

1. To improve iodine solubility in the purified water, iodine must be:

- a. Dissolved in the boiling water
- b. Dispersed with glycerine
- c. Comminuted with alcohol
- d. Dissolved in the saturated solution of potassium iodide**
- e. Reduced to fine powder

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

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

3. A pharmaceutical company produces a medicine under the brand name «Corglyconum'. What herbal raw material is used in preparation of this drug?

- a. Dandelion roots
- b. Wormwood grass
- c. Lily-of-the-valley grass**
- 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 heating the extract
- c. The process of gas absorption
- d. The process of electrolyte action
- e. The process of extraction from one liquid using another liquid

5. A pharmacist prepares a vaseline-based ointment. The base was heated to 40°C. What substance was introduced into the heated base?

- a. Benzoic acid
- b. Anesthesin
- c. Camphor**
- 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. Preservative
- c. Emulsifier
- d. Dispersing agent for powders
- e. Vehicle

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. 50
- b. 40
- c. 10
- d. 20**
- e. 30

8. A patient measures out a necessary dose of a mixture, using a tablespoon. How many milliliters of liquid does one tablespoon contain?

- a. 25
- b. 20
- c. 5
- d. 15**
- e. 10

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

- a. Infructescences
- b. Bark**
- c. Buds
- d. Flowers
- e. Roots

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

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

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. Filter
- b. Mortars
- c. Scalpel
- d. Sieve**
- e. Tweezers

12. Optical rotation angle of substances is determined under the temperature of 20°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. Relative density
- b. Distribution coefficient
- c. Optical density
- d. Refractive index
- e. Specific optical rotation**

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. Unregulated price
- b. Negotiated price
- c. Indicative price
- d. Regulated price**
- e. Fixed 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. Before the bloom
- c. At the end of the bloom
- d. During the bloom
- e. During the whole period of vegetation

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. Bromometry

c. Acidimetry

d. Alkalimetry

e. Nitritometry

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

a. $K_2[HgI_4]$

b. $[NH_4]_2C_2O_4$

c. $FeCl_3$

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 in the water free of redox substances

b. First grind it into powder when it is dry or grind it with a small amount of solvent added

c. Dissolve it in hot solvent or heat it up to full dissolution

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. Absence of mechanical inclusions

c. The way in which it was obtained

d. Absence of heavy metals

e. pH value

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. Mixed

b. Combined

c. Direct

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. Return the shipment to the manufacturer

c. Dispose of the shipment that contains questionable drugs

d. Draw up a Quality Assessment Report with the defects listed and allow the sale of the drug shipment

e. Allow the sale of the drug shipment

21. Aqueous lanolin consists of:

a. 50 parts of anhydrous lanolin and 50 parts of water

b. 5 parts of anhydrous lanolin and 95 parts of water

c. 90 parts of anhydrous lanolin and 10 parts of water

d. 80 parts of anhydrous lanolin and 20 parts of water

e. 70 parts of anhydrous lanolin and 30 parts of water

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

- a. Glycerine
- b. Glycerine-water solution
- c. Dimethylsulfoxide
- d. Vaseline (petroleum jelly)**
- e. Purified water

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

- a. 10.0%
- b. 1.8%
- c. 1.0%
- d. 0.9%**
- e. 5.0%

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. Consignee
- b. Agent
- c. Broker
- d. Commission agent
- e. Dealer**

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

- a. Motherwort grass
- b. Sage leaves
- c. Valerian roots and rhizomes
- d. Althaea roots
- e. Foxglove 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. Ambroxol syrup
- b. Mucaltin
- c. Infusion of Thermopsis grass
- d. Ammonium chloride
- e. Potassium iodide**

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

- a. Arabia mandshurica
- b. Panax ginseng
- c. Astragalus dasyanthus
- d. Glycyrrhiza glabra**
- e. Orthosiphon stamineus

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. Ammonium chloride solution
- b. Sodium acetate solution
- c. Sodium bicarbonate solution
- d. Potassium hydroxide solution
- e. Iron(III) chloride 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. Ammonia solution
- c. Sodium nitrite solution

- d. Ammonium chloride solution
- e. Potassium permanganate 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. Schisandra chinensis
- b. Rhamnus cathartica
- c. Vaccinium myrtillus
- d. Ribes nigrum
- e. Prunus padus**

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

- a. Dibazol (Bendazol)
- b. Loratadine
- c. Prednisolone**
- 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 etiologic therapy?

