



**STATE NON-PROFIT ENTERPRISE «TESTING BOARD FOR PROFESSIONAL  
COMPETENCE ASSESSMENT OF HIGHER EDUCATION TRAINEES IN  
MEDICINE AND PHARMACY AT THE MINISTRY OF PUBLIC HEALTH OF  
UKRAINE»**

Student ID							Surname									
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Variant 17

**TEST ITEMS  
FOR THE UNIFIED STATE QUALIFICATION EXAM  
TEST COMPONENT  
STAGE 2**

**PHARMACY, INDUSTRIAL PHARMACY**

**KROK 2**

1. What is the name of the concept, where consumers' willingness to purchase a product is supported by their purchasing power?

- A. Sales
- B. Demand
- C. Marketing
- D. Supply
- E. Advertising

2. A pharmacy makes extemporaneous drugs. Who sets the retail prices and labor charges for these pharmacy-made medicines?

- A. Inspectorate for medicine quality control
- B. The Ministry of Health
- C. Local council
- D. Pharmacy
- E. —

3. Quantification of sodium benzoate expectorant is carried out using acidimetry in a non-aqueous medium. What reagent is used as a solvent for this purpose?

- A. Pyridine
- B. Benzene
- C. Anhydrous acetic acid
- D. Dimethylformamide
- E. Dimethyl sulfoxide

4. Nitrofurantoin (Furacillin) is a synthetic antibacterial agent. What parameter must be measured by an analytical pharmacist when quantifying this agent by means of spectrophotometry?

- A. pH of a solution
- B. Melting point
- C. Angle of rotation
- D. Refractive index
- E. Optical density

5. Adrenaline has two phenolic hydroxyl groups in its structure, which causes the chemical instability of the compound. What chemical process can occur, if this substance is stored improperly?

- A. Weathering
- B. Reduction
- C. Oxidation
- D. Polymerization
- E. Hydrolysis

6. Oak bark is standardized by its tannin content. What method is used to determine this group of bioactive substances according to the State Pharmacopoeia of Ukraine?

- A. Biological method
- B. Gravimetry
- C. Spectrophotometry
- D. Fluorimetry
- E. Titrimetry

7. The head manager of a pharmacy has prepared the staff schedule for the next month. What type of planning is aimed at forming narrow, detailed, short-term plans?

- A. Operational planning
- B. Financial planning
- C. Strategic planning
- D. Business planning
- E. Indicative planning

8. An analytical pharmacist uses alkalimetry with potentiometric detection of the titration endpoint to quantify the lidocaine hydrochloride content. What solution is used as a titrant in this case?

- A. Potassium bromate solution
- B. Hydrochloric acid solution
- C. Sodium nitrite solution
- D. Sodium hydroxide solution
- E. Cerium sulfate solution

9. A pharmaceutical factory produces gelatin capsules. What is introduced into the gelatin mass to ensure antimicrobial resistance of the shells?

- A. Coloring agents
- B. Stabilizers
- C. Film formers
- D. Preservatives
- E. Plasticizers

10. A pharmacy prepares an aqueous extract of *Thermopsis* grass. What components must be used by the pharmacist to prepare this aqueous extract?

- A. *Thermopsis* grass, purified water, ammonia solution
- B. *Thermopsis* grass, sodium bicarbonate, purified water
- C. *Thermopsis* tincture, purified water
- D. *Thermopsis* grass, hydrochloric acid solution, purified water
- E. *Thermopsis* grass, sodium chloride, purified water

11. Fresh cranberries are used as a diuretic and an antimicrobial agent. What active substances are contained in this herbal raw material?

- A. Vitamins
- B. Polysaccharides
- C. Organic acids
- D. Phenolic glycosides
- E. Alkaloids

12. A laboratory conducts analysis of a phenylephrine hydrochloride substance (Mesatonum). What reagent is used to identify it?

- A. Copper(II) sulfate
- B. Potassium bromide
- C. Sodium nitrate
- D. Ammonium chloride
- E. Magnesium sulfate

13. Depending on their degree of liquidity, pharmacy assets are divided into 4 groups. What are the most liquid assets (highly liquid)?

- A. Receivables owed by debtors
- B. Fixed assets
- C. Intangible assets
- D. Cash and its equivalents
- E. Stocks of goods and materials

14. A doctor has prescribed a potassium-sparing diuretic for a 35-year-old patient. Which one of the listed drugs belongs to this group?

- A. Diltiazem
- B. Prazosin
- C. Triamterene
- D. Bisoprolol
- E. Furosemide

15. What substance functions as a plasticizer in a gelatin capsule shell?

- A. Starch
- B. Glycerin
- C. Methyl cellulose
- D. Isopropyl alcohol
- E. Gelatin

16. After administration of insulin, a patient suddenly developed hunger, limb tremor, agitation, and moist skin. What complication is likely developing in the patient?

- A. Collapse
- B. Hyperglycemic coma
- C. Hypoglycemic coma
- D. Pulmonary edema
- E. Seizure syndrome

17. Chemical analysis of *Helichrysum* flowers resulted in a positive cyanidin test. What class of compounds is present in the flowers, as indicated by this reaction?

