

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

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

2. A pharmacist has prepared a collargol solution. Name the type of disperse system in this case:

- a. Colloid solution
- b. Suspension
- c. Emulsion
- d. Aerosol
- e. True solution

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

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

4. A company manager analyzes, how effectively the available material assets are used, and identifies and eliminates the deviations arising in the course of work. What type of control is it?

- a. Final
- b. -
- c. Current
- d. Preliminary
- e. Financial

5. Standard stactometer divides 1 ml of water into:

- a. 30 drops
- b. 15 drops
- c. 10 drops
- d. 20 drops
- e. 25 drops

6. To reduce business risks, a pharmaceutical company expands its business by entering new areas and industries that are unrelated to the drug manufacturing. Name this process.

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

7. A certain herbal raw material is used to make Flamin cholagogue. Name this material:

- a. Crataegi flores
- b. Meliloti herba
- c. Helichrysi arenarii flores
- d. Tanacetii flores
- e. Violae herba

8. Achillea grass is harvested during a certain stage of plant growth. Name this stage:

- a. During the shoot growth
- b. During the fruiting
- c. During the budding
- d. During mass flowering
- e. Before the flowering

9. Soft gelatin capsules with an elongated neck are called:

- a. Microcapsules
- b. Rectal capsules
- c. Spansules
- d. Medules

e. Tubatines

10. Acyclovir is a drug with the nucleoside structure, effective against herpes virus. What reaction of its transformation in the body is associated with its antiviral effect?

- a. Hydrolysis
- b. Reduction
- c. Oxidation

d. Phosphorylation

e. Hydroxylation

11. What parameter is measured using a drum friability tester during tablet quality control?

- a. Uniformity of dosage
- b. Disintegration
- c. Dissolution
- d. Impurities

e. Abrasion resistance

12. To work properly, a pharmacy needs sufficient staff. What job position belongs to the auxiliary staff of a pharmacy?

a. Head of a department

b. Packer

- c. Accountant
- d. Pharmacist
- e. -

13. A pharmacist prepares cocoa butter-based round vaginal suppositories with less than 5% of citric acid. Specify the most rational approach to introduction of the active ingredient into the vehicle:

- a. Dissolve in Dimexid (Dimethylsulfoxide)
- b. Dissolve in molten cocoa butter

c. Dissolve in minimal quantity of purified water

- d. Dissolve in alcohol
- e. Dissolve in vaseline oil

14. The phytochemical workshop of a factory produces liquid extracts. What extractants are used in this manufacturing process?

- a. Chloroform
- b. Dichloroethane
- c. Ammonia solution

d. Aqueous-alcoholic solutions

e. Water

15. A 53-year-old woman suffers from ischemic heart disease and angina pectoris. What drug can be used to stop angina pectoris attacks?

- a. Acetylsalicylic acid
- b. Propranolol
- c. Drotaverine hydrochloride
- d. Dipyridamol

e. Nitroglycerine

16. A pharmacist prepares an infusion in proportion 1:400. Specify the herbal raw material used in this infusion:

- a. Oak bark
- b. Motherwort grass
- c. Althaea roots

d. Thermopsis grass

e. Camomile grass

17. A pharmacist prepares an injection solution that must be stabilized with 0,1M of hydrochloric acid solution. What solution is to be prepared?

a. Novocaine

b. Sodium benzoate

c. Hexamethylenetetramine

d. Calcium chloride

e. Potassium chloride

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

a. Gluconic

b. Glyoxylic

c. Glutaconic

d. Hexanic

e. Glutamic

19. A pharmacy prepares sodium chloride solutions for injections or infusions. What are the additional requirements to the quality of sodium chloride for infusion solutions?

a. Chemically pure, depyrogenated

b. Type <<for injections>>

c. No manganese salt admixtures

d. Anhydrous, analytical grade pure

e. Analytical grade pure

20. Althaea officinalis roots require special conditions for infusion. What special technique must be used for infusion of this herbal raw material?

a. The presence of sodium bicarbonate

b. The presence of ascorbic acid

c. Immediate filtration

d. Cold infusion

e. The presence of hydrochloric acid

21. 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. Glycyrrhizae radices

c. Taraxaci radices

d. Tormentillae radices

e. Calami radices

22. On the occasion of the Pharmaceutical Worker Day in Ukraine, the best employees at a pharmacy were awarded the Letters of Commendation. What type of management methods was used in this case?

a. Technological

b. Administrative

c. Economic

d. Socio-psychological

e. -

23. What group of drugs can be characterized by a side effect, where the color perception of surrounding objects is distorted, making everything yellow-green tinted?

a. Nonsteroidal anti-inflammatory drugs

b. Inhaled glucocorticoids

c. Cardiac glycosides

d. Mucolytics

e. Antibiotics

24. Under the current legislation, full or partial exemption of persons and legal entities from tax payment is called:

a. Tax system

b. Tax

c. Tax concession

d. Subject to taxation

e. Tax rate

25. The medicines that contain anthracene derivatives are used as laxatives. What medicinal plant contains this group of bioactive substances?

a. *Frangula alnus*

b. *Calendula officinalis*

c. *Bidens tripartita*

d. *Salvia officinalis*

e. *Eucalyptus globulus*

26. Which one of the listed solutions for injections must be stabilized with a 0.1 mol-eqL solution of hydrochloric acid?

a. Ascorbic acid

b. Sodium bicarbonate

c. Sodium thiosulfate

d. Novocaine (Procaine)

e. Caffeine and sodium benzoate

27. There are several formal and informal groups among the pharmaceutical company's employees. What feature is characteristic of formal groups?

a. They form as a result of interest, sympathy

b. The group leader receives authority from the group

c. They are created to implement the production process

d. They form spontaneously

e. They resist changes in the organization

28. What document must be prepared by a pharmacy's cashier for the cash collection?

a. Cash book

b. Payment order

c. Cashier's check

d. Accompanying statement

e. Cash deposit slip

29. 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. Chondrotoxicity

b. Photosensitization

c. Nephrotoxicity

d. Allergic response

e. Dysbiosis

30. What fatty oil should be used to make an ointment with reparative properties?

a. Oleum Cacao

b. Oleum Persicorum

c. Oleum Jecoris

d. Oleum Lini

e. Oleum Cucurbitae

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

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

32. What medicinal agents must be manufactured in aseptic conditions followed by thermal sterilization with high-pressure saturated steam?

- a. Injection solutions with thermostable substances**
- b. Concentrated solutions for burette systems
- c. Liquid ingestible antibiotics
- d. 2% collargol solution for infants
- e. Injection solutions with thermolabile substances

33. A pharmacy visitor periodically feels constricting pain behind the sternum. Explain to this visitor, what contraindication exists for taking nitroglycerin.

- a. Angle-closure glaucoma**
- b. Pulmonary fibrosis
- c. Heart failure
- d. Kidney failure
- e. Peptic ulcer disease

34. The price of a medicine depends on many factors. Which of the listed below is an internal factor of price formation for a pharmaceutical manufacturer?

- a. Manufacturing costs**
- b. Pricing policy of the competitors
- c. Demand for the product
- d. Middleman markup
- e. Customer preferences

35. What modern method is used to fill ampoules with injectable solutions?

- a. Syringe filling**
- b. Vacuum filling
- c. Chamber filling
- d. Ultrasonic filling
- e. Vortex filling

36. A powder containing a substance with specific weight has been prepared in a pharmacy. Name this substance:

- a. Talcum
- b. Sodium bicarbonate
- c. Bolus alba
- d. Basic bismuth nitrate**
- e. Sugar

37. The director of a pharmaceutical company is engaged in strategic planning. What is the final stage of this process?

- a. Strategy evaluation**
- b. Implementation of the strategic plan
- c. Formulation of the mission
- d. Choosing a strategy
- e. Evaluation and analysis of the external environment

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

- a. 0.9%**
- b. 1.0%

- c. 1.8%
- d. 5.0%
- e. 10.0%

39. Number of mediators that pharmaceutical goods pass on their way from manufacturer to consumer is called:

- a. Length of distribution channel
- b. Level of distribution channel
- c. Width of distribution channel
- d. -
- e. Volume of distribution channel

40. Strategic planning of pharmaceutical companies consists of several consecutive stages. What stage is the final one?

- a. Environment assessment and analysis
- b. Analysis of organisation's internal strength and weaknesses
- c. Strategy assessment
- d. Setting goals and tasks
- e. Choice of strategy

41. The method of preparing suspensions depends on the properties of the component substances. What substances have hydrophobic properties?

- a. Zinc oxide, talcum
- b. Camphor, menthol
- c. Sodium bicarbonate, sodium sulfate
- d. Bolus alba (kaolin), bentonite
- e. Boric acid, calcium carbonate

42. Limit cash balance is the maximum amount of monetary funds that can remain in the cash desk of an organization at the end of a workday. This limit is established by the following authorities:

- a. Pharmacy management
- b. Tax Inspectorate
- c. -
- d. Local authorities
- e. Chief physician

43. Direct argentometric titration using the Mohr method can be used for quantification of sulfathiazole (norsulfazole). What indicator is used in such analysis?

- a. Starch
- b. Methylene blue
- c. Potassium chromate
- d. Bromophenol blue
- e. Tropaeolin 00

44. A patient needs the pharmacy to prepare him a camphor ointment. What concentration of camphor should be in the ointment according to the regulatory documents?

- a. 1%
- b. 15%
- c. 5%
- d. 20%
- e. 10%

45. A dispensing chemist has dispensed to a pharmacy visitor one package of metformin tablets according to the family doctor's electronic prescription. This purchase is to be reimbursed. How long must a pharmacy keep such prescriptions?

- a. Return the prescription to the pharmacy visitor
- b. One month after the current one
- c. Two months after the current one
- d. Three years after the current one

e. Five years after the current one

46. Menthol has anesthetic and antiseptic effect. What plant is the source of menthol?

- a. Folia Menthae piperitae
- b. Folia Eucalypti
- c. Folia Uvae ursi
- d. Folia Salviae
- e. Folia Absinthii

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

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

48. Considering thermolability of most animal-derived injection preparations, they are sterilized by means of:

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

49. Among various types of tablet external layers there are enterosoluble coatings. Where in the body are they dissolved?

- a. Esophagus
- b. Rectum
- c. Stomach
- d. Oral cavity
- e. Intestine

50. What method of analysis takes into account the strengths and weaknesses of a pharmaceutical company, as well as opportunities and threats at the pharmaceutical market, in order to determine marketing goals, strategies, and specific measures that would make it possible to adapt the company's potential to market trends and conditions?

- a. ABC analysis
- b. SWOT analysis
- c. XYZ analysis
- d. VEN analysis
- e. Meta-analysis

51. What medicine is used for the symptomatic treatment of meteorism?

- a. Platyphyllin
- b. Simethicone
- c. Drotaverine
- d. Papaverine
- e. Almagel (Algedrate + magnesium hydroxide)

52. The process of rectification is used to make ethyl alcohol. This process is based on the following principle:

- a. Rinsing of exhausted raw material with 3-5 times the amount of ethanol
- b. Separation of the mixture consisting of mutually-associating liquids with different boiling temperature into separate fractions
- c. Deep vacuum distillation
- d. Distillation with inert gases
- e. Technology of obtaining liquid extracts

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

- a. Inventory item description
- b. Invoice
- c. Checklist
- d. Commercial report

e. Act on the inventory results

54. Various types of glass are used in production of parenteral drugs. What type of glass is used for photosensitive substances?

- a. Alkaline glass "AB-1"
- b. Neutral glass "HC-2"
- c. Borosilicate neutral glass "УСП -1"

d. Light-resistant neutral glass "CHC-1"

- e. Neutral glass "HC-2A"

55. 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. Scalpel
- b. Filter
- c. Tweezers

d. Sieve

- e. Mortars

56. A pharmacy has received a batch of herbal raw material - caraway fruits. What medicinal plant is cultivated for harvesting of this herbal raw material?

- a. Anethum graveolens
- b. Coriandrum sativum
- c. Foeniculum vulgare
- d. Anisum vulgare

e. Carum carvi

57. 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. Pink coloring
- c. Brown coloring
- d. Blue coloring
- e. Yellow coloring

58. What economic parameter characterizes the effectiveness of the pharmacy's commercial, financial, and manufacturing activity?

- a. Inventory turnover

b. Profitability

- c. Work productivity
- d. Circulation of goods
- e. Stock of goods

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

- a. Payroll
- b. Medical certificate
- c. Work schedule
- d. Material aid log book

e. Employee time sheet

60. A 46-year-old pharmacy customer suffers from chronic bronchitis and needs a medicine to

facilitate expectoration of thick viscous sputum. What drug is indicated in this case?

- a. Butamirate
- b. Oxeladin
- c. Ambroxol**
- d. Salbutamol
- e. Codeine phosphate

61. A certain primary document can be described as follows: "It is a document printed by a cash register, when it makes calculations regarding the goods sold". Specify this document:

- a. Cash withdrawal receipt
- b. Payment order
- c. Cash cheque
- d. Accounting form
- e. Fiscal receipt for the goods sold (or services rendered)**

62. What nonsteroidal anti-inflammatory drug is the most hematotoxic and can cause agranulocytosis?

- a. Indomethacin
- b. Acetylsalicylic acid
- c. Ibuprofen
- d. Metamizole sodium**
- e. Nimesulide

63. A pharmaceutical wholesaler has suffered commercial losses because of unpaid debts of a pharmacy network. What type of commercial losses is it?

- a. Labor
- b. Material
- c. Financial**
- d. -
- e. Special

64. Preparations of sorrel roots can have both a laxative and astringent effect. This is due to the presence of the following biologically active substances:

- a. Essential and fatty oils
- b. Anthracene derivatives and tannins**
- c. Iridoids and vitamins
- d. Flavonoids and essential oils
- e. Coumarins and phenol glycosides

65. The quantification of acetylsalicylic acid using the method of direct alkalimetry is recommended to be carried out at the temperature no higher than 20°C to prevent a certain process from occurring. What process is it?

- a. Reduction of the medicinal substance
- b. Hydrolysis of the ester group**
- c. Precipitation of the formed salt
- d. Decarboxylation of the medicinal substance
- e. Oxidation of the medicinal substance

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

- a. Add equal amount of sodium chloride
- b. Dissolve in the water free of redox substances
- c. Dissolve it in hot solvent or heat it up to full dissolution**
- d. First grind it into powder when it is dry or with small amount of solvent added
- e. Dissolve in alkaline medium

67. 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. Betula pendula

b. Calendula officinalis

c. Foeniculum vulgare

d. Crataegus sanguinea

e. Tanacetum vulgare

68. Microscopy of herbal raw material reveals the following diagnostic characters in the microslide: pseudostratified cork, large parenchyma cells, filled with inulin, clearly visible cambium layer, large vessels, schizogenous cavities with essential oil. These features confirm the authenticity of the following herbal raw material:

a. Radices Althaeae

b. Radices Ononidis

c. Rhizomata et radices Rubiae

d. Radices Taraxaci

e. Rhizomata et radices Inulae

69. The main method of quantitative determination of corticosteroids is:

a. Cerimetry

b. Acidimetry

c. Spectrophotometry

d. Argentometry

e. Potentiometry

70. A pharmacist needs to add a stabilizer to prepare an atropine sulfate solution for injections. What stabilizer would the pharmacist choose for this purpose?

a. Sodium bicarbonate

b. Sodium metabisulfite

c. Hydrochloric acid

d. Sodium hydroxide

e. Ascorbic acid

71. A pharmaceutical company plans to sell its products in another country together with a foreign company. What type of company's entry to the foreign market is it?

a. Import

b. Direct investments

c. Franchising

d. Tender

e. Joint venture

72. The marketing team of a pharmaceutical company has performed a comparative analysis of internal environment and external conditions. They have analyzed strengths and weaknesses, opportunities and threats. The marketing team has performed:

a. VEN analysis

b. ABC analysis

c. PEST analysis

d. -

e. SWOT analysis

73. In the process of industrial production of rectal suppositories, certain substances insoluble both in water and suppository vehicle are introduced into this dosage form. Specify the optimal way to introduce these substances:

a. Melt all of fatty vehicle and dissolve the substances there

b. Introduce the substances as an emulsion

c. Introduce the substances as a suspension

d. Melt a part of fatty vehicle and dissolve the substances there

e. Dissolve the substances in the water heated to 45°C

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

a. Before ethanol-containing liquids are added

b. After solid medicinal substances are dissolved

c. First

- d. Last, because of its essential oil content
- e. After concentrated solutions

75. During the transportation of alkaloid drugs, the markings on their packaging were damaged. Qualitative group reactions for alkaloids revealed that the Vitali-Morin test was positive. Therefore, the analyzed drug belongs to the following group of derivatives:

- a. Purine derivatives
- b. Quinuclidine derivatives
- c. Indole derivatives
- d. Isoquinoline derivatives

e. Tropane derivatives

76. At a pharmacy, during the visual inspection, an authorized person has doubts about the quality of medicines. What measures should be taken in this case?

a. Withdraw the medicines and send them for laboratory testing

- b. Withdraw the medicines and send them to the quality assurance department of the manufacturing company
- c. Withdraw the medicines and send them for disposal
- d. Withdraw the medicines and send them back to the supplier
- e. Withdraw the medicines and send them back to the manufacturing factory

77. Folia Eucalypti is used as an antiseptic, anti-inflammatory, analgesic, and bactericidal agent. What group of bioactive substances is measured for the quality control of Folia Eucalypti?

- a. Polysaccharides
- b. Cardiac glycosides

c. Essential oils

- d. Alkaloids
- e. Flavonoids

78. Rectal suppositories, each containing 0.1 g of euphyllin (aminophylline), are being hand-rolled for the patient. What amount of vehicle should be taken for one suppository, if its mass is unspecified in the formulation?

- a. 3.9 g
- b. 2.9 g**
- c. 1.9 g
- d. 2.4 g
- e. 1.4 g

79. Arctostaphylos leaves have uroseptic effect. The following is an allowable admixture to this herbal raw material:

- a. Folia Cotini coggygriae
- b. Herba Bursae pastoris

c. Folia Vitis idaeae

- d. Folia Urticae
- e. Folia Digitalis lanata

80. The solubility of high-molecular compounds depends on their nature. Specify a high-molecular compound that can swell up indefinitely:

- a. Starch

b. Pepsin

- c. Methylcellulose
- d. Pectin
- e. Gelatin

81. What parameter characterizes the ratio of the height of the powder in the matrix to the height of the obtained tablet?