- a. Antiarrhythmic drugs
- b. Antimicrobial agents**
- c. Nonsteroidal anti-inflammatory drugs
- d. Glucocorticoids
- e. Anticholinesterase drugs

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

- a. Omeprazole
- b. Phenazepam
- c. Vicasol (Menadione)
- d. Dibazol (Bendazol)**
- e. Indometacin

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

- a. Isoniazid
- b. Diazepam
- c. Dibazol (Bendazol)
- d. Glaucine hydrochloride
- e. Indometacin**

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. Geographical
- b. Psychographic
- c. Behavioral
- d. Demographic**
- e. Social and economic

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

- a. Material losses suffered in the course of manufacturing
- b. Compliance with GMP regulations
- c. WHO directives
- d. Adjuvants**
- e. Drug dosing equipment

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. Cash deposit and cash withdrawal receipts
- b. Payroll records
- c. Payment orders
- d. Transactions log book**
- e. Invoices

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

- a. Solubilizers
- b. Thickeners
- c. Preservatives**
- 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. Phenazone
- b. Norfloxacin
- c. Ampicillin
- d. Caffeine**
- e. Chloramphenicol

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. Blue coloring
- b. Yellow coloring
- c. White opalescence**
- 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. Baby powder
- c. Riboflavin-containing powders
- d. Streptocide (sulfanilamide) ointment
- e. Kvater's mixture

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

- a. Copper-tartrate**
- b. Ammoniacal silver nitrate solution
- c. Sodium nitroprusside solution
- d. Alkaline potassium tetraiodomercurate solution
- e. Thiocyanogen bromide

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

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

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. Doxy cy cline

- b. Codeine phosphate
- c. Ambroxol
- d. Ascorbic acid
- e. Acetylcysteine

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. Photosensitization
- b. Allergic response

c. Dysbiosis

- 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. 30 000 UAH
- b. 15 000 UAH
- c. 35 000 UAH

d. 5 000 UAH

- e. 40 000 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. Interorganizational
- c. -
- d. Intergroup
- e. Individual vs. group

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. Beta-blockers
- c. Glucocorticosteroids
- d. Alpha -blockers
- e. Inhibitors of protein-degrading enzymes

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

- a. Taste-correcting agents

b. A sum of active substances

- c. Preservatives
- d. Only one active substance
- e. Smell-correcting agents

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

- a. 5% glucose solution
- b. Burow's solution
- c. Sodium chloride solution
- d. Nonaqueous solution

e. Collargol 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. Atropine sulfate

- b. Morphine hydrochloride
- c. Papaverine hydrochloride
- d. Codeine phosphate
- e. Ergotamine hydrotartrate**

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

- a. Bromhexine
- b. Sodium bicarbonate
- c. Tripsin
- d. Acetylcysteine
- e. Oxeladin**

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

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 Melissa
- b. Folia Absinthii
- c. Folia Betulae
- d. Folia Menthae piperitae
- e. Folia Eucalypti**

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. Viscosity
- b. Optical density**
- c. Solution pH
- d. Refractive index
- e. Angle of rotation

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. Sodium eosinate
- b. Calconcarbonic acid
- c. Potassium chromate
- d. Methylene blue
- e. Phenolphthalein**

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. Development
- b. Growth
- c. Decline
- d. Maturity**
- e. Introduction

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. Cumulation
- b. Psychological dependence
- c. Physical dependence

d. Tolerance

- e. Sensitization

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. Appearance
- c. Pharmacological action
- d. Marking
- e. Trade dress

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. Corglycon (convallatoxin)
- b. Enalapril
- c. Captopril
- d. Prazosin

e. Nitroglycerine

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. Metformin
- b. Etacrynic acid
- c. Urea

d. Insulin

- e. Glibenclamide

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. Famotidine
- b. Ranitidine
- c. Omeprazole
- d. Lansoprazole

e. Bismuth subcitrate

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. Metronidazole
- b. Acyclovir

c. Isoniazid

- 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. Dichloroethane
- b. Water
- c. Chloroform
- d. Ammonia solution

e. Aqueous-alcoholic solutions

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. Additional salary
- b. Incentive pay
- c. Pension benefit
- d. Base salary**
- e. Reimbursement