- A. Alkaloids
- B. Polysaccharides
- C. Flavonoids
- D. Coumarins
- E. Saponins

18. *Folia Uvae ursi* is a uroantiseptic agent. What is a permissible admixture in this herbal raw material?

- A. *Herba Bursae pastoris*
- B. *Folia Vitis idaeae*
- C. *Folia Digitalis lanata*
- D. *Folia Urticae*
- E. *Folia Cotini coggygriae*

19. Managers of a wholesale pharmaceutical company make decisions regarding the supplier selection and procurement of medicines at the minimum cost. What type of logistics is used in this case?

- A. Production logistics
- B. Sales logistics
- C. Information logistics
- D. Procurement logistics
- E. Personnel logistics

20. What drug is listed as a psychotropic substance?

- A. Phenazepam ✗
- B. Paracetamol
- C. Analgin (Metamizole)
- D. Canephron
- E. Phencarolum (Quifenadine)

21. A pharmacist prepares powders. What substance must be comminuted in the presence of a liquid excipient?

- A. Zinc sulfate
- B. Copper sulfate
- C. Magnesium oxide
- D. Glucose
- E. Thymol

22. Two types of herbal raw material are harvested from *Ribes nigrum* plant for medicinal purposes. Name them.

- A. Fruits and roots
- B. Fruits and bark
- C. Buds and fruits
- D. Fruits and leaves
- E. Flowers and leaves

23. What type of control is a part of functional duties of an authorized person at a pharmacy warehouse?

- A. Control when dispensing medicine
- B. Organoleptic control
- C. Chemical control
- D. Written control
- E. Incoming control ✗

24. A new medicine has appeared on the 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. Pricing
- B. Oversaturation of the market
- C. Introduction to the market ✗
- D. Growth in demand
- E. Decline in demand

25. What are the oblong tablets for oral administration called?

- A. Capsules ✗
- B. Tubatines
- C. Granules
- D. Dragee
- E. Caplets

26. What parameter mainly determines the choice of an extractant for

obtaining individual substances?

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

27. A pharmacy has received medical products from a pharmaceutical warehouse. What drug from the list given below is a controlled substance and therefore is subject to accounting?

- A. Diclofenac, ampoules
- B. Ibuprofen, capsules
- C. Dimedrol (Diphenhydramine), tablets
- D. Analgin (Metamizole), ampoules
- E. Paracetamol, tablets

28. In the marketing department, a conflict arose between two managers regarding the division of their functional responsibilities. The head of the marketing department found a compromise solution that suited the both employees. What type of conflict is it, based on its outcome?

- A. Optimal
- B. Dysfunctional
- C. Futile
- D. Functional
- E. Integral

29. Flowers of a medicinal plant that contains carotenoids are a component of Wundahyl ointment that has regenerative, anti-inflammatory, and anti-allergic effect. Name this medicinal plant.

- A. *Calendula officinalis*
- B. *Salvia officinalis*
- C. *Eucalyptus viminalis*
- D. *Glycyrrhiza glabra*
- E. *Bidens tripartita*

30. The results of the financial and economic activity of a pharmacy for the last quarter show that its over-the-counter department was unable to meet the planned indicators. What function of management should be used to remedy this situation?

- A. Planning
- B. Regulating
- C. Directing
- D. Controlling
- E. Motivation

31. Dispersing or evacuation gases are used to dispense an aerosol product. How are they called?

- A. Propellants
- B. Glycerin
- C. Activators
- D. Alcohols
- E. Oxygen

32. A pharmacist has prepared suppositories with novocaine (procaine) hydrochloride using a rolling technique. The novocaine hydrochloride content is less than 5%. How is this substance introduced into the base in this case?

- A. Dissolution in the minimum amount of castor oil
- B. Dissolution in the minimum amount of water
- C. Dissolution in ethyl alcohol
- D. Dissolution in the melted base
- E. Dissolution in the minimum amount of alcohol-water-glycerin mixture

33. An analytical pharmacist at a quality control laboratory uses iodometry to quantify metamizole sodium. What indicator is used for this purpose?

- A. Starch
- B. Phenolphthalein
- C. Ferroin
- D. Murexide
- E. Tropeolin 00

34. A pharmacy undergoes audit. What assets are classified as fixed assets?

- A. Commercial equipment
- B. Cash
- C. Share capital
- D. Equity
- E. Stock of goods

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

- A. Reaction with iron(III) chloride
- B. Foaming reaction
- C. Molisch test
- D. Fehling test
- E. Dragendorff test

36. What group of bioactive substances can be detected using hemolysis of erythrocytes and the frothing test?

- A. Saponins
- B. Polysaccharides
- C. Alkaloids
- D. Vitamins
- E. Flavonoids

37. A pharmacist prepares rectal suppositories with cocoa butter that contain less than 5% of Dimedrol (diphenhydramine). What is the optimal way of introducing the substance into the base in this case?