- a. Porosity

b. Compaction (compression) coefficient

- c. Bulk volume
- d. Compression value
- e. Flowability

82. 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. Industrial activity
- b. Commercial activity
- c. Social responsibility**
- d. Charity
- e. Financial activity

83. 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 lotions**
- c. Eye inserts
- d. Eye ointments
- e. Eye sprays

84. A refractometer is used to identify and test the glycerine substance. What parameter is measured using this device?

- a. Refractive index**
- b. Angle of rotation
- c. Optical density
- d. Melting point
- e. Dynamic viscosity

85. The pharmaceutical company directs all the efforts to the restoration of the range of endangered medicinal plants listed in the Red Book of Ukraine. What type of responsibility does the firm take on?

- a. Administrative
- b. Legal
- c. Criminal
- d. Social**
- e. Personal

86. A manufacturer plans to sell its new medicine directly to the consumers through its own network of pharmacies. What type of distribution channel is it?

- a. Direct distribution channel (zero channel)**
- b. One-level distribution channel
- c. Two-level distribution channel
- d. Four-level distribution channel
- e. Three-level distribution channel

87. How should the rectal ointments be applied?

- a. Apply to the nasal mucosa
- b. Apply to the skin
- c. Apply to the affected area of the anus**
- d. Apply to the conjunctival mucosa
- e. Applied to the external genitalia

88. A patient, who for the last three weeks was taking a laxative - a decoction of Frangula bark, has noticed a significant decrease in its clinical effect. What is the name of this phenomenon?

- a. Cumulation
- b. Tolerance**
- c. Withdrawal syndrome
- d. Sensitization
- e. Idiosyncrasy

89. A pharmacy has submitted its financial report for the first quarter of 2021. It contains the following information: turnover - 92 000 UAH, cost price of the goods sold - 60 000 UAH. Therefore, the price markup for this period amounts to:

- a. 90 000 UAH
- b. 32 000 UAH**
- c. 2 000 UAH
- d. 60 000 UAH
- e. 62 000 UAH

90. A 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 of the substance. This test is known as:

- a. Ninhydrin test
- b. Vitali-Morin reaction
- c. Maltol test**
- d. Biuret test
- e. Thiochrome test

91. A patient suffers from avitaminosis C) The physician has prescribed a course of phytotherapy. What herbal raw material is rich in this vitamin?

- a. Cortex Quercus
- b. Fructus Sorbi**
- c. Folium Menthae piperitae
- d. Rhizoma Tormentillae
- e. Cortex Viburni opuli

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

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

93. Audit of the macroenvironment of a pharmaceutical company has revealed a change in the number, density, and age structure of the population. What factors of the macroenvironment were studied?

- a. Technological
- b. Political
- c. Environmental and ecological
- d. Economic
- e. Socio-demographic**

94. When an extractant is filtered through a herbal raw material to obtain an extract of the substances soluble in this extractant, this process is called:

- a. Remaceration
- b. Percolation**
- c. Maceration
- d. Turbo extraction
- e. Steeping

95. Vitamin K is known to take part in formation of prothrombin and to facilitate blood coagulation. What herbal raw material accumulates significant amounts of vitamin K and has a hemostatic effect?

- a. Folia Fragariae
- b. Folia Menthae piperitae
- c. Folia Urticae**

- d. Semina Hippocastani
- e. Fructus Hippophaes

96. A pharmacist has prepared an oak bark decoction. What is the ratio of the herbal raw material to extractant?

- a. 1:30
- b. 1:5
- c. 1:20
- d. 1:400
- e. 1:10**

97. A doctor has written the following prescription for the preparation of a dosage form: Unguenti Benzylpenicillini-natrii 10.0 Misce. Da. Signa: Apply under the eyelid 3 times a day endtabular. What base should be used to make this ointment?

- a. 10.0 of vaseline (petroleum jelly) "for eye ointments"
- b. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (5:5)
- c. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (7:3)
- d. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (6:4)**
- e. A mixture of paraffin and sunflower oil (3:7)

98. What corticosteroid medicinal substance has two fluorine atoms in its chemical structure?

- a. Triamcinolone acetonide
- b. Fluocinolone acetonide**
- c. Prednisolone
- d. Hydrocortisone acetate
- e. Dexamethasone

99. The tablet workshop at a pharmaceutical factory manufactures tablets adding adjuvants into the tablet mass. What substances belong to taste correctors?

- a. Starch, glucose, kaolinite, magnesium oxide, sodium bicarbonate
- b. Purified water, starch glue, sugar syrup, gelatin, carboxymethylcellulose solution
- c. Sugar, glucose, essential oils, menthol, fruit juice concentrates, indigo carmine, iron oxide, mannitol**
- d. Stearic acid, calcium and magnesium stearate, starch, talcum
- e. Methylcellulose, polyvinylpyrrolidone, acetylphthalylcellulose

100. A 6-year-old child developed pneumonia and was prescribed an antibiotic for its treatment. After the treatment the child's hearing deteriorated. What drug could have caused this complication?

- a. Azithromycin
- b. Ampicillin
- c. Gentamicin**
- d. Ceftriaxone
- e. Penicillin

101. The documents of a pharmaceutical company are being received and sent in a centralized manner; the documents are stored, drawn-up, registered, and assembled into cases both in the Office Desk of the company and the company's divisions. Specify this type of records management system:

- a. Mixed**
- b. -
- c. Decentralized
- d. Referent
- e. Centralized

102. An analytical pharmacist uses a reaction with a sodium hydroxide solution during boiling to identify a nicotinamide substance. What gaseous product is released as a result of this reaction?

- a. Sulfur(VI) oxide
- b. Hydrogen sulfide
- c. Formaldehyde
- d. Ammonia**
- e. Carbon(IV) oxide

103. What department of a wholesale firm is tasked with search for and analysis of potential suppliers' commercial offers, as well as concluding supply contracts and supervision of contract fulfillment?

- a. Stores development
- b. Marketing department
- c. Shipping department
- d. Supply department**
- e. Finance department

104. For targeted delivery of medicinal substances, a special dosage form is used. It is formed by a double lipid layer with the cavities, within which the formation sphere is located. What is the name of this dosage form?

- a. OROS tablet
- b. Transdermal therapeutic system
- c. Liposome**
- d. Infusion therapeutic system
- e. Matrix tablet

105. A young mother has come to a pharmacy to buy an antipyretic drug for her 3-month-old infant. What dosage form would you choose for the infant?

- a. Lozenges
- b. Suppositories**
- c. Tablets
- d. Spray
- e. Capsules

106. The head manager of a pharmacy has decided to apply various management methods as a means of influencing separate employees and the staff as a whole. What management methods can be classified as psychosocial?

- a. The process of salary calculation for the sales department employees
- b. Plan for improvement of the working conditions at the pharmaceutical facility**
- c. The process of distribution of duties between the technical level managers
- d. -
- e. Material stimuli that include salary rates, extra pay, increments, bonuses, etc.

107. Pharmacy employees receive their salary payments twice a month. What should the cashier do, if a pay day coincides with a holiday?

- a. To pay the salaries one day earlier**
- b. To pay the salaries 10 days earlier
- c. To pay the salaries after the holiday
- d. To pay the salaries on the holiday
- e. There are no regulations regarding payment of salaries in this case

108. Eucalyptus essential oil is used as an antiseptic. What excretory structures of a leaf accumulate this substance?

- a. Glandular <<spots>>
- b. Glandular hairs
- c. Secretory cells
- d. Essential oil glandules
- e. Essential oil cavities**

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

- a. KMnO_4
- b. $[\text{NH}_4]_2\text{C}_2\text{O}_4$
- c. FeCl_3**
- d. $\text{K}_2[\text{HgI}_4]$
- e. K_2CrO_4

110. A patient was prescribed an oral antibiotic for treatment and an antacid to remove heartburn symptoms. If the drugs are taken simultaneously their interaction can result in the following:

- a. Acceleration of metabolism and excretion
- b. Mutual potentiation
- c. Antibiotic malabsorption**
- d. Inhibition of hepatic microsomal enzymes
- e. Relative overdosage

111. A man with arterial hypertension was recommended the following to increase the antihypertensive effect of a diuretic:

- a. Increase the amount of liquids in the diet
- b. Decrease the physical exertion
- c. Decrease the amount of table salt in the diet**
- d. Increase the amount of table salt in the diet
- e. Increase the physical exertion

112. A 43-year-old patient with a severe form of rheumatoid arthritis has been administered a certain drug for background therapy. Specify this drug:

- a. Methylprednisolone
- b. Nimesulide
- c. Prednisolone
- d. Methotrexate**
- e. Diclofenac sodium

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

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

114. The chemical name of 2,2-(diphenylmethoxy)-N,N-dimethyl-ethanamine hydrochloride corresponds with the following medicinal substance:

- a. Papaverine hydrochloride
- b. Ethylmorphine hydrochloride
- c. Diphenhydramine hydrochloride**
- d. Ciprofloxacin hydrochloride
- e. Lidocaine hydrochloride

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

116. When solution of a medicinal agent is being heated with sodium hydroxide, it produces an acrid smell; red litmus paper soaked in water becomes blue. What ion is being identified in the course of this procedure?

- a. Arsenite ion
- b. Nitrate ion
- c. Acetate ion
- d. Ammonium ion**
- e. Carbonate ion

117. What is the rational method of introducing magnesium oxide into an oil emulsion?

- a. Dissolution in water to prepare the primary emulsion
- b. Dissolution in oil
- c. Comminution with the water intended for the dilution of the primary emulsion
- d. Dissolution in the prepared emulsion
- e. Introduction as a suspension into the prepared emulsion**

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

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

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

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

120. A 65-year-old man with community-acquired pneumonia was prescribed antibiotic agent amikacin. It should be kept in mind, that amikacin has the following side-effect:

- a. Decreased blood pressure
- b. Increased blood pressure
- c. Vomiting
- d. Red coloring of urine
- e. Ototoxicity**

121. A pharmacist has prepared an aqueous extract using the cold infusion method. What herbal raw material was it?

- a. Thermopsis grass
- b. Mint leaves
- c. Buckthorn bark
- d. Arctostaphylos leaves
- e. Marshmallow roots**

122. A pharmacy visitor approached the pharmacist with complaints of constricting retrosternal pain that radiates under the left scapula. The pain occurred after physical exertion and lasts approximately 5 minutes already. What medicine should be recommended to this visitor to stop the pain attack?

- a. Bisoprolol
- b. Nitroglycerin**
- c. Captopril
- d. Diclofenac sodium
- e. Drotaverine

123. To prepare an ointment, a pharmacist has additionally used paraffin. What is the role of paraffin in the technology?

- a. Dispersing agent for powders
- b. Emulsifier
- c. Vehicle
- d. Preservative
- e. Densifier**

124. A pharmaceutical factory produces various types of tablets. What is the purpose of Solublettae tablets?

- a. Preparation of solutions for various pharmaceutical purposes**
- b. Rectal administration

- c. Implantation
- d. Sublingual administration
- e. Preparation of solutions for injections

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

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

126. What tablet coating protects stomach from harmful influence of active ingredients?

- a. Gastrically absorbed
- b. Water-soluble
- c. Intestinally absorbed**
- d. -
- e. Fat-soluble

127. A lactone test was conducted to verify the authenticity of Melilotus grass. What group of compounds can be detected using this test?

- a. Coumarins**
- b. Saponins
- c. Anthracene derivatives
- d. Cardiac glycosides
- e. Lignans

128. According to the State Pharmacopoeia of Ukraine, an analytical chemist determines quantitative content of potassium acetate by means of acidimetry in non-aqueous medium. Name the volumetric solution in this case:

- a. Sodium hydroxide
- b. Iodine
- c. Perchloric acid**
- d. Sodium nitrite
- e. Potassium bromate

129. All the values, traditions, behavioral norms, and views that are characteristic of the employees of a pharmaceutical company together form its:

- a. Etiquette
- b. -
- c. Culture**
- d. Diversification
- e. Integration

130. At the laboratory of pharmacopoeial analysis, glutamic acid is being identified using the method of thin-layer chromatography. What reagent is used to develop a chromatogram?

- a. Aniline
- b. Pyridine
- c. Ninhydrin**
- d. Diphenylamine
- e. Cyanogen bromide

131. A pharmacist prepared a 5% glucose solution and added 5 mL of Weibel's stabilizer. What is the volume of the prepared solution?

- a. 50 mL
- b. 300 mL
- c. 1000 mL
- d. 100 mL**
- e. 500 mL

132. Who gives permission to distribute medical products between the structural divisions of a pharmacy, after these products have successfully passed the on-receipt inspection?

- a. Accountant
- b. Pharmacist on duty
- c. Lawyer
- d. Supplier representative

e. Authorized person

133. What quality indicator is subject to additional control during the production of eye drops in the form of suspensions?

- a. Purification methods
- b. Particle size**
- c. Acid value and peroxide value
- d. Moisture content
- e. Dry residue

134. Functional group analysis is widely used to identify organic medicines. What medicine contains phenolic hydroxyl in its structure?

- a. Sulfanilamide
- b. Phenazepam
- c. Epinephrine tartrate**
- d. Promedol (Trimeperidine)
- e. Papaverine hydrochloride

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

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

136. 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 bromide
- c. Sodium chloride
- d. Sodium citrate

e. Sodium sulfite

137. A phytochemical department of a factory produces Calendula tincture. What herbal raw material is used in the manufacturing process?

- a. Roots, rhizomes, and grass
- b. Leaves and essential oil
- c. Grass
- d. Roots

e. Flowers

138. Hydrogen peroxide solution can be bought in different concentrations in a pharmacy. What concentration should be offered to a patient, if the patient's receipt does not specify hydrogen peroxide concentration?

- a. 10%
- b. 3%**
- c. 20%
- d. 2%
- e. 30%

139. A technological controller uses Marquis reagent to identify the substance of acetylsalicylic acid after acid hydrolysis. Positive effect of the reaction would be indicated by the following coloring:

- a. Yellow
- b. Green
- c. Violet
- d. Blue
- e. Pink**

140. Vitali-Morin's reaction is used to identify tropane alkaloids in herbal raw material. Name the alkaloid that can be detected by means of this specific reaction:

- a. Platyphyllin
- b. Morphine
- c. Scopolamine**
- d. Papaverine
- e. Codeine

141. A pharmacy opens a bank account to store funds and conduct ongoing business transactions. What kind of account should be opened?

- a. Provisional
- b. Investment
- c. Deposit
- d. Letter of credit
- e. Current**

142. What is the minimum amount of boric acid that can be weighed on the BP-1 hand scales?

- a. 0.01 g
- b. 0.03 g
- c. 0.05 g
- d. 0.04 g
- e. 0.02 g**

143. A medical facility purchases antitumor drugs directly from a domestic manufacturer. What is the level of the sales channel used in this case?

- a. Four-level channel
- b. One-level channel
- c. Two-level channel
- d. Three-level channel
- e. Zero-level channel**

144. What is the shortest goods distribution channel for medical products?

- a. Three-level
- b. Four-level
- c. Two-level
- d. One-level
- e. Zero-level**

145. What technological method is used to prepare powders with dyes?

- a. Mixing in ascending order, from smaller to larger volume
- b. Mixing in descending order, from larger to smaller volume
- c. The principle of <<three layers>>**
- d. Preliminary sifting
- e. The dye is added last, after the mixture is prepared

146. 1,8-cineole is a bactericidal component of essential oil. Specify the medicinal herb that is grown in Ukraine and contains 1,8-cineole in its essential oil:

- a. Salvia officinalis**
- b. Inula helenium
- c. Origanum vulgare
- d. Eucalyptus globulus
- e. Juniperus communis

147. Natural penicillins are unstable at high temperatures and quickly break down in alkaline and acidic environments. What cycle causes such chemical properties of natural penicillins?

- a. Phenothiazine
- b. Furan
- c. Quinoline
- d. Pyridine

e. beta-lactam

148. According to the State Pharmacopoeia of Ukraine, cerimetry should be used to determine the quantitative content of paracetamol. What solution is used as a titrant in this case?

- a. Potassium permanganate
- b. Silver nitrate

c. Cerium sulfate

- d. Hydrochloric acid
- e. Iodine monochloride

149. At what cost will protargol nasal drops be dispensed at a pharmacy if a pediatrician prescribes it for treatment of a 2-year-old child?

a. Free of charge

- b. With 70% discount
- c. With 50% discount
- d. At full cost
- e. With 30% discount

150. Based on the medical certificate, a patient can receive financial assistance due to temporary disability. Financial assistance for temporary disability textbfCANNOT be provided:

- a. In case of disease (trauma)
- b. -
- c. If sick leave is taken for child care
- d. If only sanatorium-and-spa treatment is required

e. In case of intentional self-harm

151. An analytical pharmacist of the quality control department analyzes the phenol substance. What method of quantification is used for this purpose?

a. Mercurimetry

b. Bromatometry

- c. Complexonometry
- d. Argentometry
- e. Permanganatometry

152. Most drugs contain heterocyclic fragments in their structure. Which of the following drugs is a pyrrole derivative?

- a. Tolbutamide
- b. Phencarol (Quifenadine)
- c. Furosemide
- d. Bendazol

e. Piracetam

153. Cash can be withdrawn from the organisation's funds on the basis of a withdrawal receipt. What transaction requires a withdrawal receipt?

a. Coverage of the shortages revealed during the stock-taking

b. Payment for the goods purchased for the household needs

- c. Return of unused accountable funds
- d. Receipt of the proceeds from sales
- e. Receipt of the funds for salary payment

154. Information on the pharmacy's actual stock of narcotic drugs, psychotropic substances, and precursors must be checked against the balance records made in the relevant logbook. How often must it be done?

- a. Quarterly
- b. Daily
- c. -
- d. Annually
- e. Monthly**

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

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

156. A pharmacist prepares 180 ml of adonis grass infusion. How much herbal raw material should be taken to prepare this infusion?