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

- a. Bradycardia
- b. Constipation**
- c. Elevated blood pressure
- d. Dysbiosis
- e. Osteoporosis

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

- a. Cost
- b. Thermostability
- c. Anti-hydrolysis effect
- d. Selectivity toward active substances**
- e. Pharmacological inertness

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

- a. Ultrasound
- b. Filtration through a membrane**
- c. High frequency current
- d. Addition of buffer solutions
- e. In autoclave chamber with high-pressure steam

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. Caffeine monohydrate
- b. Scopolamine hydrobromide
- c. Pachycarpine hydroiodide**
- 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. Oxeladin
- c. Ipratropium bromide
- d. Budesonide
- e. Fenoterol

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. Streptokinase
- c. Acetylsalicylic acid
- d. Clopidogrel
- e. Vicasol (Menadione)

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. Invoice
- c. Remains unregistered documentarily
- d. Note
- e. Cash deposit order

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

- a. Ointment concentrate production
- b. Homogenization**
- c. Dispersion
- d. Vehicle production
- e. Mixing components with the vehicle

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 route of administration
- c. By their Anatomical Therapeutic Chemical Classification
- d. Alongside medicines
- e. By their pharmacotherapy group

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. Autocratic
- b. Intuitive
- c. Collegial**
- 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. Beta-adrenergic antagonists
- c. Alpha-adrenergic agonists
- d. Calcium channel blockers
- e. Antispasmodics

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. Vicasol (Menadione)
- b. Ascorbic acid
- c. Tocopherol acetate
- d. Ergo calciferol
- e. Retinol acetate**

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. Maturity
- c. Decline
- d. Saturation
- e. Growth

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. Moisture content
- c. Extractive values
- d. Ash values (Total ash)
- e. Mineral admixtures

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. Legal
- c. Psychosocial
- d. Simulation
- e. Economic

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

a. Purchase order

- b. Report on the movement of packaging
- c. Receipt accounting log book
- d. Consolidated register
- e. Product revaluation notice

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. Marketing goals of the company
- b. Manufacturing costs

c. State regulation of price formation

- 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. 40 parts of anhydrous lanolin - 60 parts of vaseline For Eye Ointments
- c. Lanolin: vaseline -1:1
- d. 30 parts of lanolin - 70 parts of vaseline
- e. Vaseline For Eye Ointments

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. Commercial activity
- b. Manufacturing activity
- c. Charity

d. Social responsibility

- e. Financial activity

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. Hypermagnesemia
- b. Hypocalcemia
- c. Hyperkalemia
- d. Hybernatriemia

e. Hypokalemia

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. Biuret test
- b. Thiochrome test
- c. Ninhydrin test
- d. Vitali-Morin reaction
- e. Maltol 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-l-propanesul-fonic acid)**
- b. Protamine
- c. Methionine
- d. Naloxone
- e. Vicasol (Menadione)

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

- a. Diuretic
- b. Sedative
- c. Choleric
- d. Laxative**
- e. Litholytic

89. Polyethylene oxide base belongs to the following group:

- a. Hydrophilic**
- b. Amphiphilic
- c. Fatty
- d. Emulsion
- e. Hydrophobic

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

- a. 0.25
- b. 0.05**
- c. 5.0
- d. 0.5
- e. 0.025

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

- a. Material aid log book
- b. Medical certificate
- c. Employee time sheet**
- 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 CHCl₃ by performing a reaction with:

- a. Acetyl chloride
- b. Chloramine**
- c. Chloral hydrate
- d. Chloromethane
- e. Sodium chloride

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

- a. Seeds**

- b. Grass
- c. Flowers
- d. Leaves
- e. Roots

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. *Atropa belladonna*
- b. *Capsella bursa-pastoris*
- c. *Urtica dioica*
- 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 Urticae*
- b. *Folia Uvae-ursi*
- c. *Folia Farfarae*
- 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. Social (involvement in the events)
- b. Safety and protection
- c. Physiological
- 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. Committee
- b. Informal
- c. Manufacturing
- d. Formal
- e. Commercial

