person do, to initiate the laboratory testing of the medicine quality?

- A.** Send the medicines to a local laboratory of the State Drugs and Medications Control Service
- B.** Send the medicines to the Ministry of Health of Ukraine
- C.** Send the medicines back to the supplier
- D.** Send the medicines back to the manufacturer
- E.** Send the medicines to the nearest compounding pharmacy that employs a dispensing chemist

**103.** During identification of a medicinal substance, a chloroform layer colors yellow-orange after addition of a solution of chloramine and hydrochloric acid. Name this substance:

- A.** Sodium bromide
- B.** Potassium iodide
- C.** Sodium chloride
- D.** Sodium fluoride
- E.** Potassium fluoride

**104.** What medicinal substance during interaction with a silver nitrate solution forms a white precipitate that quickly colors yellowish and then turns black?

- A.** Sodium thiosulfate
- B.** Hydrogen peroxide
- C.** Sodium bromide
- D.** Sodium chloride
- E.** Sodium iodide

**105.** 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.** Phenyl salicylate
- C.** Salicylic acid
- D.** Benzoic acid
- E.** Sodium benzoate

**106.** The head manager of a pharmacy uses influence methods that concern property and financial interests of the employees. What management methods are used by the head manager?

- A.** Economic
- B.** Social and psychological
- C.** Technological
- D.** Social and political
- E.** Administrative

**107.** A pharmacist has prepared an injection solution of ascorbic acid. What substance is necessary for solution stabilization in this case?

- A.** Sodium sulfite
- B.** Sodium chloride
- C.** Sodium bromide
- D.** Sodium acetate
- E.** Sodium citrate

**108.** 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.** Xylometazoline
- B.** Paracetamol
- C.** Acyclovir
- D.** Dexamethasone
- E.** Lactulose

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

- A.** Product modification
- B.** Reduction
- C.** Diversification
- D.** Modernization
- E.** Differentiation

**110.** The "Dr Ram" pharmaceutical company organizes scientific conferences

and workshops for doctors and pharmaceutical workers. What element of marketing communications is used by this pharmaceutical company?

- A. Public relations
- B. Sales stimulation
- C. Personal selling
- D. Merchandising
- E. Direct marketing

111. The management of a pharmaceutical company performs an internal audit to check the compliance with proper work practices. What management function is used by the company's management in this case?

- A. Control
- B. Motivation
- C. Regulation
- D. Organization
- E. Planning

112. The "Bon-pharm" pharmaceutical company due to its constant financial support of international sports competitions became well-known in Ukraine and the neighbouring countries. What type of activity is described in this case?

- A. Sponsorship
- B. Publicity
- C. Product promotion
- D. Lobbying
- E. Direct marketing

113. Mandatory payroll deductions are withheld from the salary of pharmacy workers. Specify the tax rate on income of natural persons:

- A. 18%
- B. 15%
- C. 20%
- D. 0%
- E. 5%

114. How long should the pharmacy keep a receipt for Morphin-ZN tablets, package №50?

- A. Five years, not counting the current one
- B. Three years, not counting the current one
- C. One year, not counting the current one
- D. The receipt form is not kept by the pharmacy
- E. One month, not counting the current one

115. A pharmacy has bought a refrigerator. What document should be filled in for such purchase?

- A. It should be assigned an inventory number and registered in the inventory cards
- B. A deposit order should be filled in
- C. Information should be entered into the goods report
- D. No accounting documentation needs to be kept
- E. An inventory list needs to be drawn up

116. A pharmacy has decided 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. Fixed assets
- B. Package
- C. Goods
- D. Non-negotiable tangible assets
- E. Not accounted as assets

117. A dispensing chemist has received his salary with a bonus for working at night. This bonus is paid for the following working hours:

- A. From 22.00 to 6.00
- B. From 23.00 to 7.00
- C. From 24.00 to 8.00
- D. From 20.00 to 9.00
- E. From 21.00 to 9.00

118. Microcapsules are made by coating solid particles of the substance being encapsulated with a shell consisting of metallic silver, zinc, etc. Name this method of making microcapsules:

- A. Galvanization
- B. Pelleting
- C. Slurrying of the nuclei
- D. Coacervation
- E. Polymerization

119. A certain injection solution cannot undergo thermal sterilization, because high temperatures lead to its hydrolysis with formation of formaldehyde and ammonia. Name this solution:

- A. Hexamethylenetetramine solution
- B. Aminazine solution
- C. Diprazine (promethazine) solution
- D. Glucose solution
- E. Novocaine (procaine) solution

120. To improve structural and mechanical properties of capsule shells, to ensure their proper elasticity and reduce their brittleness, the following substances are introduced into the gelatin mass:

- A. Plasticizers
- B. Thickeners
- C. Stabilizers
- D. Preservatives
- E. Pigments

121. According to the State Pharmacopoeia of Ukraine, the tablets taken internally can be classified into several different types. The pulsatile release tablets can be classified as:

- A. Modified-release tablets
- B. Effervescent tablets
- C. Chewable tablets
- D. Dispersible tablets
- E. Soluble tablets

122. 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. Flavonoids
- C. Phenolic compounds
- D. Anthracene derivatives
- E. Alkaloids

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

- A. *Cotinus coggygria* leaves
- B. *Persicaria hydropiper* grass
- C. Rose hips
- D. Nettle leaves
- E. *Solidago canadensis* grass

124. The medicinal plants of the *Fabaceae* family contain various groups of bioactive substances. What representative of this family contains flavonoids and is used as an industrial source of rutin?

- A. *Styphnolobium japonicum*
- B. *Ononis arvensis*
- C. *Glycyrrhiza glabra*
- D. *Thermopsis alterniflora*
- E. *Bidens tripartita*

125. "Novo-Passit" preparation is used as a sedative. It is manufactured from the following herbal raw material:

- A. *Passiflora* grass
- B. *Acorus calamus* rhizomes
- C. *Populus nigra* buds
- D. *Taraxacum* roots
- E. *Viburnum* bark

126. 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. *Araliae mandshuricae radices*
- B. *Calami radices*
- C. *Tormentillae radices*
- D. *Taraxaci radices*
- E. *Glycyrrhizae radices*

127. A dispensing chemist identifies metronidazole substance after reduction of the nitro group into an aromatic amino group. The dispensing chemist uses a reaction that produces the following:

- A. Azo dye
- B. Aurine dye
- C. Azomethine dye
- D. Iron(III) hydroxamate
- E. Indophenol dye

128. A dispensing chemist performs quantitative determination of nifedipine substance, using the method of cerimetry. What indicator should be used in this method, according to the State Pharmacopoeia of Ukraine?

- A. Ferroin
- B. Phenolphthalein
- C. Methyl orange
- D. Potassium chromate
- E. Bromphenol blue

129. 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. Acid-base titration in nonaqueous medium
- B. Bromometry
- C. Complexometric titration
- D. Permanganatometry
- E. Cerimetry

130. Benzocaine is a substance with local anesthetic activity. According to its chemical structure, it is a derivative of:

- A. n-Aminobenzoic acid
- B. n-Aminosalicylic acid
- C. n-Aminobenzene sulfonic acid
- D. n-Chlorobenzoic acid
- E. n-Aminophthalic acid