- a. 6.0**
- b. 18.0
- c. 15.0
- d. 2.0
- e. 10.0

157. Hyoscyamine and scopolamine are typically contained in the plants of the following family:

- a. Asteraceae
- b. Solanaceae**
- c. Apocynaceae
- d. Fabaceae
- e. Papaveraceae

158. How are pharmacies classified in Ukraine based on their commercial and manufacturing functions?

- a. Retail and hospital pharmacies
- b. Compounding and retail pharmacies**
- c. State, community-owned, and private pharmacies
- d. Pharmacies with centralized and decentralized accounting
- e. Self-financing pharmacies and pharmacies financed from the state budget

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

- a. Alongside medicines
- b. By their application
- c. By their pharmacotherapy group
- d. On separate shelves and in separate shopwindows**
- e. By their Anatomical Therapeutic Chemical Classification

160. A marketer of a pharmaceutical enterprise uses primary and secondary marketing information for market analysis. What information is considered to be primary?

- a. Published in statistical reference books
- b. Obtained from publications in scientific magazines
- c. Published in mass media
- d. Collected for the first time for a specific purpose**
- e. Published in the company's annual report

161. Within the last year the "East-Pharmacy" pharmaceutical wholesaler has lost 10% of its employees, who resigned and were hired by the competitor company "East-Optima". Individual transfer of the "East-Pharmacy" employees to the "East-Optima" company can be characterized as:

- a. Staff dynamics
- b. Staff turnover**
- c. Personnel certification

- d. Staff motivation
- e. Job rotation

162. What reagent is used to identify sodium sulfate?

- a. Barium chloride**
- b. Iron(III) chloride
- c. Calcium chloride
- d. Cobalt chloride
- e. Silver nitrate

163. The thyme grass is used for the production of herbal medical products for the treatment of respiratory tract infections. Under the State Pharmacopoeia of Ukraine the herbal raw material is subject to chromatographic identification by means of thin layer chromatography. What substances are detected on the chromatographic plate after its treatment with due reagent?

- a. Apigenin and luteolin
- b. Thymol and carvacrol**
- c. Arbutin and methyl arbutin
- d. Atropine and hyoscyamine
- e. Quercetin and rutin

164. A pregnant woman with signs of acute rhinitis came to a pharmacy. What drug for symptomatic treatment of rhinitis will be the safest in this case?

- a. Cromoglicic acid preparations
- b. Essential oil-based preparations
- c. Xylometazoline preparations
- d. Salt solutions based on iso- and hypotonic sodium chloride solutions**
- e. Beclomethasone preparations

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

- a. Nitroxoline
- b. Nifuroxazide**
- c. Furadonin (Nitrofurantoin)
- d. Furacilin (Nitrofural)
- e. Nalidixic acid

166. 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 minimal amount of water**
- b. Dissolution in ethyl alcohol
- c. Dissolution in the melted base
- d. Dissolution in the minimal amount of castor oil
- e. Dissolution in the minimal amount of alcohol-water-glycerin mixture

167. A medicinal plant contains hydroxycoumarins and is used in production of venotonic agents. Name the herbal raw material harvested from this plant:

- a. Fructus Pastinacae sativae
- b. Semina Hippocastani**
- c. Herba Meliloti
- d. Fructus Dauci carotae
- e. Fructus Ammi majoris

168. On the initiative and with support of the manufacturing company, free samples of adhesive bandages were handed out to the visitors at a pharmacy. What element of the marketing communications complex is it?

- a. Personal selling
- b. Public relations
- c. Advertising

d. Lobbying

e. Sales promotion, sampling

169. The head managers of the pharmacy's over-the-counter department and ready-to-use drugs department exchange information on the demand for medicines. What type of communication is it?

a. Interlevel

b. External

c. Horizontal

d. Vertical descending

e. Vertical ascending

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

a. Nifedipine

b. Trimetazidine

c. Amlodipine

d. Metoprolol

e. Nitrosorbid

171. A dispensing chemist uses iodometry (back titration) for quantitative determination of caffeine medicinal substance. What indicator is used in this case?

a. Eriochrome black

b. Litmus paper

c. Phenol red

d. Starch

e. Phenolphthalein

172. The owner of a pharmacy network unilaterally decides to register its trade mark, based on his feeling that he makes the right choice. What type of managerial decision is it?

a. Intuitive

b. Adaptive

c. Collegial

d. Collective

e. Rational

173. Aqueous lanolin consists of:

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

b. 70 parts of anhydrous lanolin and 30 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

174. Several independent mediators work in resale of medical equipment. What group of mediators includes persons and legal entities that specialize in sales of durable goods that require considerable after-sales service?

a. Agent

b. Commission agent

c. Dealer

d. Consignee

e. Broker

175. Pectin is a heteropolysaccharide. What is its pharmacological effect?

a. Expectorant

b. Litholytic

c. Cardiotonic

d. Detoxicant

e. Astringent

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

- a. Benzene
- b. Chloroform
- c. Dimethyl formamide**
- d. Anhydrous acetic acid
- e. Ethyl alcohol

177. The material accountability of an employee is determined by the written agreement. When does the agreement of employee's material accountability need to be concluded anew?

- a. Change of the chief accountant
- b. Change of the janitor
- c. Change of the head manager or replacement of over 50% of the initial personnel**
- d. Change of the dispensing chemist
- e. Replacement of over 30% of the initial personnel

178. Publicly-owned Isotope factory is the only manufacturer of radiopharmaceuticals in Ukraine. What type of distribution is characteristic of radioactive drugs?

- a. Exclusive**
- b. Selective
- c. Bulk
- d. Intensive
- e. Sample

179. 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. Potassium fluoride
- b. Potassium iodide
- c. Sodium fluoride
- d. Sodium chloride
- e. Sodium bromide**

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

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

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

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

182. According to Decree №360 issued by the Ministry of Health of Ukraine, there is a list of medicines that cannot be prescribed to outpatients. Select one such drug from the list below:

- a. Nitrous oxide**
- b. Tramadol
- c. Zopiklon
- d. Tetracaine
- e. Atropine sulfate

183. The marketing department of a pharmaceutical factory determined that the demand for the

echinacea syrup for kids greatly fluctuates in response to the smallest changes in its price. What type of demand is it?

- a. Perfectly inelastic demand
- b. Elastic demand**
- c. Unitary demand
- d. Universal demand
- e. Inelastic demand

184. A pharmacist has prepared a medicine, using the following formulation: Magnesii oxydi Natrii hydrocarbonatis ana 0.2 M. f. pulv. D. t. d. №12 S. Take one powder thrice a day. endtabular What is the optimal preparation technique in this case?

- a. Comminute sodium bicarbonate, add magnesium oxide, mix the ingredients**
- b. Comminute magnesium oxide with alcohol, add sodium bicarbonate, mix the ingredients
- c. Comminute sodium bicarbonate with alcohol, add magnesium oxide, mix the ingredients
- d. Comminute magnesium oxide, add sodium bicarbonate, mix the ingredients
- e. Comminute a part of magnesium oxide, add sodium bicarbonate, add the remaining magnesium oxide, mix the ingredients

185. A patient developed dry cough while undergoing pharmacotherapy for arterial hypertension. What group of drugs can be characterized by this side effect?

- a. ACE inhibitors**
- b. Antacids
- c. Tranquilizers
- d. Calcium antagonists
- e. Antipsychotics

186. A certain medicinal plant belongs to the Papaveraceae family. It produces a characteristic yellow milky sap and has choleretic, antiseptic, and diuretic properties. The main active substance contained in this plant is alkaloid chelidonine. Name this plant:

- a. Berberis vulgaris
- b. Hyoscyamus niger
- c. Papaver somniferum
- d. Chelidonium majus**
- e. Atropa belladonna

187. Highly convincing approach to informing the population about the company and its products, commercial promotion of high use value of the goods and proper conduct of business by the company, actions intended to prompt purchase of goods by both active and potential customers are all characteristic of:

- a. Marketing
- b. Communications
- c. Advertisement**
- d. Trademark
- e. Supply

188. Dried Vaccinium berries can be used as an astringent. The astringent properties of this herbal raw material are caused by the presence of certain substances. Name these substances.

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

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

- a. Receipt log book
- b. Product revaluation notice
- c. Purchase order**

- d. Consolidated register
- e. Report on the movement of packaging

190. A pharmacist prepares a mixture that according to the prescription must contain ammonia spirit-anise spirit drops. What type of a disperse system will form as a result?

- a. Colloidal solution
- b. True solution
- c. Emulsion
- d. Opalescent mixture**
- e. High-molecular compound solution

191. 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. Beta-adrenergic antagonists
- b. Calcium channel blockers
- c. Antispasmodics
- d. Alpha-adrenergic agonists
- e. Nitrates**

192. A pharmaceutical factory uses dragee machines to apply multiple layers of active substances and adjuvants to sugar granules. The end product of this process is the following dosage form:

- a. Microcapsules
- b. Dragee**
- c. Granules
- d. Spansules with polymer coating
- e. Dragee tablets

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

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

194. An accountant conducts necessary calculations for remuneration of labor. Name the type of remuneration that is due for labor carried out according to the work standards and is paid within the amount determined by basic or piece wages for factory workers and salaries for office workers:

- a. Financial aid
- b. Basic pay**
- c. Increment
- d. One-off payment
- e. Bonus

195. Simultaneous application of doxycycline hydrochloride and oral contraceptive causes:

- a. -
- b. Increase of the antibacterial effect of doxycycline
- c. Reduction of the antibacterial effect of doxycycline
- d. Reduction of oral contraceptives effectiveness**
- e. Increase of oral contraceptives effectiveness

196. Paracetamol reaction with hydrochloric acid, followed by addition of potassium dichromate, produces the following:

- a. Indophenol dye**
- b. Triphenylmethane dye
- c. Aurin dye
- d. Schiff base
- e. Azo dye

197. The head manager of a pharmacy, together with the heads of its departments, decided to expand the selection of products on sale at this pharmacy by expanding the range of products for diabetic nutrition. What type of managerial decision is it?

- a. Individual
- b. Received from a higher-level organization
- c. Personal
- d. Collegial**
- e. -

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

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

199. Adhesive bandages have an effect on the skin, subcutaneous tissue, and in some cases on the entire body. What bandage is manufactured with the saponification reaction occurring in the process?

- a. Adhesive bandage
- b. Simple lead bandage**
- c. Bactericidal adhesive bandage
- d. Pepper plaster bandage
- e. Callus treatment bandage

200. 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 political
- b. Economic**
- c. Technological
- d. Social and psychological
- e. Administrative

201. A pharmaceutical company makes medical products, special nutrient supplements, and medical cosmetics. What type of business activity is it?

- a. -
- b. Financial and credit activity
- c. Manufacturing activity**
- d. Commercial activity
- e. Financial activity

202. 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 the Ministry of Health of Ukraine
- b. Send the medicines to a local laboratory of the State Drugs and Medications Control Service**
- c. Send the medicines to the nearest compounding pharmacy that employs a dispensing chemist
- d. Send the medicines back to the manufacturer
- e. Send the medicines back to the supplier

203. 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. Phenolphthalein
- b. Bromphenol blue
- c. Potassium chromate
- d. Ferroin**
- e. Methyl orange

204. A 28-year-old woman came to a pharmacy complaining of constipation that developed after antacid treatment. What drug could be the cause of this symptom?

- a. Magnesium-containing drugs
- b. Ranitidine
- c. Aluminium-containing drugs**
- d. Simethicone
- e. Calcium carbonate

205. What reagent should be used by a dispensing chemist-analyst in a reaction for pyridine ring identification?

- a. Chromotropic acid disodium salt
- b. Silver nitrate solution
- c. Cyanogen bromide reagent**
- d. Cobalt nitrate solution
- e. Hydrochloric acid

206. Specify the drugs recommended for prevention and correction of dysbiotic problems caused by antibiotic therapy:

- a. Prokinetics
- b. Cholagogues
- c. Probiotics**
- d. Antacids
- e. Uroptics

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

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

208. When dispensing an iron supplement to be taken orally, the pharmacist must warn the patient that this preparation should not be taken with milk or dairy products. What might happen otherwise, if the patient is not warned?

- a. Increased activity of the drug
- b. Formation of poorly soluble chelate complexes**
- c. Faster absorption of the drug
- d. Prolongation of the effect of iron preparations
- e. Accelerated elimination of the drug

209. In Ukraine the auditor position eligibility requires the candidate to be a Ukrainian citizen and have the qualification certificate for work as an auditor within the Ukraine's territory. The certificate is effective for:

- a. 3 years
- b. Indefinitely
- c. 1 years
- d. 2 years
- e. 5 years**

210. What mixing method is carried out by repeatedly pumping the liquid through the apparatus, using a pump or nozzles?

- a. Mechanical
- b. Ultrasonic
- c. Circulation**
- d. Pneumatic
- e. Acoustic

211. A patient is prescribed a 3% alcohol solution of boric acid. What concentration of ethanol should

be taken to prepare this solution according to the normative documents?

- a. 60%
- b. 40%
- c. 70%**
- d. 95%
- e. 90%

212. Taxes can be divided into direct and indirect. Select an indirect tax from the list:

- a. Rent
- b. Value added tax**
- c. Corporate income tax
- d. Real estate tax
- e. Individual income tax

213. Which of the pharmacy departments is responsible for checking the quantity and quality of received goods, their storage and dispensing to other departments?

- a. Department of curative cosmetics
- b. Inventory department**
- c. Compounding and production department
- d. Department of over-the-counter drugs
- e. Department of finished dosage forms

214. Gastroduodenopathies are one of the most common complications of pharmacotherapy during treatment with nonsteroidal anti-inflammatory drugs. What statement correctly describes the cause of their development?

- a. Inhibition of platelet adhesion and aggregation
- b. Inhibition of prostaglandin synthesis in the mucosa**
- c. Inhibition of neutrophil aggregation
- d. Disturbed pain impulse conduction
- e. Inhibition of lipid peroxidation

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

- a. Resist changes in the organization**
- b. -
- c. Have a clear formal structure
- d. Are formed for the implementation of the manufacturing process
- e. Are formed upon the request of the head of the organization

216. A woman wants to stock the home first aid kit for her 4-month-old baby. She asked a dispensing chemist to recommend her an antipyretic for this purpose. What medicine and what dosage form would you recommend in this case?

- a. Paracetamol rectal suppositories**
- b. Acetylsalicylic acid powder
- c. Diclofenac sodium tablets
- d. Ibuprofen tablets
- e. Acetylsalicylic acid tablets

217. There are various groups of adjuvants used in tablet production. What is the function of excipients?

- a. To improve disintegration
- b. To create necessary adhesive force between particles
- c. To improve the taste
- d. To make pills of a certain weight**
- e. To improve the flowability of granular material

218. Agar-agar is used as a detoxifying absorbent and the basis of a nutrient medium for growing microorganisms. What class of bioactive substances does it belong to?

- a. Vitamins

- b. Flavonoids
- c. Iridoids
- d. Polysaccharides**
- e. Coumarins

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

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

220. Spectrophotometric analysis of anthracene derivatives contained in buckthorn bark is based on the following reaction:

- a. Anthraquinone reduction
- b. Sublimation
- c. Oxidation of anthracene derivatives
- d. Salt precipitation
- e. Production of phenolates with alkali-ammonia solution**

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

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

222. A 28-year-old pregnant woman (8-9 weeks) after clinical examination and laboratory analysis was diagnosed with acute pyelonephritis. What empiric antibacterial therapy will be optimal in this case?

- a. Chloramphenicol
- b. Gentamicin
- c. Norfloxacin
- d. Amoxicillin**
- e. Tetracycline

223. What method is used to sterilize the eye drops containing benzylpenicillin sodium salt?

- a. Ultraviolet radiation
- b. Not subject to sterilization**
- c. Steam under pressure
- d. Hot air
- e. Flowing steam

224. 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 electrolyte action
- d. The process of gas absorption
- e. The process of heating the extract

225. A pharmacy customer complains of constricting retrosternal pain that irradiates into the left arm; he fears that he may die. The pain appeared suddenly after physical exertion. Name the first aid medicine in this case:

- a. Panangin

- b. Riboxin (Inosine)
- c. Metacycline
- d. Nitroglycerine**
- e. Naphthyzin (Naphazoline)

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

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

227. Motivation is one of the management functions. A motive can be described as:

- a. Psychological characteristics of people that help them acquire certain types of knowledge
- b. A certain discomfort, a feeling that something is lacking
- c. A conscious incentive to act in a certain way**
- d. Something that is important for a person
- e. -

228. 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. Captopril
- b. Prazosin
- c. Nitroglycerine**
- d. Corglycon (convallatoxin)
- e. Enalapril

229. Various groups of propellants are used in production of aerosols. What group does carbon dioxide CO₂ belong to?

- a. Non-volatile gases
- b. Compressed gases**
- c. Volatile gases
- d. Liquefied gases
- e. Rarefied gases

230. Chemical analysis of Helichrysum flowers shows positive results of the cyanidin test. This reaction indicates the presence of the following class of compounds:

- a. Flavonoids**
- b. Polysaccharides
- c. Coumarins
- d. Saponins
- e. Alkaloids

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

- a. Althaea roots
- b. Sage leaves
- c. Motherwort grass
- d. Valerian roots and rhizomes
- e. Foxglove leaves**

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

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

233. During the microscopy of a herbal raw material, the pharmacist noted its main diagnostic features: calcium oxalate druses in the mesophyll of the leaf and along the veins, simple unicellular hairs, covering stellate hairs with 4-8 thick-walled, porous and often lignified rays at their base, idioblast cells with slime. What herbal raw material can be characterized by the listed diagnostic features?