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. Life cycle stage of the drugs
- b. Market stability
- c. Quality of the drugs
- d. Novelty of the drugs
- e. Competitiveness of the drugs

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. Slime
- b. Pectin
- c. Inulin

- d. Essential oils
- e. Fatty oils

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

- a. Physical condensation
- b. Solvent substitution
- c. Continental method
- d. Dispersion with turbidization
- e. Chemical condensation

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 drops
- b. Eye ointments
- c. Eye lotions
- 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 back to the supplier
- b. Send the medicines to the Ministry of Health of Ukraine
- c. Send the medicines to a local laboratory of the State Drugs and Medications Control Service
- 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 chloride
- b. Potassium iodide
- c. Sodium bromide
- 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. Sodium bromide
- c. Sodium iodide
- d. Sodium chloride
- e. Hydrogen peroxide

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

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. Social and psychological
- b. Social and political
- c. Administrative
- d. Economic

e. Technological

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

- a. Sodium acetate
- b. Sodium citrate
- c. Sodium chloride
- d. Sodium bromide
- e. Sodium sulfite**

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. Lactulose
- b. Xylometazoline**
- c. Acyclovir
- d. Paracetamol
- e. Dexamethasone

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

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

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. Sales stimulation
- b. Merchandising
- c. Direct marketing
- d. Public relations**
- e. Personal selling

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. Organization
- b. Planning
- c. Motivation
- d. Regulation
- e. Control**

112. The »Bon-pharn« 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. Lobbying
- b. Direct marketing
- c. Publicity
- d. Product promotion
- e. Sponsorship**

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

- a. 18%**
- b. 20%
- c. 5%

- d. 0%
- e. 15%

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

- a. One month, not counting the current one
- b. Five years, not counting the current one**
- c. One year, not counting the current one
- d. Three years, not counting the current one
- e. The receipt form is not kept by the pharmacy

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

- a. An inventory list needs to be drawn up
- b. It should be assigned an inventory number and registered in the inventory cards**
- c. Information should be entered into the goods report
- d. A deposit order should be filled in
- e. No accounting documentation needs to be kept

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. Non-negotiable tangible assets
- b. Not accounted as assets
- c. Package
- d. Goods
- e. Fixed 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 21.00 to 9.00
- b. From 22.00 to 6.00**
- c. From 24.00 to 8.00
- d. From 23.00 to 7.00
- e. From 20.00 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. Coacervation
- b. Polymerization
- c. Pelleting
- d. Slurrying of the nuclei
- e. Galvanization**

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. Aminazine solution
- b. Glucose solution
- c. Novocaine (procaine) solution
- d. Hexamethylenetetramine solution**
- e. Diprazine (promethazine) 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. Stabilizers
- c. Pigments
- d. Preservatives
- e. Thickeners

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. Soluble tablets
- b. Modified-release tablets**
- c. Chewable tablets
- d. Effervescent tablets
- e. Dispersible 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. Anthracene derivatives
- b. Alkaloids
- c. Flavonoids
- d. Phenolic compounds
- e. Cardiac glycosides**

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

- a. Rose hips
- b. Persicaria hydropiper grass
- c. Cotinus coggygria leaves**
- 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. Bidens tripartita
- b. Styphnolobium japonicum**
- c. Glycyrrhiza glabra
- d. Ononis arvensis
- e. Thermopsis alterniflora

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

- a. Acorus calamus rhizomes
- b. Taraxacum roots
- c. Viburnum bark
- d. Passiflora grass**
- e. Populus nigra buds

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. Tormentillae radices
- c. Glycyrrhizae radices
- d. Taraxaci radices
- e. Calami 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. Azomethine dye
- c. Indophenol dye
- d. Iron(III) hydroxamate
- e. Aurine 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. Bromphenol blue
- b. Ferroin**
- c. Methyl orange
- d. Phenolphthalein
- e. Potassium chromate

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. Complexometric titration
- c. Cerimetry
- d. Permanganatometry
- e. Bromometry

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-Aminobenzene sulfonic acid
- c. n-Aminophthalic acid
- d. n-Chlorobenzoic acid
- e. n-Aminosalicylic acid