- A. Dissolving in liquid paraffin
- B. Dissolving in alcohol
- C. Dissolving in the minimum amount of purified water
- D. Dissolving in melted cocoa butter
- E. Dissolving in olive oil

38. Name the ready-to-use dosage form that is a gelatin capsule, filled with microcapsules that have an oil shell.

- A. Pearl
- B. OROS tablet
- C. Microcapsule
- D. Tubatine
- E. Spansule

39. A pharmacy prepares triturations. What filler is used for this purpose?

- A. Glucose
- B. Mannitol
- C. Lactose
- D. Corn starch
- E. Rice starch

40. When identifying *Laminaria thalli* according to the State Pharmacopoeia of Ukraine, a qualitative reaction must be conducted to detect certain substances. Name these substances.

- A. Reducing sugars
- B. Polysaccharides
- C. Alginic acids
- D. Slime
- E. Total iodine

41. A pharmaceutical company produces ointments. Name the technological process of ensuring that ointments have a uniform structure.

- A. Obtaining the concentrate
- B. Mixing components with the base
- C. Obtaining the base
- D. Dispersion
- E. Homogenization

42. To identify phenol, an analytical pharmacist used a reaction with a solution of sodium hypochlorite in an ammonia medium. As a result of this reaction, a blue substance formed. Name this compound.

- A. Murexide
- B. Thiochrome
- C. Acrolein
- D. Indophenol
- E. Azo dye

43. A pharmaceutical company identified the best employees of the month and awarded them with letters of commendation and valuable gifts. What function of management was used in this case?

- A. Regulating
- B. Planning
- C. Organizing
- D. Motivation
- E. Controlling

44. The marketing department of a pharmaceutical factory has determined that there is a seasonal fluctuation in demand for cold medicines. What type of demand is it?

- A. Irregular
- B. Irrational
- C. Absent
- D. Latent
- E. Negative

45. Oxazepam is a benzodiazepine derivative. What method is used for its quantification?

- A. Acidimetry in a non-aqueous medium
- B. Reverse complexometry
- C. Alkalimetric substitution titration
- D. Alkalimetry in an aqueous medium
- E. Direct bromatometry

46. What must be taken into account, when calculating compensation for a sick leave?

- A. Duration of registration with a trade union
- B. Record of service with employment according to qualification
- C. Working record of service
- D. General record of service
- E. Insured period

47. A pharmacist needs to prepare powders, using the following prescription:

*Rp.: Camphorae 0.1*

*Sacchari 0.25*

*M.f.pulv.*

*D.t.d.N 10*

*S. Take one powder thrice a day.*

What is the optimal preparation technique in this case?

- A. Fill the mortar pores with glucose and pour it out on a capsule, comminute camphor, mix the ingredients
- B. Measure out camphor into the mortar, add glucose, mix the ingredients
- C. Fill the mortar pores with glucose and pour it out on a capsule, comminute camphor with alcohol, add glucose from the capsule, mix the ingredients
- D. Comminute glucose with alcohol in a mortar, add camphor, mix the ingredients
- E. Put camphor between the layers of glucose, mix the ingredients

48. In the postoperative period, a man was receiving promedol (trimeperidine) for a long time. When this drug was discontinued, the patient developed psychic and somatic disturbances. What phenomenon is observed in this case?

- A. Steal syndrome
- B. Withdrawal syndrome
- C. Rebound effect
- D. Idiosyncrasy
- E. Tachyphylaxis

49. A chemical laboratory checks the quality of medicines. What substance can be quantitatively analyzed by determining the nitrogen after mineralization?

- A. Sodium benzoate
- B. Salicylic acid
- C. Calcium gluconate
- D. Ascorbic acid
- E. Glutamic acid

50. A pharmacy needs to prepare a 10% alcohol solution of iodine. What concentration of ethanol must be used in this case?

- A. 70%
- B. 40%
- C. 95%
- D. 96%
- E. 60%

51. Specify the external environment factors that directly influence the activity of a company.

- A. Consumers and competitors
- B. The state of the economy
- C. Political changes
- D. Scientific and technological progress
- E. Sociocultural factors

52. *Potentilla* rhizomes are used as an astringent. What *Potentilla* species is included in the State Pharmacopoeia of Ukraine?

- A. *Potentilla anserina*
- B. *Potentilla erecta*
- C. *Potentilla nivea*
- D. *Potentilla alba*
- E. *Potentilla argentea*

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

- A. Menthol must be comminuted first with the emulsifier and then with the part of water prepared for the dilution of the primary emulsion
- B. Menthol must be dissolved in the purified water
- C. Menthol must be dissolved in oil before preparing the primary emulsion
- D. Menthol must be comminuted in a mortar with several drops of alcohol and then mixed with the primary emulsion
- E. Menthol must be introduced as a suspension into the prepared emulsion

54. What qualitative parameter is not determined for coated tablets?

- A. Uniformity of dosage units
- B. Abrasion resistance
- C. Ability to disintegrate
- D. Average mass and deviation from it
- E. Solubility

55. A pharmaceutical company produces sterile aqueous solutions for eye moistening and irrigation, as well as for soaking the materials that are applied to the eye. What type of dosage form is used in such solutions?