- a. *Gnaphalium uliginosum* herba
- b. *Digitalis purpurea* folium
- c. *Urtica dioica* folium
- d. *Hyoscyamus niger* folium

e. *Althaea officinalis* herba

234. 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. Draw up a Quality Assessment Report with the defects listed and allow sale of the drug shipment
- b. Dispose of the shipment that contains questionable drugs
- c. Allow sale of the drug shipment

d. Samples of questionable drugs should be sent to the local inspectorate department; the rest of the drug shipment should be quarantined with marking "Do not sell until further notice"

- e. Return the shipment to the manufacturer

235. What qualitative reaction proves the presence of anthracene-derived compounds in a herbal raw material?

- a. Reaction with ammonium iron(III) sulfate
- b. Reaction with Dragendorff's reagent

c. Reaction with an alkali

- d. Reaction with iron sulfate
- e. Reaction with Fehling's reagent

236. A doctor has given the patient a prescription for tramadol. What prescription form must be used in this case?

- a. F-1 form
- b. F-1 and F-3 forms
- c. 2 copies of F-3 form
- d. 2 copies of F-1 form

e. F-3 form

237. What nonsteroidal anti-inflammatory drug is indicated for treatment of the patient's rheumatoid arthritis, if this patient has a history of peptic ulcer disease of the stomach?

- a. Ibuprofen
- b. Acetylsalicylic acid
- c. Indomethacin
- d. Diclofenac sodium

e. Celecoxib

238. What pharmaceutical factor can affect therapeutic activity of active substances?

a. Adjuvants

- b. Drug dosing equipment
- c. Material expenses of the manufacture
- d. Compliance with GMP regulations
- e. WHO directives

239. A pharmaceutical wholesaler sells ointment bases (vaseline, lanolin, etc.) in bulk ("an gross") to the pharmacies that make extemporaneous compounds. What sales method (type of distribution) is typical for selling these goods?

- a. Mass sales method
- b. Intensive method
- c. -

d. Integrated method

e. Selective method

240. Hierarchic structure of the Agapetus pharmacy management foresees that authority is being passed on directly from the pharmacy manager to the employees. Specify this type of authority:

a. Line and staff

b. Matrix

c. Divisional

d. Line

e. Functional

241. A pharmaceutical wholesaler constantly monitors expiration dates of medicines and their storage and transportation conditions. What type of control is exercised in this case?

a. Financial

b. Preliminary

c. Final

d. Ongoing

e. Social

242. A group of independent intermediaries operates on a regional market. They sell medicines on their own behalf and at their own cost. Such intermediaries are called:

a. Dealers

b. Consignees

c. Commission agents

d. Brokers

e. Agents

243. What group of ointment bases vaseline (petroleum jelly) belongs to?

a. Hydrophilic bases

b. Adsorption bases

c. Silicone bases

d. Hydrophobic bases

e. Diphylic (amphiphilic) emulsion bases

244. The main active substances of Rhizomata et radices Eleutherococci are eleutherosides of various chemical nature. What class of bioactive substances includes syringoresinol and its derivatives that determine the tonic and adaptogenic properties of this herbal raw material?

a. Iridoids

b. Flavonoids

c. Coumarins

d. Xanthones

e. Lignans

245. For what substance its dosing is based on the mass, when preparing liquid dosage forms?

a. 30% hydrogen peroxide (Perhydrol)

b. 1% citral alcohol solution

c. Ammonia spirit-anise spirit drops

d. Elixir pectoralis

e. Leonurus tincture

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

a. Potassium permanganate solution

b. Sodium nitrite solution

c. Ammonia solution

d. Ammonium chloride solution

e. Potassium thiocyanate solution

247. To reduce business risks, the director of a pharmaceutical company has decided to withdraw a

part of the profits and invest money into the restaurant business. Name the phenomenon, when the effort and capital are divided and invested into different types of business, the results of which are not directly related.

- a. Liquidation
- b. Indexation
- c. Diversification**
- d. Bankruptcy
- e. Insurance

248. A pharmaceutical company can use different types of marketing, depending on the demand for the medicinal products that it produces. What type of demand makes it advisable to implement demarketing?

- a. Satisfied
- b. Negative
- c. Excessive**
- d. Absent
- e. Declining

249. 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. Pigments
- b. Thickeners
- c. Stabilizers
- d. Plasticizers**
- e. Preservatives

250. In the process of drug identification, an analytical chemist of the State Inspection for Quality Control of Medicines performs ninhydrin test. What drug is being identified?

- a. Nitrofurantoin
- b. Sulfamethoxazole
- c. Retinol acetate
- d. Tyrosine**
- e. Resorcinol

251. The mother of a child came to a pharmacy to buy an anti-inflammatory medicine that can relieve the muscle pain in her 10-year-old son. What medicine would you recommend her?

- a. Naproxen
- b. Nimesulide
- c. Ibuprofen**
- d. Diclofenac
- e. Acetylsalicylic acid

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

- a. Interorganizational
- b. Intrapersonal**
- c. -
- d. Individual vs. group
- e. Intergroup

253. The head manager of a pharmacy calls the manager of a pharmaceutical wholesaler to clarify the terms of supply. What type of communication is it?

- a. Horizontal
- b. Vertical
- c. Internal
- d. Interlevel
- e. External**

254. Codeine is used as a cough-depressant. What herbal raw material contains this alkaloid?

- a. Pods of opium poppy
- b. Tea leaves
- c. Grass of plume poppy
- d. Grass of common periwinkle
- e. Celandine grass

255. A pharmacist has prepared an eyedrops vehicle. What method of sterilization should be chosen in this case?

- a. Ultraviolet irradiation
- b. Dry heat
- c. Membrane filtration
- d. Flowing steam
- e. Pasteurization

256. Powder moisture content affects its:

- a. Solubility
- b. Particle size
- c. Homogeneity
- d. Particle shape
- e. Flowability

257. A dispensing chemist makes a research into the pharmaceutical market. For this purpose he uses scientific publications and statistical data. What type of marketing research is it?

- a. Observation
- b. Survey
- c. Theoretical research
- d. Field research
- e. Panel research

258. Medicinal substance had been received for chemical analysis. Biuret test was performed for identification. Name this substance:

- a. Diphenhydramine
- b. Benzoic acid
- c. Iodoform
- d. Bromisoval
- e. Dipyrone (Metamizole)

259. A pharmacist has made an injection solution that contains a salt produced by reaction of a strong base with a weak acid. Specify the necessary stabilizer:

- a. Hydrochloric acid
- b. Sodium sulfate
- c. Cysteine
- d. Sodium hydrochloride
- e. Ascorbic acid

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

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

261. What medicinal substance has benzimidazole in its structure?

- a. Nitrofuril (Furacilin)
- b. Diphenhydramine hydrochloride (Dimedrol)
- c. Dibazol (Bendazol)
- d. Metamizole sodium salt (Analgin)
- e. Mercazolil (Thiamazole)

262. An analytical chemist conducts quantitative determination of ibuprofen (substance) by means of direct alkalimetry. The following solution will be an indicator in this case:

- a. Ammonium iron (III) sulfate
- b. Potassium chromate
- c. Phenolphthalein**
- d. Tropaeolin OO
- e. Mordant black

263. An infusion and a liquid extract used as cardiotonics are obtained from *Crataegus oxyacantha* flowers and fruits. What active substance that is a component of this herbal raw material can be determined using spectrophotometry?

- a. Lipids
- b. Cytisine
- c. Atropine
- d. Flavonoids**
- e. Papaverine

264. A pharmacy prepares an aqueous extract of thermopsis grass. What components should be used to prepare this aqueous extract?

- a. Thermopsis grass, sodium chloride, purified water
- b. Thermopsis tincture, purified water
- c. Thermopsis grass, sodium bicarbonate, purified water
- d. Thermopsis grass, purified water
- e. Thermopsis grass, hydrochloric acid solution 1:10, purified water**

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

- a. Local council
- b. Pharmacy**
- c. Regional state administration
- d. The Ministry of Health
- e. Inspectorate for medicine quality control

266. Pharmacy as a healthcare facility fulfills three main functions. Its manufacturing function includes:

- a. Health education of the population
- b. Providing access to pharmaceutical information
- c. Preparation of individual formulations**
- d. Storage of medical products
- e. Pharmaceutical care

267. According to the State Pharmacopoeia of Ukraine, chemical identification of *Atropa belladonna* grass must be carried out using thin-layer chromatography. What substance is identified on a chromatographic plate after treatment with a reagent?

- a. Vinblastine
- b. Rutin
- c. Hyoscyamine**
- d. Gallic acid
- e. Arbutin

268. When making ampoules, certain admixtures are introduced into the glass to change its properties. Why is boron oxide added into the glass?

- a. To change its color
- b. To increase its thermal resistance
- c. To increase its mechanical strength
- d. To improve its chemical resistance**
- e. To lower its melting temperature

269. During quantitative determination of Vicasol (Menadione) by means of cerimetry, the following

indicator is used:

- a. Methyl orange
- b. Ferroin**
- c. Crystal violet
- d. Naphtholbenzein
- e. Methyl red

270. Standardization of a certain herbal raw material is done by calculating its alkaloid content in terms of hyoscyamine. Name this herbal raw material:

- a. Herba Thermopsis lanceolatae
- b. Folia Belladonnae**
- c. Herba Chelidonii
- d. Radices Berberidis
- e. Fructus Capsici

271. A pharmacy has received a prescription for colloid solution. Name this solution:

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

272. A pharmacy has received a formulation for eye drops with protargol (silver proteinate). What substance will be used to make the eye drops isotonic?

- a. Sodium nitrate
- b. No isotonation is needed**
- c. Boric acid
- d. Sodium sulfate
- e. Sodium chloride

273. There are different grades and types of glass based on their quality, quantitative composition, and properties. What type of glass belongs to the first-grade?

- a. AB-1 (non-boric glass)
- b. USP-1**
- c. NS-2 (neutral glass 2)
- d. MTB (colorless glass for medical containers)
- e. NS-2 A (neutral glass 2A)

274. A process dealing with drawing the documents, their processing, circulation and storage is called records management. If all documents circulate through one organization center, - the Office Desk, - then such system of records management is called:

- a. Centralized**
- b. Mixed
- c. Specialized
- d. Decentralized
- e. Referent

275. 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. Hypocalcemia
- b. Hypernatremia
- c. Hyperkalemia
- d. Hypokalemia**
- e. Hypermagnesemia

276. In production of phytodrugs, the extractant that remains in the herbal raw material is removed and used again in manufacturing. Name this process:

- a. Extraction
- b. Sublimation

c. Lyophilization

d. Recuperation

e. Rectification

277. A man came to a pharmacy asking for a litholytic and diuretic drug <<Marelin>>. If there is no such drug in the pharmacy, powdered roots and rhizomes of a certain plant can be recommended as a substitute. Name this plant:

a. *Sanguisorba officinalis*

b. *Dryopteris filix-mas*

c. *Rubia tinctorum*

d. *Rhodiola rosea*

e. *Valeriana officinalis*

278. What can be observed when aluminum-magnesium antacids and iron preparation are used simultaneously?

a. Reduced effectiveness of iron preparations

b. Increased effectiveness of antacids

c. Decreased blood pressure

d. Increased risk of hepatotoxicity

e. Increased blood pressure

279. What pricing policy is used by the management of a pharmacy, if during the price formation for pharmaceutical products the main focus is the prices offered by the nearest pharmacies, rather than pharmacy's own expenses or demand for the products?

a. Demand-based pricing

b. Breakeven pricing

c. Competition-based pricing

d. Cost-based pricing

e. Tender pricing

280. Standard herbal material of lily-of-the-valley is obtained by drying it at a temperature of 50-60°C to prevent the following possible biochemical process:

a. Oxidation of phenolic compounds

b. Enzymatic hydrolysis of cardiac glycosides

c. Volatilization of essential oils

d. Oxidation of resins

e. Oxidation of terpenoids

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

a. Alkaline potassium tetraiodomercurate solution

b. Thiocyanogen bromide

c. Ammoniacal silver nitrate solution

d. Copper-tartrate

e. Sodium nitroprusside solution

282. "Immunal" immunostimulant is often prescribed against chronic upper respiratory tract infections. What herbal raw material is used in its production?

a. *Radices Ginseng*

b. *Radices Araliae elata*

c. *Radices Rhei*

d. *Rhizomata et radices Eleuterococci*

e. *Herba Echinaceae purpurea*

283. What antibacterial agent is a part of the eradication therapy for *H. pylori* during the treatment of peptic ulcer disease of the stomach?

a. Meropenem

b. Biseptol (Co-trimoxazole)

c. Ceftriaxone

d. Gentamicin

e. Clarithromycin

284. Buckthorn bark is used as a laxative. This herbal raw material colors red if an alkaline solution is added, which indicates the presence of the following substances:

- a. Flavonoids
- b. Alkaloids

c. Anthracene derivatives

- d. Vitamins
- e. Tannins

285. During pharmaceutical analysis of a medicinal substance, its reaction with antipyrine (phenazone) was conducted in the presence of dilute hydrochloric acid. What compounds are present there, as indicated by the green coloring that appeared in the process of the analysis?

a. Nitrites

- b. Fluorides
- c. Iodides
- d. Sulfates
- e. Bromides

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

- a. Vitamins
- b. Saponins
- c. Essential oils

d. Polysaccharides

- e. Phenolic glycosides

287. A pharmaceutical factory produces tablets of sodium chloride. What is the method of their production?

- a. Direct compression with the addition of excipients
- b. Dry granulation prior to compression
- c. Wet granulation prior to compression
- d. Moulding

e. Direct compression without additional substances

288. What minimum amount of a toxic substance can be weighed on one-gram hand scales?

- a. 0.03 g
- b. 0.04 g
- c. 0.02 g
- d. 0.05 g**
- e. 0.1 g

289. What group of antibiotics should be prescribed to treat chlamydial infection?

- a. Aminoglycosides
- b. Cephalosprins

c. Macrolides

- d. Penicillins
- e. Carbapenems

290. What herbal drug produced from alkaloid-containing raw materials can be recommended for neurasthenia, insomnia, menopausal disorders?

- a. Securinine nitrate

b. Novopassit

- c. Vinblastine
- d. Ergotamine
- e. Glaucine hydrochloride

291. A pharmaceutical company that has been producing nasal drops begins to produce the same

drug in a spray dosage form. What marketing approach does this company choose in its relationship with customers?

- a. Sales improvement
- b. Intensification of commercial effort
- c. Manufacture improvement
- d. Product improvement**
- e. Socioethical marketing

292. Menthol medicinal substance can be chemically classified as a:

- a. Bicyclic terpene
- b. Acyclic terpene
- c. Monocyclic terpene**
- d. Polypeptide
- e. Glycoside

293. What means of demand stimulation can be applied by pharmacy management among its employees?

- a. -
- b. Layout of medical products in shop-windows and on shelves
- c. In-store advertising
- d. Coupons
- e. Bonuses**

294. 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. 30
- b. 40
- c. 50
- d. 10
- e. 20**

295. Origanum vulgare herbal raw material is harvested during the flowering. How is it harvested?

- a. The leaves are plucked with the stem
- b. The grass is cut with a knife or sickle at a distance of 20-30 cm from the ground**
- c. The whole plant is dug up
- d. The whole plant with a root is pulled out from the soil
- e. Only the tips of the inflorescences are cut

296. A pharmacy has received a prescription for the preparation of powders. What substance must be added after sterilizing the powder?

- a. Magnesium oxide
- b. Osarsolum
- c. Streptomycin sulfate**
- d. Ephedrine hydrochloride
- e. Streptocide (Sulfanilamide)

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

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

298. What adjuvants are used in manufacturing of tablets to change their taste?

- a. Leavening agents
- b. Antioxidants
- c. Corrigents**

- d. Thickeners
- e. Fillers

299. *Polemonium caeruleum* rhizomes with roots are a source material for making expectorants. What group of substances causes this effect?

- a. Flavonoids
- b. Tannins
- c. Vitamins
- d. Saponins**
- e. Anthraquinones

300. A pharmaceutical manufacturer forms marketing teams responsible for a particular product or a group of products (medicines). What model of marketing organization does the company use in this case?

- a. Combined marketing (matrix model)
- b. Functional marketing
- c. Segment marketing
- d. Product-based marketing**
- e. Regional marketing

301. Pharmaceutical factory received a batch of *Althaea* roots. What reagent should be used in histochemical test for slime production in the course of qualitative analysis?

- a. Dragendorff reagent
- b. 1% ammonium iron(III) sulfate solution
- c. 1% phloroglucinol solution
- d. Alcoholic solution of methylene blue**
- e. Sudan III solution

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

- a. Solubilizers
- b. Pectic materials
- c. Thickeners
- d. Preservatives**
- e. Emulsifiers

303. Select a non-steroid estrogen from the list below:

- a. Prednisolone
- b. Retabolil (Nandrolone)
- c. Synoestrol (Hexestrol)**
- d. Progesterone
- e. Adrenalin

304. 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. Indirect
- b. Combined
- c. Direct**
- d. Mediated
- e. Mixed

305. A pharmacist prepares fat-based suppositories by pouring. Specify the type of fatty vehicle in this case:

- a. Vaseline (petroleum jelly)
- b. Wax
- c. Butyrol**
- d. Spermaceti
- e. Cocoa butter

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

307. Clonidine hydrochloride is a salt of an organic base. What method is used for the quantification of this medicinal substance?

- a. Bromatometry
- b. Complexonometry
- c. Iodometry
- d. Nitritometry
- e. Alkalimetry**

308. Analysis of work environment of a pharmaceutical company has detected there the following organizational features: dynamism, flexibility of management structure, self-checking, and democratic communication. What type of adaptive organization structure is it?

- a. -
- b. Combined
- c. Informal
- d. Organic**
- e. Mechanistic

309. A patient, who has been taking acetylsalicylic acid, developed hemorrhages of mucous membranes. This phenomenon is associated with:

- a. Inhibition of the prothrombin synthesis**
- b. Changed volume of distribution
- c. Decreased absorption in the gastrointestinal tract
- d. Increased absorption in the gastrointestinal tract
- e. Disorder of protein binding

310. A pharmacy needs to prepare a 1% alcohol solution of methylene blue. What concentration of alcohol must be used for this purpose?

- a. 70%
- b. 60%**
- c. 96%
- d. 40%
- e. 90%

311. The doctor prescribed a patient 100 ml of thermopsis grass infusion. How much of the dry concentrate of thermopsis grass (1:1) should the pharmacist measure out for this patient?

- a. 0.5 g
- b. 0.1 g
- c. 0.2 g
- d. 0.25 g**
- e. 0.3 g

312. A factory that manufactures vitamin preparations has received a batch of herbal raw material. It consists of round wrinkled orange-red fruits that taste sweet-sour and slightly tart. The fruits are up to 3 cm long, 1.5 cm in diameter, and are filled with hard small angular yellow nutlets. The nutlets and the inner surface of the fruits are covered with long and extremely coarse bristly down. This herbal raw material can be identified as:

- a. Fructus Viburni
- b. Fructus Sorbi
- c. Fructus Rosae**
- d. Fructus Ribis nigri

e. Fructus Hippophaes

313. Valerian roots and rhizomes are processed in the phytochemistry workshop to produce tinctures and thick extracts that are the components of combined sedatives. Name the group of bioactive compounds that includes valerian valepotriates, - valtrate, acevaltrate, and dihydrovaltrate:

a. Iridoids

b. Saponins

c. Polysaccharides

d. Essential oils

e. Alkaloids

314. An analytical laboratory has received a procaine hydrochloride substance for analysis. According to the State Pharmacopoeia of Ukraine limit content of heavy metals should be determined with the following reagent:

a. Sulfomolybdenum

b. Hypophosphite

c. Methoxyphenylacetic acid

d. Aminomethyl alizarin acetic acid

e. Thioacetamide

315. Paracetamol substance has been sent for analysis. Reaction with the solution of iron (III) chloride resulted in the blue-violet coloring. This indicates the presence of:

a. Keto group

b. Ester group

c. Alcoholic hydroxyl

d. Phenolic hydroxyl

e. Aldehyde group

316. What stabilizer is used to stabilize ascorbic acid solutions for injections?

a. Sodium thiosulfate

b. 0.1 M hydrochloric acid solution

c. 0.1 M sodium hydroxide solution

d. Sodium bicarbonate with sodium sulfite

e. Weibel stabilizer

317. An analytical chemist studies an iodine substance. What volumetric solution is recommended by the State Pharmacopoeia of Ukraine for its quantitative determination?

a. Sodium thiosulfate

b. Sodium edetate

c. Sodium hydroxide

d. Potassium bromate

e. Hydrochloric acid

318. A dispensing chemist with calculated length of service of 7 years has fallen ill. What percent of the sum stated in her sick list would she receive?

a. 50%

b. 80%

c. 100%

d. 70%

e. 60%

319. An analytical chemist can quantitatively determine the thiamine bromide content in powders by means of:

a. Nitritometric titration

b. Bromometry

c. Permanganatometry

d. Complexometric titration

e. Alkalimetry

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

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

321. A pharmaceutical company has opened several new regional offices and now searches for medical representatives. What stage of recruiting process is usually a final one?

- a. Telephone interview
- b. Filling in a questionnaire
- c. Submission of a resume
- d. Targeted selection interview**
- e. Preliminary interview

322. One of the substances listed below changes its appearance when stored in a brightly lit place and not tightly sealed against air (assumes pink coloring). Name this substance:

- a. Sodium chloride
- b. Sodium benzoate
- c. Boric acid
- d. Barium sulfate
- e. Resorcin**

323. A pharmacy provides certain categories of ill persons with medicines free of charge or at a reduced price. What conditions allow free of charge supply of out-patients with necessary medicines?

- a. Diabetes mellitus**
- b. Muscle pain
- c. Cold
- d. Headache
- e. Cuts and abrasions

324. According to the State Pharmacopoeia of Ukraine, an analytical chemist should use acidimetry in non-aqueous medium to determine quantitative content of the following purine alkaloid:

- a. Theophylline ethylenediamine
- b. Caffeine and sodium benzoate
- c. Theophylline
- d. Caffeine**
- e. Theobromine

325. A patient suffering from bronchial asthma was diagnosed with essential hypertension. What antihypertensive drug is contraindicated for this patient?

- a. Hypothiazid (Hydrochlorothiazide)
- b. Verapamil
- c. Propranolol**
- d. Amlodipine
- e. Captopril

326. Gum is a polysaccharide substance that contains calcium and magnesium salts of uronic acids and neutral monosaccharides. By solubility arabin, bassorin, and cerasin derivatives can be distinguished. What gum is insoluble in cold water?

- a. Tragacanth
- b. Cherry**
- c. Apricot
- d. Acacia
- e. Plum

327. Erythromycin belongs to the following type of antibiotics based on its chemical structure:

- a. Polyene antibiotics

- b. beta-lactams
- c. Polypeptides
- d. Aromatic antibiotics

e. Macrolides

328. A pharmaceutical warehouse has received a batch of herbal raw material - a bark of *Quercus robur*. What active substances should be measured in this material, according to the State Pharmacopoeia of Ukraine?

- a. Essential oils
- b. Tannins**
- c. Coumarins
- d. Flavonoids
- e. Anthracene derivatives

329. To identify an alkaloid drug, an analytical chemist used the reaction that produces purple-red murexide. What substance can be identified using this reaction?

- a. Papaverine
- b. Codeine
- c. Caffeine**
- d. Atropine
- e. Morphine

330. A pharmaceutical factory produces juices from fresh herbal raw materials. What technological operation is performed at the stage of juice purification?

- a. Heating followed by rapid cooling**
- b. Adsorption
- c. Filtration
- d. Crystallization
- e. Sedimentation

331. 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. Novocaine (procaine) solution
- c. Hexamethylenetetramine solution**
- d. Diprazine (promethazine) solution
- e. Glucose solution

332. The essential oil of which plant contains chamazulene, which is formed during steam distillation from matricin?

- a. *Melissa officinalis*
- b. *Chamomila recutita***
- c. *Valeriana officinalis*
- d. *Arnica montana*
- e. *Inula helenium*

333. A pharmacist approached the chief manager of the pharmacy with a proposition to introduce an additional service for their customers - blood pressure measurement. What type of communication is it?

- a. External
- b. Intra-level
- c. Vertical descending
- d. Horizontal
- e. Vertical ascending**

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

- a. Potassium chloride
- b. Ammonium oxalate**

- c. Ammonium molybdate
- d. Sodium nitrite
- e. Magnesium sulfate

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

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

336. The analytical laboratory received calcium chloride. What volumetric solution should be used for quantitative determination of this medicinal substance?

- a. Potassium bromate
- b. Sodium hydroxide
- c. Sodium edetate**
- d. Potassium permanganate
- e. Hydrochloric acid

337. A pharmacy makes medicines according to individual prescriptions. How often must the pharmacy staff change their working clothes?

- a. At least once a week
- b. At least twice a week**
- c. At least once per shift
- d. At least once a month
- e. At least twice a month

338. 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 Eucalypti
- c. Folia Urticae
- d. Folia Menthae
- e. Folia Uvae-ursi

339. Alkalimetry is used to determine the quantitative content of diphenhydramine hydrochloride antihistamine. What solution is used as a titrant in this analysis?

- a. Potassium permanganate solution
- b. Sodium thiosulfate solution
- c. Hydrochloric acid solution
- d. Sodium hydroxide solution**
- e. Potassium bromate solution

340. How long should a retail business that deals in medicines keep the quality certificates issued by drug manufacturers?

- a. 3 years**
- b. 2 years
- c. 6 months
- d. 1 year
- e. 5 years

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

- a. 40 parts of anhydrous lanolin - 60 parts of vaseline For Eye Ointments
- b. Vaseline For Eye Ointments

c. Lanolin: vaseline - 1:1

d. 10 parts of anhydrous lanolin - 90 parts of vaseline For Eye Ointments

e. 30 parts of lanolin - 70 parts of vaseline

342. A pharmacy underwent a drug quality inspection on 25.02.2018. The inspector discovered that the pharmacy had a batch of Nimesil (Nimesulide) drug, dosage form 2 g x 30 sachets, with its registration certificate expired on 24.02.2018. Is the pharmacy allowed to sell this drug?

a. Yes, with permit from the State Inspectorate

b. Yes, if approved by the head manager of the pharmacy

c. Yes, with permit from the Pharmacopoeia Center

d. No

e. Yes, it can sell all the batch that is already in its possession

343. As a result of heparin overdose, a patient developed bleeding. What medicine must be used as an antidote in this case?

a. Thiosulfate

b. Naloxone

c. Protamine sulfate

d. Methionine

e. Unithiol (Dimercaptopropansulfonate sodium)

344. The "Medpharm" wholesale pharmaceutical firm employs a system that encourages its managers to achieve better results in sales by assigning them points for surpassing their sale goals. The points then become converted into material remuneration. This way the company management carries out the following management function:

a. Planning

b. Control

c. Organization

d. Motivation

e. Delegation

345. When studying the demand for influenza vaccines, it was found that a pharmacy is insufficiently supplied with these vaccines. What type of demand is it?

a. Irrational

b. Negative

c. Hidden

d. Satisfied

e. Unsatisfied

346. The following herbal raw material is a source of tannin in pharmaceutical manufacture:

a. Rhizomata et radix Sanguisorbae

b. Folium Cotini coggygriae

c. Rhizomata Bergeniae

d. Fructus Viburni

e. Rhizomata Bistortae

347. Doctor's prescription fulfills several functions. What function indicates that the doctor bears responsibility for correct prescription of medicines to the patient?

a. Informational

b. Social

c. Technological

d. Economic

e. Legal

348. A pharmacy prepares a drug that contains a high-molecular compound with unlimited swelling ability. Name this material:

a. Protargol

b. Gelatine

c. Methylcellulose

d. Pepsin

e. Starch

349. The marketing team of a pharmaceutical company has calculated the coefficient of elasticity of the demand for medical products, which is equal to 1. What type of elasticity of the demand is it?

a. Unitary

b. Elastic

c. Perfectly elastic

d. Inelastic

e. Perfectly inelastic

350. What herbal raw material contains alkaloid glaucine that has a strong antitussive effect?

a. Chelidonium grass

b. Macleaya grass

c. Vinca minor grass

d. Glaucium flavum grass

e. Belladonna grass

351. "Balance" accounting form consists of two parts - assets and liabilities. Select from the list only the liabilities.

a. Accounts receivable, prepaid expenses

b. Retained earnings, intangible assets

c. Bank loan, accounts payable

d. Fixed assets, accounts receivable

e. Authorized capital, fixed assets

352. To identify ethanol an analytical chemist needs to conduct a:

a. Hydroxamate test

b. Iodoform test

c. Murexide test

d. Thalleioquin test

e. Ninhydrin test

353. When selling iron preparations that are to be taken orally, a dispensing chemist should warn the patients that these drugs cannot be taken with milk or dairy products, because it leads to:

a. Formation of chelate complexes that cannot be assimilated into the body

b. Accelerated clearance of iron preparations

c. Accelerated absorption of iron preparations

d. Prolonged action of iron preparations

e. Increased activity of iron preparations

354. What fatty oil can be used as a substitute for olive oil, when making injectable solutions?

a. Oleum Lini

b. Oleum Ricini

c. Oleum Maydis

d. Oleum Cucurbitae

e. Oleum Amygdalarum

355. Natural persons registered as small business entities with simplified taxation scheme are subject to limitation of the annual amount of sales proceeds. Specify the proceeds limit:

a. 5 000 000 UAH

b. 3 000 000 UAH

c. 750 000 UAH

d. 100 000 UAH

e. 500 000 UAH

356. A pharmacist has prepared a liquid mixture. What component was added last into the vial?

a. Purified water

b. Simple syrup

c. Tincture of valerian

d. Potassium bromide

e. 20% sodium bromide solution

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

a. Glycerine

b. Purified water

c. Vaseline (petroleum jelly)

d. Dimethylsulfoxide

e. Glycerine-water solution

358. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

a. 160°C - 15 minutes

b. 180°C - 30 minutes

c. 120°C - 8 minutes

d. 110°C - 15 minutes

e. 140°C - 12 minutes

359. 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. Acetylsalicylic acid

b. Clopidogrel

c. Protamine sulfate

d. Vicasol (Menadione)

e. Streptokinase

360. To identify a drug, an analytical chemist of the State Inspectorate for Drug Quality Control performs a reaction with ninhydrin solution. Specify the drug being identified:

a. Paracetamol

b. Cortisone acetate

c. Ascorbic acid

d. Methionine

e. Streptocide

361. A pharmacist has prepared a solid dosage form - a compound powder. What technological operation is NOT a part of preparation process in this case?

a. Comminution

b. Dissolution

c. Mixing

d. Packing

e. Dosing

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

a. Hypoglycemia

b. Jaundice

c. Osteoporosis

d. Hypotension

e. Constipation

363. A pharmaceutical company has divided its customers into groups based on their gender, age, and size of their families. What approach to market segmentation is the basis of this customer division?

a. Socioeconomic

b. Behavioral

c. Geographic

d. Psychographic

e. Demographic

364. When pressing tablets, puncheons of a tableting machine stick to the tablet surface. What technological error is most likely in this case?

- a. Insufficient amount of dyes
- b. Insufficient amount of adhesives
- c. Insufficient amount of lubricants**
- d. Insufficient amount of diluents
- e. Insufficient amount of leaveners

365. Name the optimal vehicle for soluble vaginal suppositories:

- a. Fat
- b. Glycerine
- c. Hard fat
- d. Polyethylene oxide**
- e. Cocoa butter

366. 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. Sodium bicarbonate
- c. Tripsin
- d. Acetylcysteine
- e. Bromhexine

367. Testing of a calcium lactate pentahydrate substance requires a reaction with a solution of thioglycolic acid in the presence of citric acid and an ammonia solution. What impurity can be detected using this reaction?

- a. Iron**
- b. Sulfates
- c. Ammonium salts
- d. Potassium
- e. Chlorides

368. Nicotinamide is a pyridine derivative, which can be identified by its positive reaction with:

- a. Thioacetamide reagent
- b. Copper-tartrate solution
- c. Grade reagent
- d. Cyanogen bromide reagent**
- e. Thioglycolic acid solution

369. A patient with arterial hypertension has developed a dry cough in the course of his treatment. The doctor suspects a side effect caused by one of the medicines the patient was taking. This medicine most likely belongs to the following group:

- a. Ganglionic blockers
- b. Calcium channel blockers
- c. Angiotensin-converting-enzyme inhibitors**
- d. Diuretics
- e. Imidazoline receptor blockers

370. A prescription does not specify the shape of rectal suppositories. What shape would be optimal in such case and therefore should be used by the pharmacist?

- a. Torpedo**
- b. Sphere
- c. Pessary
- d. Cylinder
- e. Ovoid

371. Motherwort grass is a component of hypotensive and sedative drugs. This herbal raw material should be harvested taking into account its renewal rate. Therefore it can be harvested:

- a. Every year

b. Once every 5 years

c. Once every 10 years

d. Once every 2 years

e. Once every 3 years

372. Name the type of suppositories that are made from aqueous suspensions and undergo deep freezing.

a. Lyophilized

b. Hollow

c. Multi-layered

d. Porous

e. Dyed

373. Bromatometry allows quantitative analysis of the following drug:

a. Glutamic acid

b. Potassium acetate

c. beta-Alanine

d. Benzoic acid

e. Sodium salicylate

374. Accounts are classified based on the type of accounting of assets or the sources of their formation. What is accounted in passive accounts?

a. Authorized capital

b. Goods

c. Fixed assets

d. Accounts receivable

e. Monetary funds

375. A manager of a wholesale pharmaceutical company is responsible for relaying various tasks to the employees and supervises the fulfillment of assigned tasks. What management level corresponds with these duties?

a. Technical

b. Top-level

c. Administrative

d. Middle-level

e. Institutional

376. A pharmacist has prepared a Leonurus tincture with sodium bromide. How was sodium bromide introduced into the preparation in this case?

a. Sodium bromide was mixed in a separate vessel with a part of the extract, then this mixture was added into the prepared tincture

b. Sodium bromide was dissolved in the tincture in a vial for dispensing

c. Dry substance was dissolved in the filtered extract in a stand

d. Concentrated solution was added into the prepared extract

e. Dry substance was dissolved in the infusion apparatus

377. What adjuvants can increase the viscosity and melting temperature of an ointment base?

a. Ethanol, purified water

b. Sodium lauryl sulfate

c. Propylene glycol, gelatin

d. Benzalkonium chloride

e. Paraffin, spermaceti

378. What document must be added to the foreign-made medical products?

a. Extract from the State Register of Medicines

b. Drug Quality Standard

c. Written Control Passport

d. Technical regulations for the drug

e. Conclusion on the quality of the drug imported into Ukraine

379. What lubricants are used in tablet manufacturing?

- a. Calcium stearate, stearic acid
- b. Starch paste
- c. Water, ethanol
- d. Tween 80, Aerosil
- e. Solutions of high-molecular compounds

380. Microscopy of transverse section of a bark sample shows a wide dark red cork layer, lamellar collenchyma, druses, bast fibers with a crystal sheath, and medullary rays. What herbal raw material is it?

- a. Oak bark
- b. Ash bark
- c. Birch bark
- d. Buckthorn bark
- e. Willow bark

381. Reye syndrome (encephalopathy, fatty degeneration of liver) develops as a side effect in children suffering from fever of viral origin when they take the following medicine:

- a. Metamizole sodium
- b. Paracetamol
- c. Ibuprofen
- d. Celecoxib
- e. Acetylsalicylic acid

382. A 65-year-old patient diagnosed with ischemic heart disease was prescribed acetylsalicylic acid as an antiplatelet agent. What daily dose of this drug will have an antiplatelet effect?

- a. 100 mg
- b. 200 mg
- c. 300 mg
- d. 500 mg
- e. 400 mg

383. Storage of medical products in pharmacies is carried out in compliance with the law. What relative humidity is necessary for storage of rubber products to prevent their drying and deformation?

- a. At least 30%
- b. At least 65%
- c. At least 20%
- d. At least 40%
- e. At least 50%

384. A pharmacist at the analytical quality control laboratory uses acidimetry in a non-aqueous medium to study a verapamil hydrochloride substance. What solution would the pharmacist use as a titrant in this study?