- A. Drops
- B. Sprays
- C. Inserts
- D. Lotions
- E. Ointments

56. A series of glutamic acid substance that is an optically active substance undergoes certification at an analytical and quality control laboratory. What parameter must be determined, if identification is being carried out using the polarimetry technique?

- A. pH of a solution
- B. Refractive index
- C. Density
- D. Angle of rotation
- E. Optical density

57. What amount of atropine sulfate must be weighed out to prepare 5.0 of trituration (1:100)?

- A. 0.5 gr
- B. 0.01 gr
- C. 1.0 gr
- D. 0.05 gr
- E. 0.1 gr

58. A pharmacy has received a prescription for an isotonic solution. What technique is used to calculate the necessary amount of the substance?
- A. Three-layer technique
  - B. Equivalence technique
  - C. Water absorption coefficient
  - D. Volume expansion coefficient
  - E. Deryagin law
59. A pharmaceutical company performs quality control of emulsions. What method is used to determine colloidal stability?
- A. Conductometry
  - B. Potentiometry
  - C. Titrimetry
  - D. Centrifugation
  - E. Microscopy
60. What economic indicator at a pharmacy depends on the level of procurement prices and selling prices of the goods that are being sold by the pharmacy?
- A. Liquidity
  - B. Expenses
  - C. Commercial markup
  - D. Price index
  - E. Solvency
61. An analytical pharmacist identifies a hydrochlorothiazide substance. In this case, sulfate ion that formed after mineralization of the substance can be determined using the reaction with a certain solution. Name this solution.
- A. Cobalt nitrate solution
  - B. Sodium hydroxide solution
  - C. Barium chloride solution
  - D. Silver nitrate solution
  - E. Copper(II) sulfate solution
62. What is the name of the list of effective and safe medicines and medical products for prevention, diagnostics, and treatment of the most common pathological conditions, based on their significance for the healthcare of a certain country?
- A. *Rhizomata Bergeniae*
  - B. *Fructus Viburni*
  - C. *Folium Cotini coggygriae*
  - D. *Rhizomata et radix Sanguisorbae*
  - E. *Rhizomata Bistortae*
63. A man developed bladder atony in the postoperative period. What drug must be prescribed to the patient in this case?
- A. Precursors
  - B. Substandard drugs
  - C. Controlled drugs list
  - D. Over-the-counter medicines
  - E. Essential medicines
64. How many drops of 95% ethyl alcohol must be added for comminution of 1.0 g of menthol?
- A. 20 drops
  - B. 30 drops
  - C. 25 drops
  - D. 15 drops
  - E. 10 drops
65. Medicines with potassium bromide are used to treat insomnia. What solution must be used to identify potassium cations in such medicines?
- A. Sodium cobaltnitrite
  - B. Silver nitrate
  - C. Potassium ferrocyanide
  - D. Barium chloride
  - E. Potassium pyroantimonate
66. What drug is indicated in cases of overdosing on neodicumarin or other indirect anticoagulants?
- A. Enoxaparin
  - B. Streptokinase
  - C. Naloxone
  - D. Vicasolum (Menadione)
  - E. Iron(II) gluconate
67. What herbal raw material is used industrially as a source of tannins?
- A. *Rhizomata Bergeniae*
  - B. *Fructus Viburni*
  - C. *Folium Cotini coggygriae*
  - D. *Rhizomata et radix Sanguisorbae*
  - E. *Rhizomata Bistortae*
68. Based on its chemical structure, glycerol trinitrate antianginal agent (nitroglycerin) is a nitrate ester. What



reaction is used to identify this substance by nitrate ions?

- A. Dehydration
- B. Pyrolysis
- C. Hydrolysis
- D. Oxidation
- E. Decarboxylation

69. An authorized person performs incoming quality control of medicines at a pharmacy. What type of control is it?

- A. Current
- B. Organizational
- C. Preliminary
- D. Final
- E. Strategic

70. A pharmacist prepares an ointment containing novocaine hydrochloride with concentration of 1%. How should novocaine hydrochloride be introduced into a hydrophobic base?

- A. Dissolve in purified water, emulsify with anhydrous lanolin
- B. Dissolve in ethyl alcohol, add petroleum jelly
- C. Comminute with liquid paraffin, add petroleum jelly
- D. Comminute with alcohol or ether, emulsify with anhydrous lanolin
- E. Comminute with glycerin, add petroleum jelly

71. When preparing suspensions, the medicinal substance must be ground with a small amount of liquid. What is the optimal amount of liquid for comminution of 20 g of zinc oxide according to the Deryagin law?

- A. 0.5 mL
- B. 1 mL
- C. 10 mL
- D. 2 mL
- E. 5 mL

72. What technique is used in production of soft capsules with a seam?

- A. Pouring technique
- B. Dripping technique
- C. Immersion technique
- D. Indentation technique
- E. Compression technique

73. A joint-stock company includes two domestic pharmaceutical companies and one foreign pharmaceutical company, as well as extensive wholesale and retail networks. What type of pharmaceutical marketing system is it?