- a. Potassium bromate solution
- b. Sodium edetate solution
- c. Zinc sulfate solution
- d. Sodium nitrite solution
- e. Perchloric acid solution

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

- a. Riboflavin-containing powders
- b. Baby powder
- c. Streptocide (sulfanilamide) ointment
- d. Kvater's mixture
- e. Atropine sulfate eyedrops

386. Veratrum water is used as an antiparasitic agent and is very toxic, which is why it can be used only externally. What class of bioactive substances causes this effect?

a. Fatty oils

b. Alkaloids

c. Cardiac glycosides

d. Steroidal saponins

e. Thioglycosides

387. For the treatment of cystitis, the doctor prescribed the patient a herbal drug. This drug is used in cases of acute and chronic infectious diseases of the kidneys and bladder. What herbal raw material that contains iridoids and xanthones is a component of this drug?

a. *Vaccinium vitis-idaea* leaves

b. *Centaureum* grass

c. Birch leaves

d. *Centaurea cyanus* flowers

e. *Equisetum arvense* grass

388. Xycaine quantitative content can be determined by means of argentometry (back titration). What indicator is required by this method?

a. Sodium eosinate

b. Potassium chromate

c. Bromphenol blue

d. Starch

e. Iron (III) ammonium sulphate

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

a. Potassium permanganate

b. Iron (III) chloride

c. Sodium hydroxide

d. Tartaric acid

e. Zinc oxide

390. According to the requirements of the State Pharmacopoeia of Ukraine, thin-layer chromatography is a mandatory method of identification of herbal raw materials. What zones must be detected on a chromatographic plate during the analysis of *Digitalis purpurea* herbal raw material?

a. Lanatosides A and B

b. Purpurea glycosides A and B

c. Atropine and hyoscyamine

d. Convallatoxin

e. K-Strophanthin

391. A 68-year-old man has been prescribed a hypolipidemic agent as a part of his combination therapy for ischemic heart disease. Name this drug:

a. Nitroglycerine

b. Lisinopril

c. Nifedipine

d. Hydrochlorothiazide

e. Atorvastatin

392. A herbal raw material that contains coumarin and chromone derivatives is a source of drugs with thrombolytic, photosensitizing, and antispasmodic action. Which compound in this group has a proven photosensitizing effect?

a. Hydroxycoumarin esculin

b. Pyranocoumarin visnadin

c. Furanochromon kelin

d. Free coumarin

e. Furocoumarin psoralen

393. What type of tax is the Individual Income Tax?

a. Special

- b. Local, direct
- c. Local, indirect
- d. Nationwide, indirect

e. Nationwide, direct

394. To identify vicasol (menadione), an analytical chemist places this substance moistened with hydrochloric acid into a colorless burner flame. The yellow flame coloring that develops as a result indicates the presence of the following cations in the molecule:

- a. Zinc
- b. Calcium
- c. Potassium

d. Sodium

e. Magnesium

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

- a. Only one active substance
- b. Taste-correcting agents

c. A sum of active substances

- d. Smell-correcting agents
- e. Preservatives

396. A pharmacy prepares drugs by individual prescriptions. How often should the floors be mopped down in the prescription department?

- a. Once every 10 days
- b. Once every 3 days
- c. Once in a week
- d. Once every 5 days

e. Once in a shift

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

a. Unithiol (DMPS)

- b. Naloxone
- c. Protamine
- d. Methionine
- e. Vicasol (Menadione)

398. 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. Publicity
- b. Lobbying
- c. Direct marketing

d. Sponsorship

e. Product promotion

399. During limit test for aluminium admixture, the State Pharmacopoeia of Ukraine recommends to use the following solution as the basic reagent:

a. Sodium tetraphenylborate

b. Hydroxyquinoline

- c. Thioglycolic acid
- d. Sodium hypophosphite
- e. Barium chloride

400. A herbal raw material that contains alkaloids is being identified using a freshly prepared tannin solution. What precipitate forms as a result of this reaction?

a. White and amorphous

- b. Creamy
- c. Yellow

- d. Green
- e. Red-brown

401. Calcium gluconate is being tested for presence of admixtures of saccharose and reducing sugars with copper-tartrate reagent. If these admixtures are present the substance colors:

- a. Red**
- b. Green
- c. White
- d. Blue
- e. Turquoise

402. Presence of phenolic hydroxyl in the structure of pyridoxine hydrochloride can be confirmed by application of the following solution:

- a. Sodium sulfate
- b. Iron (III) chloride**
- c. Silver nitrate
- d. Potassium permanganate
- e. Sodium nitrite

403. Indometacine is a nonsteroidal antiinflammatory drug. A condensed heterocyclic system is contained within the structure of this drug. What cycles compose the system?

- a. Benzene and thiazole
- b. Pyrimidine and imidazole
- c. Benzene and pyridine
- d. Pyrrole and benzene**
- e. Two 4-oxycoumarin residues

404. The introduction of fluorine atoms into a glucocorticosteroid molecule results in a significant increase of the anti-inflammatory effect. What drug is a fluorine-derivative glucocorticoid?

- a. Hydrocortisone acetate
- b. Betamethasone dipropionate**
- c. Prednisolone
- d. Cortisone acetate
- e. Prednisone

405. A dispensing chemist-analyst identifies phenol, using a phenolic hydroxyl reaction. What reagent is necessary for this reaction?

- a. Iron(III) chloride**
- b. Potassium chloride
- c. Sulfuric acid
- d. Sodium sulfate
- e. Calcium chloride

406. For 2 weeks, a pharmacy network has been holding a lottery among its visitors who have purchased over 200 UAH worth of medicines. What set of marketing activities does the pharmacy network use in this case?

- a. Sales promotion**
- b. Lobbying
- c. Personal selling
- d. Advertising
- e. Public relations

407. Doctor's prescription has several functions. What function of the prescription allows its participation in the process of payment in cases when medicines should be issued free of charge or at a reduced price?

- a. Medical
- b. Legal
- c. Economic**
- d. Social

e. Technological

408. A teenager with hyporexia has been recommended to drink medicinal herbal tea of the following composition: Herba Absinthii, Herba Millefolii. Specify the characteristic microscopic features of *Artemisia absinthium*, which indicate its presence in the herb mixture:

a. Retor-shaped hairs

b. T-shaped hairs along the leaf edge

c. Simple and capitate hairs

d. Branched, simple and ciliated hairs

e. Branched and capitate hairs

409. An analytical chemist identifies diphenhydramine hydrochloride (Dimedrol). What reagent produces a bright yellow coloring when reacting with this substance?

a. Diluted phosphoric acid

b. Anhydrous acetic acid

c. Perchloric acid 0.1 M

d. Diluted hydrochloric acid

e. Concentrated sulfuric acid

410. According to the State Pharmacopoeia of Ukraine, to identify glucose solution for injections, its optical rotation angle should be measured. What chemophysical method is used in such cases?

a. Thin-layer chromatography

b. Polarimetry

c. Refractometry

d. Infrared spectroscopy

e. Nuclear magnetic resonance spectroscopy

411. During quantitative determination of ascorbic acid by means of iodometry the following should be used as an indicator:

a. Murexide

b. Diphenylcarbazone

c. Starch

d. Bromphenol blue

e. Phenolphthalein

412. What is the driving force of the diffusion process during the extraction of a herbal raw material?

a. High polarity of the extractant

b. High temperature of the extractant

c. Different concentration of the active substance in the raw material and extractant

d. Brownian motion of the particles

e. Presence of a film membrane

413. 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. Dispersible tablets

c. Effervescent tablets

d. Chewable tablets

e. Modified-release tablets

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

a. Preservative

b. Solubilizer

c. Emollient

d. Solvent

e. Plasticizer

415. *Rhamnus cathartica* fruits contain anthracene derivatives. What qualitative reaction is used to

determine the presence of these substances in a herbal raw material?

a. Reaction with an alkali

b. Reaction with iron(II) sulfate

c. Reaction with Fehling reagent

d. Reaction with ammonium iron(III) sulfate

e. Reaction with Molisch reagent

416. Choose the solvent necessary to prepare concentrated solution of sodium bicarbonate in a pharmacy:

a. Chloroform

b. Peach-kernel oil

c. Purified water

d. Ethanol

e. Vaseline

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

a. 25-35 °C

b. 30-45 °C

c. 15-20 °C

d. 80-100 °C

e. 45-55 °C

418. Pharmaceutical corporations pay great attention to the formation of a certain set of values, traditions, and behavioral norms for all their employees. What is formed as a result of this type of corporate organizational work?

a. Staff leasing

b. Product diversification

c. Business expansion

d. Organization culture

e. Organization profitability

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

a. Anticholinesterase drugs

b. Nonsteroidal antiinflammatory drugs

c. Antiarrhythmic drugs

d. Glucocorticoids

e. Antimicrobial agents

420. A doctor prescribed amoxicillin to a patient to treat bronchitis. What mucolytic is synergistic with this antibiotic?

a. Glaucine

b. Euphylline (Theophylline)

c. Codeine

d. Ambroxol

e. Dextromethorphan

421. An analytical pharmacist performs the express analysis of anti-inflammatory eye drops containing potassium iodide. What method is used for quantification of the active substance?

a. Nitritometry

b. Acidimetry

c. Complexonometry

d. Alkalimetry

e. Argentometry

422. What amount of toxic substance and vehicle is contained in 10.0 of trituration (1:10)?

a. 0.01 and 9.99

b. 1.0 and 9.0

- c. 0.05 and 9.95
- d. 0.5 and 9.5
- e. 0.1 and 9.9

423. A pharmaceutical company produces soft dosage forms. What indicator should be measured additionally for the soft dosage forms that are intended for application on heavily damaged skin?

a. pH

b. Sterility

- c. Identification
- d. Microbiological purity
- e. Quantitative determination

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

a. Solutions of the salts formed by weak bases and strong acids

b. Easily oxidized solutions

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

425. A medical product reaches its final consumer according to the following scheme: manufacturer → wholesale house → pharmacy → final consumer. Determine the level of the distribution channel:

a. Three-level channel

b. Four-level channel

c. One-level channel

d. Two-level channel

e. Zero-level channel

426. 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. Scopolamine hydrobromide

b. Caffeine monohydrate

c. Codeine phosphate

d. Pachycarpine hydroiodide

e. Quinine sulfate

427. The manager of a pharmacy chain has drawn up a document, in which he asks a pharmaceutical factory to provide him with the information about the assortment of ointments manufactured by this factory. What document was drawn up by the manager?

a. Offer

b. Request

- c. Complaint
- d. Statement
- e. Contract

428. At the end of each month a pharmacy accountant draws up a balance. What indicator characterizes liabilities of a pharmaceutical company?

a. Accounts receivable

b. Work-in-process inventory

c. Equity capital

- d. Reserves and expenses
- e. Circulating assets

429. The addition of preservatives and stabilizers is prohibited, when making the following dosage forms:

a. Dosage forms for newborns

- b. Emulsions
- c. Infusions

- d. Suspensions
- e. Ophthalmic dosage forms

430. Sanguisorba officinalis herbal raw material contains tannins. What method must be used to determine their content according to the State Pharmacopoeia of Ukraine?

- a. Photoelectrocolorimetry
- b. Permanganatometry**
- c. Nephelometry
- d. Chromatography
- e. Spectrophotometry

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

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

432. Core tablets that are to be made into dragees must not have a flat shape. Why such requirement is necessary?

- a. To speed up the process of applying the coating
- b. They are not durable enough
- c. To improve their appearance
- d. To avoid prolonged contact with overlaying suspension
- e. To prevent them from adhesion to each other**

433. According to the law regulating labour remuneration, the businesses must establish their compensation plan in the following document:

- a. Contract of delivery
- b. Job description
- c. Statement
- d. Collective agreement**
- e. Decree

434. When preparing dermatological ointments the following substance should be introduced by suspending:

- a. Camphor
- b. Xeroform**
- c. Protargol (silver proteinate)
- d. Ephedrine hydrochloride
- e. Menthol

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

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

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

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

e. Vitamins

437. Commercial and financial activity of a pharmacy involves using returnable tare. Which of the following containers are returned to the supplier?

- a. Glassware
- b. Packaging materials
- c. Glass-stoppered bottles
- d. Paper boxes

e. Metal cylinders

438. Name the drug of choice for treatment of arterial hypertension during pregnancy:

- a. Sodium nitroprusside
- b. Alpha-methyldopa**
- c. Captopril
- d. Propranolol
- e. Furosemide

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

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

440. A patient with severe progression of bronchial asthma has been taking an inhalation corticosteroid for a long time to relieve asphyxia attacks. What side effect is the most likely to develop in this case?

- a. Steroid diabetes
- b. Cushing's syndrome
- c. Osteoarthritis
- d. Oral candidiasis**
- e. Osteoporosis

441. A pharmaceutical manufacturer sets the price for a drug basing on its prime cost with premium. What model of pricing is it?

- a. Competitive
- b. Supply-based
- c. Breakeven
- d. Demand-based
- e. Cost-based**

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

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

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

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

444. The doctor has discontinued captopril for a 58-year-old patient diagnosed with arterial hypertension, because the patient has developed a complication. What side effect is the most likely cause for the discontinuation of this drug?

- a. Nausea
- b. Abdominal pain
- c. Tinnitus
- d. Vomiting
- e. Cough**

445. A pharmaceutical company produces various types of tablets. Specify the structure of matrix tablets:

- a. Tablets covered in a film coating
- b. Tablets covered in a fat-soluble coating
- c. A reticular matrix that contains the medicinal substance**
- d. A dispersion of medicinal substances in polyethylene
- e. Tablets with a dragee coating

446. A pharmaceutical company plans to start selling its products abroad by transferring them into the ownership of a foreign reseller. This company will enter the foreign market by means of:

- a. Franchise
- b. Joint venture
- c. Licensing
- d. Direct investments
- e. Export**

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

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

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

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

449. A pharmacy must be closed during inventory-taking. How long can this process take?

- a. No more than 14 days
- b. No more than 10 days
- c. No more than 7 days
- d. No more than 6 days
- e. No more than 3 days**

450. A set of values, traditions, behavioral norms, and views inherent to an organisation characterizes its following feature:

- a. Culture**
- b. Capitalization level
- c. Profitability
- d. Success
- e. Self-development capability

451. The doctor has prescribed the patient an antispasmodic agent bendazol hydrochloride (Dibazol). Based on its chemical structure, bendazol hydrochloride is a derivative of:

- a. Purine**

b. Indole

c. Benzimidazole

d. Phenothiazine

e. Acridine

452. To determine the quantity of wild-growing medicinal plants, it is necessary to know their area of vegetation and yield per unit area. Yield of *Thymus serpyllum* grass can be determined by the following method:

a. Geodesically

b. Visually

c. Permanent quadrat method

d. Model sample method

e. Projective cover method

453. 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 income order

b. Invoice

c. Cash expense order

d. Receipt

e. Remains unregistered documentarily

454. 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. Polymerization

b. Pelleting

c. Coacervation

d. Slurrying of the nuclei

e. Galvanization

455. Pharmaceutical workers decided to organize a business. What is the basis of the concept of "limited liability company"?

a. A company, the members of which bear the liability for the company's debts within the amount of their contributions

b. A company, the members of which bear additional solidary liability for the company's obligations with all their property, while the company's investors bear liability only in the amount of their investments

c. A company, the members of which bear additional solidary liability for the company's obligations with all their property

d. A company, the members of which bear full liability

e. A company, the members of which bear the liability for the company's debts within the amount of their contributions, and if these amounts are insufficient, all the members are equally liable to cover the debt with their personal property

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

a. Water for injections

b. Ethyl alcohol

c. Freshly prepared purified water

d. Mint water

e. Demineralized water

457. Product sales manager of a pharmaceutical company was tasked with sales program inspection and given 10 days to complete this task. The manager completed this task within 5 days and expects to be rewarded with a bonus. What theory of achievement motivation is based on expectation of a certain event?

a. Vroom's expectancy theory

b. Maslow's hierarchy of needs

- c. Herzberg's two-factor theory
- d. McClelland's theory of needs
- e. McGregor's Theory X and Theory Y

458. A pharmaceutical company produces essential oils via a method that consists of essential oil transfer into gas phase followed by its absorption with fats and then its extraction with alcohol. Name this method:

- a. Hydrodistillation
- b. Extraction
- c. Enfleurage
- d. Dynamic sorption
- e. Compression

459. A pharmacy has received a batch of drugs according to the invoice. Who is authorized to conduct intake quality control when the goods arrive to the pharmacy?

- a. Employee appointed to this task by the head manager
- b. Pharmacist
- c. Officer of a local division of the state inspectorate for drug quality control
- d. Head manager
- e. Tax officer

460. Lately the Phytopharm pharmaceutical company has been forced to decrease its production volume and range of goods. Not only does the company head manager demonstrate no managerial abilities, but he also appears to be completely disinterested in the running of the business and executes no control over it. Determine the leadership type of the head manager in this case:

- a. Directive
- b. Autocratic
- c. Democratic
- d. Liberal
- e. Authoritarian

461. A 43-year-old patient was delivered to an admission room with renal colic attack. What group of drugs would be the most effective during the attack?

- a. Cholagogues
- b. Antacids
- c. Antispasmodics
- d. Hepatoprotectors
- e. Antibiotics

462. Infusion of Althaea roots is being prepared for a patient. What pattern of infusion should be chosen in this case?

- a. 30 minutes of water bath infusion and 10 minutes of cooling at room temperature
- b. 15 minutes of water bath infusion and 45 minutes of cooling at room temperature
- c. 60 minutes at room temperature
- d. 30 minutes at room temperature
- e. 30 minutes of water bath infusion and immediate filtering without cooling

463. A pharmaceutical company has launched a number of cold relief medicines in the form of syrups and lozenges for kids. What type of market segmentation was used by this company?

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

464. A woman at the third trimester of her pregnancy fell ill with pneumonia. A doctor prescribed her a fluoroquinolone. What negative effect can it have on the fetus?

- a. Neurotoxic
- b. Chondrotoxic

- c. Nephrotoxic
- d. Hepatotoxic
- e. Hematotoxic

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

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

466. A pharmaceutical factory produces antimicrobial agent nitrofurazone (Nitrofurazone, Furacilin). What initial substance is used in its synthesis?

- a. Benzaldehyde
- b. Aniline
- c. Hydroxyquinoline
- d. Resorcinol
- e. Furfural**

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

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

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

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

469. A pharmacist prepares a chamomile flowers infusion. Specify the proportion of raw material to infusion:

- a. 1:50
- b. 1:10**
- c. 1:20
- d. 1:30
- e. 1:400

470. Mixture is a liquid dosage form for internal use. It is obtained by mixing two or more solid or liquid dosage forms in a solvent. If a mixture contains tinctures, they should be added:

- a. Last in the order of decreasing ethanol concentration
- b. First
- c. After poisonous and narcotic substances are dissolved (before concentrates)
- d. Last in the order of increasing ethanol concentration**
- e. In the same order in which they are listed in the formulation

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

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

472. What is an effective way of preserving the stability of the medicinal substances that are thermolabile and have low stability?

- a. Filtration
- b. Ultraviolet radiation
- c. Hydrolysis
- d. Boiling

e. Lyophilization

473. When preparing suspensions, the medicinal substance is ground with a small amount of liquid. What is the optimal amount of liquid for comminution of 20 mg of zinc oxide according to the Deriagin's rule?

- a. 2 mL
- b. 0.5 mL
- c. 1 mL

d. 10 mL

- e. 5 mL

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

- a. Glycosides
- b. Carbohydrates
- c. Iridoids

d. Tannins

- e. Lipids

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

- a. Contains other non-poisonous plants
- b. Contains other parts of the target plant

c. Contains poisonous plants

- d. Has first-degree vermin infestation
- e. Contains excessive moisture

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

- a. Integration

b. Diversification

- c. Modernization
- d. Conglomeration
- e. Intensification

477. According to the State Pharmacopoeia of Ukraine, an analytical chemist can determine sulfate admixtures in sodium tetraborate by the effect of white opalescence that results from its reaction with the following solution:

- a. Sodium sulfide
- b. Ammonium oxalate
- c. Silver nitrate
- d. Magnesium sulfate

e. Barium chloride

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

a. Sodium bicarbonate

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

479. The pharmacy received the goods from the supplier. In the process of acceptance by the authorized person, a discrepancy in the number of medicines was discovered. What document does the authorized person need to issue?

- a. Contract of sale
- b. Register of medicinal products received by the subject of economic activity
- c. Act on established discrepancy in quantity and quality**
- d. Product report
- e. Logbook of receipt of goods by group

480. A certain pharmaceutical company is focused on the manufacture of medicines, while the sales play only a secondary role. What is the company's main type of business activity in this case?

- a. Leasing
- b. Manufacture**
- c. Consulting services
- d. Insurance
- e. Finances

481. The market can be characterized by the following conditions: there are many sellers and buyers, who have no influence over current prices; similar and interchangeable competing goods are available; there are no price limits. What type of market is it?

- a. Pure competition**
- b. Pure monopoly
- c. Economic planning
- d. Monopolistic competition
- e. Oligopoly

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

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

483. A 3-year-old child is intolerant to paracetamol. What antipyretic drug can be taken instead?

- a. Acetylsalicylic acid
- b. Diclofenac sodium
- c. Ibuprofen**
- d. Naproxen
- e. Nimesulide

484. Name the list of effective and safe to use drugs and medical products for prevention, diagnosing, and treatment of the most common pathologies, based on their importance for healthcare in a specific country:

- a. Drugs subject to strict accounting in a special inventory log
- b. Over-the-counter drugs
- c. Precursors
- d. Substandard drugs
- e. Essential drugs**

485. Dosage precision during tablet making mainly depends on the following technological property of tablet mass:

- a. Compressibility
- b. Lyophilic property
- c. Flowability**
- d. Relative density
- e. Compression ratio

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

- a. Sterilization with flowing steam at 100°C
- b. Autoclaving at 119-121°C with pressure at 1,0-1,1 atm

- c. Sterilization with high-frequency and microwave frequency current
- d. Sterilization with dry heat at 180-200°C for a lengthy period of time

e. Triple heating of solution to 40-60°C with 24-hour-long intervals in between for thermostating

487. Menthol has an antispasmodic and analgesic effect. What herbal raw material is a source of menthol?

- a. Folia Salviae
- b. Folia Absinthii
- c. Folia Betulae
- d. Folia Menthae piperitae
- e. Folia Eucalypti

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

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

489. A pharmacist has made a topical solution with lipophilic vehicle. Specify the substance that produces such a type of solution:

- a. Dermatol (bismuth subgallate)
- b. Novocaine hydrochloride
- c. Sulfur
- d. Menthol
- e. Starch

490. The chemical name of 2-benzyl-1H-benzimidazole hydrochloride corresponds with the following medicinal substance:

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

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

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

492. A 53-year-old patient diagnosed with arterial hypertension is undergoing inpatient treatment. After the examinations, the urologist diagnosed the patient with a prostate adenoma. What can be the drug of choice in this case?

- a. Propranolol
- b. Enalapril
- c. Doxazosin
- d. Verapamil
- e. Bisoprolol

493. An analytical quality control laboratory performs analysis of an ascorbic acid substance. What device must be used to determine its specific optical rotation?

- a. Refractometer
- b. Polarimeter

- c. Spectrophotometer
- d. Viscometer
- e. Hydrometer

494. The chief manager of a pharmacy designs its organizational structure and job descriptions for its employees. These arrangements belong to the following management method:

- a. Psychosocial
- b. Simulation
- c. Organizational**
- d. Legal
- e. Economic

495. A doctor has prescribed a mixture containing several types of herbal raw material. Extracts of the following raw materials can be obtained in one infusion apparatus:

- a. Mint leaves, flax seeds
- b. Mint leaves, buckthorn bark
- c. Mint leaves, Arctostaphylos leaves
- d. Mint leaves, chamomile flowers**
- e. Mint leaves, Althaea roots

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

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

497. What indicator of the pharmacy's financial performance is determined by the volume of sales, where the income from sales is equal to the expenses of the pharmacy?

- a. Profit
- b. Goods turnover
- c. Markup level
- d. Breakeven point**
- e. Profitability

498. What structure is authorized to issue permits for individual or collective provision of audit services in Ukraine?

- a. The State Service of Ukraine for Drug Control
- b. The State Regulatory Service of Ukraine
- c. The Control and Revision Office
- d. The State Service of Ukraine for Medicines
- e. The Audit Chamber of Ukraine**

499. Specialists of a pharmaceutical enterprise confirm the identity of *Cassia acutifolia* herbal raw material. During reaction with alkali it developed cherry-red coloring. What substances were identified?

- a. Tannins
- b. Alkaloids
- c. Glycosides
- d. Iridoids
- e. Anthraquinones**

500. A manufacturing company initiates changes to the package insert of a drug, which are aimed at limitation of its use. What type of marketing is used by the company in this case?

- a. Remarketing
- b. Stimulating
- c. Synchromarketing
- d. Conversion

e. Counteractive

501. Nitroxoline with sodium hydroxide solution produces:

- a. White precipitate
- b. Yellow precipitate
- c. Violet coloration
- d. Green-black coloration

e. Orange-red coloration

502. To identify a substance, an analytical chemist performs a reaction with the cyanogen bromide reagent and aniline. What substance is being analyzed in this case?

- a. Ascorbic acid
- b. Citric acid
- c. Nicotinic acid**
- d. Salicylic acid
- e. Benzoic acid

503. A 48-year-old woman, who undergoes a prolonged treatment for chronic hepatitis, was diagnosed with pneumonia. What antibacterial agent should she be prescribed in this case?

- a. Biseptol (Co-trimoxazole)
- b. Amoxicillin**
- c. Tetracycline
- d. Rifampicin
- e. Streptomycin

504. The personal qualities of the head of a pharmaceutical company are attractive to the subordinates who want to emulate their boss in everything. What form of power of the manager is observed in this situation?

- a. Coercive power
- b. Legitimate power

c. Referent power

- d. -
- e. Power based on fear

505. What medicine would be the best choice for a pregnant woman with signs of acute respiratory viral disease, who needs to lower her body temperature?

- a. Acetylsalicylic acid
- b. Indomethacin
- c. Diclofenac sodium

d. Paracetamol

- e. Nimesulide

506. A pharmaceutical company produces mint tincture. Technological process of making this tincture requires it to be made:

a. With 90% alcohol in 1:20 proportion

- b. With 70% alcohol in 1:5 proportion
- c. With 48% alcohol in 1:2 proportion
- d. With 70% alcohol in 1:10 proportion
- e. With 70% alcohol in 1:15 proportion

507. To treat iron-deficiency anemia the following drug is usually prescribed:

- a. Heparin

b. Ferroplex

- c. Corticosteroids
- d. Vicasol (Menadione)
- e. Furagin (Furazidinum)

508. What is the purpose of bulking agents in production of tablets?

- a. To improve adhesion of particles to each other

- b. To improve tablet breakup
- c. To improve the taste
- d. To improve granulate flowability
- e. To obtain tablets of a certain mass**

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

- a. Sodium bromide
- b. Sodium chloride
- c. Hydrogen peroxide
- d. Sodium thiosulfate**
- e. Sodium iodide

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

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

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

512. What method is recommended by the State Pharmacopoeia of Ukraine for quantitative determination of potassium chloride substance that is used in treatment of hypokalemia?

- a. Bromatometry
- b. Cerimetry
- c. Polarimetry
- d. Argentometry**
- e. Iodometry

513. What herbal raw material is used for the industrial production of Quercetin medicine?

- a. Flores Helichrysi arenarii
- b. Fructus Hippophaes rhamnoides
- c. Fructus Sophorae japonicae**
- d. Herba Polygonii avicularis
- e. Herba Violae tricoloris

514. Powders are a solid dosage form for internal or external use. What stage is NOT a part of powder production?

- a. Packing
- b. Sifting
- c. Granulation**
- d. Comminution
- e. Mixing

515. Pharmaceutical analysis of glutamic acid requires the determination of nitrogen after mineralization with concentrated sulfuric acid. Ammonia that forms during the test is pumped away into the receiving flask. What solution should the receiving flask contain during this test?

- a. Saturated sodium chloride solution
- b. Titrated sodium edetate solution
- c. Iodized potassium iodide solution

d. Freshly prepared tannin solution

e. Titrated hydrochloric acid solution

516. A drug quality control laboratory performs certification of antibiotics. What antibiotic has alpha-amino acid residue that can be determined using the ninhydrin reaction?

a. Ampicillin

b. Lincomycin

c. Chloramphenicol

d. Cefazolin

e. Oxacillin

517. A pharmacy manager has drawn up a work schedule for the next month. What type of management activity is aimed at making highly specific, detailed, short-term plans?

a. Operational planning

b. Business planning

c. -

d. Strategic planning

e. Financial planning

518. 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. Benzylpenicillin (Penicillin G)

b. Metronidazole

c. Doxycycline hydrochloride

d. Isoniazid

e. Acyclovir

519. The head manager of the "Ecopharm" pharmacy has entrusted the deputy head manager with some of his duties. The process when an executive partially transfers the authority to perform certain tasks to his or her subordinates is called:

a. Reduction of authority

b. Dissolution of authority

c. Withdrawal of authority

d. Delegation of authority

e. -

520. Glucose substance was received for analysis. When heated with copper tartrate reagent (Fehling reagent), it produced a red precipitate, which indicates that its structure contains:

a. Alcoholic hydroxyl

b. Amide group

c. Aldehyde group

d. Phenolic hydroxyl

e. Ester group

521. When developing a new medicine, marketologists of the pharmaceutical company have conducted an isolated research to determine the doctors' opinion of the medicines currently available on the market. What method of marketing research was used?

a. Observation

b. Experiment

c. Testing

d. Panel

e. Survey

522. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

a. Vincaton

b. Galantamine hydrobromide

c. Digitoxin

d. Ergotamine hydrotartrate

e. Vinblastine

523. Specify the control methods aimed at detecting mechanical impurities in parenteral solutions:

- a. Amperometric
- b. NMR and UV-visible spectroscopy
- c. Limulus test
- d. Gravitational
- e. Visual optical**

524. A pharmaceutical company uses the Boston Consulting Group matrix to analyze the state of its strategic business units (drugs). What is the BCG Matrix based on?

- a. Business opportunities
- b. Market share and market growth rate**
- c. Market segments
- d. Attractiveness of the industry
- e. Competitive Intensity

525. An analytical chemist uses nitritometry for quantitative determination of procainamide hydrochloride. What indicator is used in this case to determine the titration endpoint?

- a. Methyl orange
- b. Methyl red
- c. Xylenol orange
- d. Tropaeolin 00**
- e. Phenolphthalein

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

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

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

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

528. Aesculus hippocastanum seeds as a herbal raw material can be standardized by their quantitative content of aescin that belongs to the following group of bioactive substances:

- a. Flavonoids
- b. Tannins
- c. Anthracene derivatives
- d. Coumarins
- e. Saponins**

529. A pharmacist uses Vitepsol to prepare rectal suppositories. What fluid should be used in this case to lubricate the suppository form?

- a. Peach oil
- b. Ethyl alcohol
- c. Spiritus saponatus**
- d. Vaseline oil (liquid paraffin)
- e. Purified water

530. What pathological condition can develop during a long-term treatment with prednisolone?

- a. Pyelonephritis
- b. Gastrointestinal bleeding**
- c. Salivation

- d. Pneumonia
- e. Myocarditis

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

- a. *Alnus incana*
- b. *Juniperus communis*
- c. *Olea europea*
- d. *Humulus lupulus***
- e. *Rubus idaeus*

532. A pharmaceutical company wants to strengthen its position in the competitive market environment. It decides to use brand names as a part of its trade policy. What is the purpose of a brand name?

- a. Justification of a higher price for the medicine
- b. Ensuring the necessary quality of medicines
- c. Eligibility for registration in the List of medicines and medical products with state-controlled prices
- d. It is a mandatory condition to be able to sell medicines at a reduced price to certain population groups
- e. Differentiation between the competing medicines on the market**

533. 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. *Origanum vulgare*
- b. *Atropa belladonna*
- c. *Mentha piperita*
- d. *Urtica dioica***
- e. *Capsella bursa-pastoris*

534. Name the official document on audit results, which is drawn under the standard procedure and contains conclusions about reporting credibility and integrity of financial statements of an organization:

- a. Balance sheet
- b. Income statement
- c. Auditor's conclusion**
- d. Statement of changes in equity
- e. Cash flow statement

535. Because of dissatisfaction with working conditions, a dispensing chemist has resigned of his own free will from the pharmacy and found a job as a medical representative of a pharmaceutical company. Such movement of the personnel corresponds with the following concept:

- a. Staff rotation
- b. Staff turnover**
- c. Promotion
- d. Recruitment
- e. -

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

537. What type of marketing should be used if the demand for some medicines in the pharmaceutical

market is negative?

- a. Remarketing
- b. Conversion marketing**
- c. Incentive marketing
- d. Synchromarketing
- e. Demarketing

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

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

539. What drug facilitates dissolution of cholesterol stones in the gallbladder?

- a. Ademethionine
- b. Silybum dry extract
- c. Magnesium sulfate
- d. Ursodeoxycholic acid**
- e. Cynara dry extract

540. A dispensing chemist was hired to work a night shift at a pharmacy. What time is considered to be a night time according to the Ukrainian legislation currently in force?

- a. From 22:00 to 7:00
- b. From 00:00 to 8:00
- c. From 22:00 to 10:00
- d. From 21:00 to 6:00
- e. From 22:00 to 6:00**

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

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

542. A dispensing chemist-technologist has accepted a prescription for eye drops with adrenaline hydrochloride. What characteristic of adrenaline hydrochloride must be taken into account, when preparing the eye drops?

- a. Thermolability**
- b. Poor solubility in water
- c. Thermal stability
- d. Volatility
- e. Low solubility in water

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

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

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

- a. Astragalus dasyanthus
- b. Aralia mandshurica
- c. Panax ginseng

d. Glycyrrhiza glabra

e. Orthosiphon stamineus

545. What is the name of the ability to restore the properties of a heterogenous system by perturbation?

a. Resuspension

b. Dispersion

c. Granulation

d. Extraction

e. Emulsification

546. Pharmacy premises can be divided into service rooms and workrooms. Name the workroom for storage of medical products:

a. Shop floor

b. Material storage room

c. Distillation room

d. Washing room

e. Aseptic block

547. A man has bought nitroglycerine for sublingual administration in a pharmacy. He wants to know, what side effect might develop after taking this medicine:

a. Urinary retention

b. Dry cough

c. Increased blood pressure

d. Drowsiness

e. Headache

548. Practically no microorganisms can develop in the sugar syrup, if its concentration is optimal. Why is it so?

a. Because of decreased surface tension between the solution and the microbial cell

b. Because of high pH

c. Only because preservatives were added into the syrup

d. Because osmotic pressure in the solution is higher than in the microbial cell

e. Because of low pH

549. Employees of a wholesale pharmaceutical company have undergone an assessment for their compliance with the requirements of their respective positions. Specify the type of human resources assessment:

a. -

b. Financial

c. Preliminary

d. Concluding

e. Concurrent

550. A man came to the ophthalmologist complaining of poor twilight vision. Having collected the patient's medical history, the doctor suspected that these signs could be caused by the lack of a certain vitamin. What vitamin is likely to be deficient in this case?

a. Tocopherol

b. Phylloquinone (Phytomenadione)

c. Cholecalciferol

d. Ergocalciferol

e. Retinol

551. What morphological feature is diagnostic for the Matricaria chamomilla herbal raw material?

a. Conical, glabrous, and hollow receptacle

b. Spherical receptacle with membranous bracts

c. Solid spherical receptacle

d. Curved hemispherical receptacle with membranous bracts

e. Solid hemispherical receptacle

552. 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 24.00 to 8.00
- b. From 22.00 to 6.00**
- c. From 20.00 to 9.00
- d. From 23.00 to 7.00
- e. From 21.00 to 9.00

553. Lipophilicity is very important for the bioavailability of a substance. Name the numerical parameter that characterizes lipophilicity.