- A. Vertical
- B. Matrix
- C. Staff
- D. Horizontal
- E. Line

74. What parameters are measured during evaluation of thick extracts?

- A. Moisture content
- B. Filler content
- C. Density
- D. Color
- E. Alcohol content

75. Sulfadimethoxine is a sulfonamide antibacterial drug with a primary aromatic amino group. What method is used for its quantification?

- A. Nitritometry
- B. Argentometry
- C. Iodometry
- D. Acidimetry
- E. Permanganatometry

76. Ethylmorphine hydrochloride belongs to the drugs, the sale of which is regulated. What maximum amount of this drug can be sold on a prescription for eye drops or an ointment?

- A. No more than 1 gram
- B. No more than 3 grams
- C. No more than 0.5 grams
- D. No more than 1.5 grams
- E. No more than 2 grams

77. A wholesale and retail company sells medicines and medical products to wholesale companies, pharmacies, and the populace. What type of business activity is it?

- A. Commercial
- B. Manufacturing
- C. Investment
- D. Financial
- E. Financial and credit

78. One of the main duties of a cashier is to conduct receipt and withdrawal cash transactions. Which

of the following is a withdrawal transaction?

- A. Taking out the received sales proceeds for transferring them to the current account
- B. Receipt of funds for salary advance payments
- C. Return of unused imprest funds
- D. Sales proceeds received by the retail network
- E. Sales proceeds received by the pharmacy from the sale of medical products

79. In the course of its commercial activity, a pharmacy performs cashless transactions. What type of account must be opened in this case in a banking establishment for the purpose of storing the monetary funds and performing all types of transactions with such accounts, according to the current Ukrainian legislation?

- A. Temporary account
- B. Card account
- C. Deposit account
- D. Current account
- E. Currency account

80. Corglycon herbal preparation is used as a cardiotoxic agent in cardiovascular diseases. It is obtained from leaves of a certain medicinal plant. Name this plant.

- A. *Digitalis purpurea*
- B. *Erysimum diffusum*
- C. *Convallaria majalis*
- D. *Eucalyptus*
- E. *Datura*

81. A patient, who undergoes treatment for ischemic heart disease, has developed a cough without signs of a cold. Which one of the prescribed drugs could have caused such a side effect in this case?

- A. Drotaverine
- B. Losartan
- C. Nitroglycerin
- D. Aspirin (acetylsalicylic acid)
- E. Asparcam (potassium and magnesium aspartate)

82. Among the listed antibacterial drugs, select the group of drugs that are

nephro- and ototoxic.

- A. Nitrofurans
- B. Fluoroquinolones
- C. Amphenicols
- D. Macrolides
- E. Aminoglycosides

83. An expert at the laboratory of the pharmaceutical product certification center tests a chloramphenicol substance. What instrument must be used when determining the specific optical rotation?

- A. Polarimeter
- B. Potentiometer
- C. Refractometer
- D. Viscometer
- E. Spectrophotometer

84. Powders make up a large portion of extemporaneous preparations. What component can be introduced into powders without preliminary comminution?

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

85. 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. Package
- B. Fixed assets
- C. Non-negotiable tangible assets
- D. Goods
- E. Non-accountable assets

86. In a pharmacy, inventory results have revealed a shortage of products that was within the limits of natural loss. At what prices will these products be written off as losses?

- A. Negotiable prices
- B. Procurement prices
- C. Contractual prices
- D. Wholesale prices
- E. Retail prices

87. A pharmaceutical company

produces ready-to-use medical products. For what dosage form does the State Pharmacopoeia of Ukraine regulate the time of complete deformation?

- A. Suppositories
- B. Creams
- C. Ointments
- D. Suspensions
- E. Gels

88. After the removal of a maxillary cyst, the dentist prescribed the patient an oral antibiotic to prevent postoperative bacterial complications. This antibiotic penetrates well into the bone tissue. Name this drug.

- A. Amoxicillin
- B. Nifuroxazide
- C. Lincomycin
- D. Streptomycin
- E. Clarithromycin

89. Examination detected atrophic gastritis and B<sub>12</sub>-deficiency anemia in a patient. What drug should be prescribed in this case?

- A. Folic acid
- B. Iron(II) fumarate
- C. Cyanocobalamin
- D. Sodium nucleinate
- E. Erythropoietin

90. What anti-inflammatory and analgesic drug is made from *Alnus* infructescences?

- A. Vicaline
- B. Altan
- C. Tannalbin
- D. Rotocan
- E. Polyphytol-1

91. A pharmacy prepares a 2% glucose solution for infusions. What excipient is used to ensure the isotonicity of this solution?

- A. Sodium sulfite
- B. Sodium sulfate
- C. Sodium chloride
- D. Boric acid
- E. Sodium nitrate

92. A 44-year-old man was diagnosed with chronic hyperacid gastritis. What pharmacological group of drugs would

be optimal in this case?

- A. Proton pump inhibitors
- B. Glucocorticosteroids
- C. Inhibitors of proteolytic enzymes
- D.  $\beta$ -blockers
- E.  $\alpha$ -blockers

93. A pharmacy has received a prescription for preparation of injection solutions. What type of control are solutions for injections subject to?

- A. They are not subject to control
- B. Complete chemical control
- C. Qualitative control
- D. Questionnaire-based control
- E. Quantitative control

94. What type of responsibility implies a certain level of voluntary response to societal problems on the part of a pharmaceutical organization?

- A. Disciplinary
- B. Criminal
- C. Administrative
- D. Legal
- E. Social

95. An analytical pharmacist uses nitritometry to quantify a sulfathiazole antibacterial agent. This method was chosen because of the presence of a certain functional group. Name this group.

- A. Carboxylic group
- B. Hydroxyl group
- C. Primary aromatic amino group
- D. Sulfo group
- E. Aldehyde group

96. Atropine sulfate is a drug with a cholinolytic effect. A certain component in its structure makes it possible to quantify atropine sulfate using acidimetry in a non-aqueous medium. Name this structural component.

- A. Tertiary nitrogen atom
- B. Ester group
- C. Phenyl radical
- D. Alcohol hydroxyl
- E. Bound sulfuric acid

97. A 17-year-old boy fell ill with an acute intestinal infection. Select from the list an antibacterial drug that is not

absorbed in the intestine.

- A. Phthalazol (Phthalylsulfathiazole)
- B. Co-trimoxazole
- C. Sulfacyl sodium (Sulfacetamide)
- D. Sulfadimethoxine
- E. Nifuroxazide

98. The marketing department of a pharmaceutical company has divided consumers into groups according to certain criteria and characteristics. What marketing method was used in this case?

- A. Market segmentation
- B. Market share calculation
- C. Diversification
- D. Positioning
- E. Expert assessment of the market

99. What is the name of the tablets without shell, where acids and carbonates make up the majority of the mass?

- A. Acidic
- B. Effervescent
- C. Compressed
- D. Caples
- E. Soluble

100. The system of taxes is one of the main components of the taxation system. How are taxes and dues classified by the type of payment into the budget?

- A. Variable and stable
- B. Stable and local
- C. Flexible and variable
- D. Direct and indirect
- E. Permanent and variable

101. An analytical pharmacist analyzes an isoniazid substance. What method must be used for quantification of this substance?

- A. Argentometry
- B. Acidimetry
- C. Bromatometry
- D. Alkalimetry
- E. Complexonometry

102. During the course of treatment for chronic heart failure, the patient developed bradycardia, nausea, and vomiting and started to see yellow-green circles. What group of drugs has

caused these signs?

- A. Diuretics
- B.  $\beta$ -blockers
- C. Cardiac glycosides
- D. ACE inhibitors
- E. Nitrates

103. Which one of the listed substances is thermolabile?

- A. Sodium chloride
- B. Collargol
- C. Sodium hydroxide
- D. Calcium gluconate
- E. Calcium chloride

104. What main characteristic distinguishes water for injections from purified water?

- A. Apyrogenicity
- B. Method of obtaining
- C. pH value
- D. Absence of mechanical inclusions
- E. Absence of heavy metals

105. Thymol and carvacrol are the main active ingredients of *Thymus serpyllum*. To what class of bioactive substances do they belong?

- A. Essential oils
- B. Iridoids
- C. Flavonoids
- D. Alkaloids
- E. Xanthones

106. The ampoule workshop of a factory produces solutions for injections. Name the group of solutions, to which ascorbic acid solution for injections belongs.

- A. Solutions of the substances that require special purification
- B. Solutions of the salts that are formed by strong bases and weak acids
- C. Solutions of the substances that cannot undergo thermal sterilization
- D. Easily oxidized solutions
- E. Solutions of the salts that are formed by weak bases and strong acids

107. A 43-year-old woman complains of heartburn after eating spicy foods. What would be the drug of choice for symptomatic treatment in this case?

- A. Sedative
- B. Analgesic
- C. Antispasmodic
- D. Antacid
- E. Enzymatic

**108.** A man has bought nitroglycerine for sublingual administration at a pharmacy. He wants to know, what side effects might develop after taking this medicine. What is the most common side effect of this drug?

- A. Drowsiness
- B. Headache
- C. Dry cough
- D. Increased blood pressure
- E. Urinary retention

**109.** What additional technological technique should be used, when preparing copper sulfate solutions?

- A. Preliminary dissolution in glycerin
- B. Preliminary dissolution in a 95% alcohol solution
- C. Heating
- D. Adding activated carbon
- E. Grinding in a mortar with water

**110.** When harvesting *Helichrysum arenarium* flowers, it is necessary to prevent admixtures that look like hemispherical or spherical inflorescences colored white, pink, or red. What plant do they belong to?

- A. *Antennaria dioica*
- B. *Viola arvensis*
- C. *Gnaphalium uliginosum*
- D. *Arctium tomentosum*
- E. *Matricaria recutita*

**111.** What method is used to sterilize thermolabile eye drops?

- A. Hot air sterilization
- B. Sterilization with vapor under pressure
- C. Chemical sterilization
- D. Gas sterilization
- E. Filtering

**112.** The stock of goods is an important indicator of how well the sales are supplied with goods. What prices are taken into account, when planning the norms for the stock of goods at a pharmacy?

- A. Negotiable prices
- B. Fixed prices
- C. Indicative prices
- D. Retail prices
- E. Wholesale prices

**113.** A 46-year-old patient has chronic bronchitis. What medicine can be purchased at a pharmacy to facilitate the discharge of thick and viscous sputum?

- A. Salbutamol
- B. Libexin (Prenoxdiazine)
- C. Dextromethorphan
- D. Butamirate
- E. Ambroxol

**114.** When forming the product distribution system, a drug manufacturer focuses on the maximum involvement of the network of wholesale and retail intermediaries. What type of sales does the manufacturer choose in this case?

- A. Direct
- B. Exclusive
- C. Mixed
- D. Selective
- E. Intensive

**115.** A woman suddenly developed an attack of angina pectoris. To stop the attack, she took a medicine. After taking this medicine she developed an intense headache, red face, and tachycardia. What group of drugs typically has such side effects?

- A. Calcium channel blockers
- B.  $\alpha$ -adrenergic agonists
- C.  $\beta$ -blockers
- D. Nitrates
- E. Diuretics

**116.** Various chromatographic methods are used to control the quality of medical products. What type of chromatography is conducted on a sheet of filter paper, when mobile liquid phase moves on its surface and along its capillaries?

- A. Adsorption chromatography
- B. Paper chromatography
- C. Gas chromatography
- D. Thin-layer chromatography
- E. Ion-exchange chromatography

**117.** A pharmaceutical company

produces hormonal drugs. What raw materials are used to obtain insulin?

- A. Anterior lobe of the pituitary gland
- B. Adrenal cortex
- C. Pancreas of cattle and pigs
- D. Posterior lobe of the pituitary gland
- E. Thyroid gland

118. What material responsibility does the cashier of a pharmacy have?

- A. Administrative responsibility
- B. Personal responsibility
- C. Collective responsibility
- D. Criminal responsibility
- E. Team responsibility

119. A pharmaceutical company produces a small range of medicines intended for one market, forms groups of marketers, and appoints managers for marketing functions. Towards what marketing model is this company oriented?

- A. Product-oriented
- B. Segment-oriented
- C. Combined (matrix)
- D. Functional
- E. Regional

120. In a pharmaceutical company, work groups are subordinated to both the project manager and the head of the functional unit. What type of organizational structure is it?

- A. Adaptive (matrix)
- B. Line
- C. —
- D. Functional
- E. Line and staff

121. A pharmaceutical company produces medicines in soft dosage forms. What quality indicator is determined only for heterogeneous soft dosage forms?

- A. pH
- B. Quantitative content
- C. Particle size
- D. Authenticity
- E. Microbiological purity

122. The structure of semisynthetic penicillins (amoxicillin trihydrate, ampicillin sodium) contains a fragment of  $\alpha$ -amino acids. What reagent makes

identification of this structural fragment possible?

- A. Cyanobromide
- B. Aniline
- C. Diphenylamine
- D. Formaldehyde
- E. Ninhydrin

123. What method is used to obtain menthol from peppermint essential oil?

- A. Freezing out
- B. Enfleurage
- C. Extraction with volatile solvents
- D. Extraction with non-volatile solvents
- E. Enzymatic hydrolysis

124. The marketing team of a pharmaceutical company has performed a comparative analysis of the internal environment and external conditions. They have analyzed strengths and weaknesses, opportunities and threats. What type of analysis was conducted by the marketing team?

- A. BCG matrix
- B. VEN analysis
- C. PEST analysis
- D. SWOT analysis
- E. ABC analysis

125. A patient that receives indirect anticoagulant warfarin took acetylsalicylic acid to treat fever. This combination of drugs is dangerous and increases the risk of developing an adverse reaction. What side effect can develop in the patient as a result?

- A. Neurotoxicity
- B. Dysbiosis
- C. Osteoporosis
- D. Cardiotoxicity
- E. Hemorrhage

126. 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. Administrative
- B. Technological
- C. Economic
- D. Sociopolitical
- E. Psychosocial

127. A herbal raw material (fruits) was received for analysis. It consists of black shiny drupes 8 mm in diameter that contain one large, very hard, spherical, light brown seed. Chemical analysis detects the presence of condensed tannins. What plant is the source of this herbal raw material?

- A. *Ribes nigrum*
- B. *Prunus padus*
- C. *Schizandra chinensis*
- D. *Rhamnus cathartica*
- E. *Vaccinium myrtillus*

128. A 32-year-old man with allergy symptoms (runny nose, sneezing, itchy skin) came to a pharmacy. He is a professional driver. What  $H_1$ -histamine blocker can be recommended to this man, taking into account his profession?

- A. Suprastin (Chloropyramine)
- B. Enterogel
- C. Dimedrol (Diphenhydramine)
- D. Atropine sulfate
- E. Loratadine

129. What part of the accounting balance sheet shows the amount of net profit?

- A. Loan capital
- B. Non-current assets
- C. Current capital
- D. —
- E. Equity

130. A pharmacy accountant conducts an asset analysis. Which of the following belongs to the total assets of a pharmacy?

- A. Salaries of pharmacy employees
- B. Obligations towards budget
- C. Borrowed funds
- D. Current and non-current assets
- E. Social insurance obligations

131. A woman suffers from intense retrosternal pain that radiates into her left shoulder. What drug would be

optimal as a first aid in this case?

- A. Verapamil
- B. Eufilin (Theophylline)
- C. Nitroglycerin
- D. Digoxin
- E. Amiodarone

132. The substances and their salts that are used in manufacturing and purification of narcotic and psychotropic substances must be accounted for in a pharmacy. How are they classified for this purpose?

- A. Psychotropic substances
- B. Narcotic substances
- C. Precursors
- D. Potent substances
- E. Toxic substances

133. Alkalimetry in a non-aqueous medium is used for quantification of a phenobarbital substance. What reagent is used as a solvent for this purpose?

- A. Glacial acetic acid
- B. Ethyl alcohol
- C. Formic acid
- D. Dimethylformamide
- E. Acetic anhydride

134. A 24-year-old pregnant woman complains of a headache that occurred after a stressful situation. What is the drug of choice in this case?

- A. Metamizole sodium
- B. Paracetamol
- C. Indomethacin
- D. Acetylsalicylic acid
- E. Naproxen

135. What substance is a colorant?

- A. Boric acid
- B. Caffeine
- C. Collargol
- D. Thymol
- E. Riboflavin

136. The Kratal drug is used as a cardioprotective agent. What is the herbal source of this drug?

- A. *Paeonia* grass
- B. *Digitalis* leaves
- C. *Mentha* leaves
- D. *Crataegus* fruits
- E. *Convallaria* leaves

137. A pharmaceutical company develops new dosage forms for its medicines. What type of product policy in marketing is it?

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

138. A manager of a wholesale pharmaceutical company is responsible for passing tasks directly to their executors and monitoring of task execution. What level of management is it?

- A. Upper management
- B. Technical
- C. Administrative
- D. Institutional
- E. Middle management

139. *Echinacea purpurea* grass has an immunostimulating effect. What method is used to determine the quantitative content of bioactive substances in this herbal raw material according to the State Pharmacopoeia of Ukraine?

- A. Spectrophotometry
- B. Photoelectrocolorimetry
- C. Liquid chromatography
- D. Titration in non-aqueous solvents
- E. Back titration

140. In a laboratory for quality control of medical products, alkalimetry is used to determine ascorbic acid in a vitamin supplement. This method is based on a certain chemical process. Name this process.

- A. Oxidation
- B. Complexation
- C. Neutralization
- D. Reduction
- E. Hydrolysis

141. An analytical pharmacist conducts an express analysis of a sedative mixture with sodium bromide. What

method is used to quantify sodium bromide?

- A. Nitritometry
- B. Complexonometry
- C. Acidimetry
- D. Alkalimetry
- E. Argentometry

142. A sudden power outage occurred in a pharmacy and its cash register stopped working. What must be used during this period for settlement transactions?

- A. Cash receipt and withdrawal orders
- B. Cash logbook
- C. Payrolls
- D. Invoices
- E. Payment orders

143. A laboratory for quality control of medical products certifies hormone drugs. What reagent is used to determine steroid cycles?

- A. Magnesium sulfate solution
- B. Diluted nitric acid
- C. Sodium nitrite solution
- D. Diphenylamine solution
- E. Concentrated sulfuric acid

144. Bioactive substances of this plant have secretolytic, antispasmodic, antifatulent, and slight diuretic effect. Its essential oil is used in making of gripe water. What plant is it?

- A. *Foeniculum vulgare*
- B. *Tanacetum vulgare*
- C. *Betula pendula*
- D. *Crataegus sanguinea*
- E. *Calendula officinalis*

145. An analytical pharmacist at a laboratory for quality control of medical products uses thioacetamide reagent to test a procaine hydrochloride substance. If this test produces a brown coloration, it indicates the presence of a certain admixture. Name this admixture.

- A. Aluminum
- B. Calcium
- C. Magnesium
- D. Potassium
- E. Heavy metals

146. An analytical pharmacist conducts



an express analysis of a 2% boric acid solution. What method must be used in this case to quantify the active ingredient?

- A. Argentometry
- B. Alkalimetry
- C. Nitritometry
- D. Acidimetry
- E. Complexonometry

147. What drug is used for prevention and treatment of influenza and acute respiratory viral infections?

- A. Amoxicillin
- B. Interferon
- C. Metamizole sodium
- D. Acetylsalicylic acid
- E. Ceftriaxone

148. After several drops of iron(III) chloride solution were added into an aqueous decoction of oak bark, it colored black-green. What substances are present in the decoction, as indicated by this effect?

- A. Essential oils
- B. Vitamins
- C. Polysaccharides
- D. Alkaloids
- E. Tannins

149. What techniques of extract purification are used in production of tinctures?

- A. Settling at the temperature of 8–10°C, filtration
- B. Dialysis, settling
- C. Solvent replacement, settling, filtration
- D. Extractive purification techniques in a liquid-liquid system
- E. Denaturation, filtration, sorption

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

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