- a. Stoichiometric coefficient
- b. Coefficient of viscosity
- c. Coefficient of surface tension
- d. Correction factor
- e. Distribution coefficient**

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

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

555. An analytical chemist should use the following solution to identify sodium-containing substances:

- a. Potassium pyroantimonate**
- b. Barium hydroxide
- c. Sodium citrate
- d. Potassium permanganate
- e. Potassium carbonate

556. A pharmaceutical company produces Lugol's iodine solution. By type of solvent this solution belongs to the following group:

- a. Chloroform solutions
- b. Alcohol solutions
- c. Oil solutions
- d. Glycerine solutions**
- e. Water solutions

557. Infusions of herbal raw material rich in essential oils should be:

- a. Acidated with hydrochloric acid
- b. Immediately filtered
- c. Infused cold
- d. Prepared in a tightly closed vessel**
- e. Filtered without wringing of the solid residue

558. A herbal raw material was sent for analysis. The material consists of cylindrical pieces of roots of varying length, covered with a brown, longitudinally wrinkled bark. When peeled, the raw material externally varies in color from light yellow to brownish yellow and is light yellow and very fibrous on section. Its smell is faint. Its taste is sweet and slightly irritating. What herbal raw material is being analyzed in this case?

- a. *Aralia mandshurica* roots
- b. *Berberis* roots
- c. *Panax ginseng* roots
- d. *Taraxacum* roots
- e. *Glycyrrhiza* roots**

559. Iridoids can be divided into four main groups. What is the common name for the iridoids obtained from the Valerianaceae family plants?

a. Valepotriates

- b. Complex iridoid alkaloids
- c. Secoiridoids
- d. Common iridoids
- e. Cyclopentane iridoids

560. *Berberis vulgaris* herbal raw material is a source of medicinal substances with cholagogic and hemostatic effect. What parts of this plant are harvested as a herbal raw material?

- a. Leaves and fruits
- b. Leaves and flowers

c. Roots and leaves

- d. Roots and fruits
- e. Leaves and seeds

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

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

e. Phenobarbital

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

- a. Ratio of the sum of profits to the total cost of fixed assets x100%
- b. -

c. Ratio of the sum of profits to the sum of turnover x100%

- d. Ratio of the sum of profits to the sum of cost price of the goods x100%
- e. Ratio of the sum of profits to the sum of expenses x100%

563. What technology was used by a pharmacist to make a starch solution?

- a. Mixed it with hot water and added cold water
- b. Dissolved it in cold water and heated
- c. Dissolved it in boiling water

d. Mixed it with cold water, then poured the mixture into boiling water and boiled for 1-2 minutes

- e. Dissolved it in a vial for dispensing in freshly-distilled filtered purified water

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

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

e. Complexation

565. What pharmacy department carries out the individual production of extemporaneous medicines, their quality control, and their dispensing to consumers?

- a. Stock of goods
- b. Medical cosmetics
- c. Over-the-counter sales
- d. Ready-made dosage forms

e. Prescription and production

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

- a. Light green precipitate
- b. Blue precipitate
- c. Black precipitate

d. Yellow precipitate

e. White precipitate

567. Presence of nitrate radical in metronidazole structure can be confirmed by reduction of nitrate radical to amino group with production of:

a. Azo dye

b. Murexide

c. Indophenol

d. Thiochrome

e. Iodoform

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

a. Productivity

b. Efficiency

c. Survival

d. Effectiveness

e. Practical implementation of management decisions

569. An analytical pharmacist detects a primary aromatic amino group in the structure of benzocaine (anesthesine). What compound would the pharmacist use for identification?

a. Azo dye

b. Indophenol

c. Murexide

d. Iodoform

e. Fluorescein

570. Bank is a financial mediator in pharmacy's payments. Payment of taxes withheld from the employees' salary into the budget requires the following document:

a. Check payable in account

b. Cash order

c. Payment order

d. Accounting form

e. Cash register receipt

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

a. Withdrawal syndrome

b. Reye syndrome

c. Idiosyncrasy

d. Tolerance

e. Anaphylactic reaction

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

a. Enalapril

b. Losartan

c. Methyldopa

d. Reserpine

e. Bisoprolol

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

a. Relevant pharmaceutical practices

b. Values, traditions, and behavioral norms characteristic of company employees

c. Legislation in force

d. Specifics of manufacturing process

e. License agreement

574. A pharmaceutical factory produces soft dosage forms. What soft dosage form melts at the body temperature?

a. Liniment

b. Paste

c. Cream

d. Ointment

e. Gel

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

a. Emulsions

b. Tablets

c. Dried extract

d. Suspensions

e. Powders

576. Phenyl salicylate can be identified by the smell of phenol that is produced when the following is added into the preparation:

a. NaCl

b. CoCl_2

c. CuSO_4

d. AgNO_3

e. H_2SO_4

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

a. Absence of heavy metals

b. Apyrogenicity

c. Absence of mechanical inclusions

d. pH value

e. The way in which it was obtained

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

a. Sanitary passport

b. Sanitary-epidemiological certificate

c. Quality certificate

d. Certificate of compliance with hygiene regulations

e. Registration certificate

579. In its work, a pharmaceutical company combines ensuring its own profitability with meeting the needs of consumers and raising the standard of living in the society. What marketing management concept has the company chosen?

a. Product improvement

b. Production improvement

c. Marketing

d. Socio-ethical marketing

e. Intensification of commercial efforts

580. Pharmacies can prepare medicines based on individual formulations. What makes up the retail price of such medicines?

a. Cost of the ingredients that make up this dosage form

b. Cost of ingredients

c. Cost of ingredients and package

d. Cost of ingredients, package, and labor

e. Cost of labor and price markup

581. Microscopy of a root of a certain medicinal plant reveals the following features: parenchyma cells

contain inulin, there are laticifers, cambium line is clearly visible. This root belongs to:

- a. Zingiber officinale
- b. Taraxacum officinalis**
- c. Sanguisorba officinalis
- d. Inula helenium
- e. Althaea officinalis

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

- a. Loratadine
- b. Fexofenadine
- c. Prednisolone**
- d. Dibazol (Bendazol)
- e. Euphyllin (Aminophylline)

583. What pharmacological group of drugs ~~textbf~~CANNOT be combined with expectorants?

- a. Mucolytic agents
- b. Decongestants
- c. Antibacterial drugs
- d. Polyvitamins
- e. Antitussive drugs**

584. The tableting department of a pharmaceutical company begins to produce "fizzy" vitamin tablets. Name the groups of gas-producing leavening agents:

- a. Citric acid and aerosil (fumed silica)
- b. Citric acid and magnesium stearate
- c. Tartaric acid and magnesium stearate
- d. Tartaric acid and sodium bicarbonate**
- e. Ascorbic acid and aerosil (fumed silica)

585. What topical antiviral agent should be recommended to the patient with herpetic lesions on the lips?

- a. Arbidol (Umifenovir)
- b. Amizon (Enisamium iodide)
- c. Aflubin
- d. Anaferon
- e. Acyclovir**

586. A pharmacy has received a prescription for tincture. What herbal raw material can be used to make this dosage form?

- a. Arrow-wood bark
- b. Rhubarb roots
- c. Buckthorn bark
- d. Valerian rootstock**
- e. Oak bark

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

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

588. A pharmacy supplies with medicines various groups of patients. Children of what age group receive drugs for free during their outpatient treatment?

- a. From 3 to 6 years of age
- b. Under 6 years of age
- c. Under 16 years of age

d. Under 10 years of age

e. Under 3 years of age

589. Phospholipids are used in medicine in production of hepatoprotectors. What oil is a source of phospholipids?

a. Oleum Cucurbitae

b. Oleum Amygdalarum

c. Oleum Ricini

d. Oleum Lini

e. Oleum Sojae

590. 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. Glucocorticosteroids

c. Beta-blockers

d. Alpha-blockers

e. Inhibitors of protein-degrading enzymes

591. The substances and their salts that are used in production and purification of narcotic and psychotropic substances should be accounted in the pharmacy as:

a. Psychotropic substances

b. Precursors

c. Narcotic substances

d. Toxic substances

e. Potent substances

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

a. Chromotropic acid

b. Benzoic acid

c. Sulfuric acid

d. Acetic acid

e. Tartaric acid

593. A folic acid molecule has a heterocyclic system, consisting of two condensed heterocycles - pyrimidine and pyrazine. Name this system:

a. Corrin

b. Isoalloxazine

c. Purine

d. Pteridine

e. Phenothiazine

594. In the process of phytochemical examination of buckthorn bark, the reaction with alkaline solution resulted in red coloring, which indicates the presence of the following:

a. Slime

b. Saponins

c. Flavonoids

d. Anthracene derivatives

e. Alkaloids

595. What preservative did the pharmacist use to ensure the stability of eye drops?

a. Boric acid

b. Polyvinyl alcohol

c. Sodium chloride

d. Methyl cellulose

e. Hydrochloric acid

596. A 42-year-old man with community-acquired pneumonia was prescribed a long-term antibiotic

treatment. What drugs should be prescribed to this patient to prevent development of dysbiosis?

- a. Antitussive drugs
- b. Expectorants
- c. Antispasmodics
- d. Mucolytic agents
- e. Probiotics**

597. A pharmaceutical company produces suppositories made from thermolabile medicinal substances. What method is used in their production?

- a. Dispersion
- b. Pouring
- c. Pressing**
- d. Rolling
- e. Steeping

598. Genetically induced adverse reaction to a certain drug is caused by various enzyme defects. Name this reaction:

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

599. At the laboratory of a pharmaceutical company, a corticosteroid medicinal substance - hydrocortisone acetate - is being analyzed. What cycle in its molecule causes the appearance of an intense bright yellow coloring, when concentrated sulfuric acid is added?

- a. Pyridine cycle
- b. Steroid cycle**
- c. Imidazole cycle
- d. Xanthine cycle
- e. Naphthalene cycle

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

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

601. 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. Omeprazole
- b. Famotidine
- c. Ranitidine
- d. Bismuth subcitrate**
- e. Lansoprazole

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

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

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

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

a. Commercial manufacturing

b. Economic analysis

c. Test marketing

d. Generation of the ideas

e. Filtration of the ideas

604. The "Aromeline" phytodrug exhibits P-vitamin activity. What herbal raw material is used in production of this drug?

a. Fructus Sambuci nigrae

b. Fructus Aroniae melanocarpae

c. Fructus Viburni

d. Fructus Sorbi

e. Fructus Crataegi

605. What five-membered heterocycle is the basis of the structural formula of antiprotozoal and antibacterial drug metronidazole?

a. Imidazole

b. Furan

c. Pyrrole

d. Thiazole

e. Pyrazole

606. Working hours for the pharmacy workers are reduced. What is the length of the work week for the pharmacist-analyst?

a. 24 hours

b. 45 hours

c. 32 hours

d. 30 hours

e. 36 hours

607. A certain drug explodes when heated to 180°C or upon impact and, therefore, must be handled carefully during receipt and storage. This drug is:

a. Barium chloride

b. Nitroglycerine solution

c. Alcoholic iodine solution

d. Activated carbon

e. Calcium chloride

608. A medicine has caused a side effect in the patient due to the patient's hereditary defect of the enzymatic system. This phenomenon is called:

a. Allergic response

b. Drug dependence

c. Dysbiosis

d. Idiosyncrasy

e. Withdrawal syndrome

609. A 62-year-old woman has been diagnosed with acute pyelonephritis. She was prescribed gentamicin. Additionally, she takes furosemide. What are the possible complications of such treatment?

a. Increased ototoxicity of aminoglycosides

b. Increased hepatotoxic action of aminoglycosides

c. High risk of seizures

d. Increased hematotoxicity of gentamicin

e. High risk of allergic reactions

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

this case?

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

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

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

612. Based on the results of marketing research, the CEO 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. Personal
- c. Autocratic
- d. Intuitive
- e. -

613. An employee of an analytical and quality control laboratory performs a rapid analysis of morphine hydrochloride. In this case, the presence of phenolic hydroxyl can be confirmed by a reaction with a solution of:

- a. AgNO_3
- b. NH_3
- c. FeCl_3**
- d. Concentrated HNO_3
- e. $\text{K}_3[\text{Fe}(\text{CN})_6]$

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

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

615. "Avicenna", a newly founded pharmaceutical company, operates round-the-clock. What employees cannot be assigned to night shifts?

- a. -
- b. Employees under 25
- c. Employees under 18 (underage)**
- d. Employees under 30
- e. Employees of retirement age

616. At the exhibition, calendars, notebooks, and business gifts with the logo of a pharmaceutical company were handed out to the exhibition visitors for free. What is this type of advertising called?

- a. Point-of-sale advertising
- b. Print advertising
- c. Out-of-home advertising
- d. Souvenir advertising**
- e. Film advertising

617. When examining a substance with an ester group, you can conduct a reaction that produces:

a. Iron(III) hydroxamate

- b. Diazonium salt
- c. Berlin blue
- d. Indophenol
- e. Azo dye

618. During H. pylori eradication quadrotherapy, a 25-year-old man developed black feces. What medicine provoked such a side effect in this case?

- a. Metronidazole
- b. Amoxicillin
- c. Tetracycline
- d. Omeprazole

e. Bismuth subcitrate

619. Pharmaceutical logistics is aimed at advertising, search for customers, entering into agreements, after-sales service, and transportation. What type of logistics is it?

- a. Information
- b. Procurement
- c. Manufacturing

d. Sales

- e. Human resources

620. A man with arterial hypertension was taking a beta blocker (bisoprolol) for a long time. When his condition improved, he suddenly stopped taking this drug and it resulted in an acute increase of his blood pressure. What complication of the therapy is it?

- a. Reduced sensitivity

b. Withdrawal syndrome

- c. Bronchospasm
- d. Bradycardia
- e. Dysbacteriosis

621. Passiflora incarnata grass contains a complex of indole alkaloids. What pharmacological group do Passiflora preparations belong to?

- a. Antibacterial agents
- b. Wound healing agents
- c. Laxatives

d. Sedatives

- e. Diuretics

622. Vinblastine and Vincristine demonstrate antitumor activity. Name the herbal raw material used in production of these medicines:

- a. Herba Selaginis
- b. Rhizomata Nupharis lutei
- c. Herba Vincae minoris

d. Folia Catharanthi rosei

- e. Folia Berberidis

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

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

e. Among competitors

624. 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. Phenolic compounds
- b. Flavonoids

c. Cardiac glycosides

d. Anthracene derivatives

e. Alkaloids

625. A 52-year-old patient, who takes heparin, developed signs of the drug overdose. What antidote should be used in this case?

a. Acetylcysteine

b. Potassium chloride

c. Protamine sulfate

d. Unithiol

e. Naloxone

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

a. Rhizomes

b. Roots

c. Leaves

d. Fruits

e. Seeds

627. The following substance is used as an extractant in production of liquid extracts:

a. Acetone

b. Dichloroethane

c. Glycerine

d. Chloroform

e. Ethanol

628. A 74-year-old man came to the pharmacy. He had been prescribed ampicillin for antibiotic treatment of dysenteric gastroenterocolitis. What group of drugs should be recommended for dysbiosis prevention in this case?

a. Immunosuppressants

b. Probiotics

c. Sorbents

d. Antacids

e. Enzymatic agents

629. A pharmaceutical company, wanting to strengthen its market position in a competitive environment, decided to use trademarks during the implementation of its product policy. What is the purpose of a trademark?

a. Marketing research

b. Determining the need for medicines

c. Differentiation and protection of the company-produced medicines on the market

d. Study of quantitative characteristics of the market

e. Market segmentation

630. All business transactions at a pharmacy must be documented. What type of cash operation must be recorded with a receipt cash order?

a. Transfer of the revenue to the bank account

b. Revenue of the pharmacy

c. Advance salary payments

d. Salary payments

e. Issuing cash sums to be accounted for

631. Hemodes and Neohemodes preparations are used as blood plasma substitutes. What is their active substance?

a. Midantan (Amantadine)

b. Menthol

c. Polyvinylpyrrolidone

d. Piracetam

e. Thiopental sodium

632. What indicator is used in iodometry for quantitative determination of caffeine in caffeine and sodium benzoate?

- a. Eriochrome black
- b. Methyl orange

c. Starch

- d. Potassium chromate
- e. Bromthymol blue

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

- a. Silver nitrate and nitric acid
- b. Benzenesulfonic acid
- c. Diphenylamine

d. Barium chloride and hydrochloric acid

- e. Ammonium chloride and ammonium hydrate

634. The pharmacological activity of medicines largely depends on their chemical structure. Which of the following drugs is a pyrazole derivative?

- a. Piracetam
- b. Metronidazole
- c. Thiamazole

d. Metamizole sodium

- e. Bendazol

635. As the result of reduction of alcoholic solutions of 5-nitrofuran derivatives by means of their reaction with zinc in the presence of diluted hydrochloric acid, the following occurs:

- a. Color change from yellow to black
- b. Ammonia production
- c. Precipitation

d. Solution decoloration

- e. Precipitation and gassing

636. The drug sanguiritrin contains a combination of alkaloid bisulfates - sanguinarine and chelerythrine - that have an antimicrobial effect against Gram-positive bacteria and exhibit an antitrichomonal effect. What plant is the source of these alkaloids?

a. *Macleaya cordata*

- b. *Vinca minor*
- c. *Glaucium flavum*
- d. *Passiflora incarnata*
- e. *Chelidonium majus*

637. A man with gastric ulcer is prescribed anti-*Helicobacter pylori* therapy. On the 3rd day the patient developed black coloring of feces. What had caused such changes?

- a. Metronidazole
- b. Tetracycline
- c. Tinidazole

d. Bismuth subcitrate

- e. Omeprazole

638. A pharmacy dispenses medical products, the cost of which must be reimbursed based on electronic prescriptions. What authority reimburses the pharmacy for the cost of dispensed drugs?

- a. State Expert Center of the Ministry of Health of Ukraine
- b. Ministry of Labor and Social Policy of Ukraine
- c. State Service of Ukraine on Medicines and Drugs Control

d. National Health Service of Ukraine

- e. State Fiscal Service of Ukraine

639. 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. Introduction

c. Decline

d. Growth

e. Development

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

a. Optical density

b. Refractive index

c. Specific optical rotation

d. Distribution coefficient

e. Relative density

641. A man came to a pharmacist and asked to recommend him a herbal tonic and adaptogen. What herbal raw material has such a pharmacological effect?

a. Fennel fruits

b. Silybum fruits

c. Flax seeds

d. Pumpkin seeds

e. Schisandra seeds

642. The ampoule workshop of a factory produces a 5% oil-based solution of tocopherol acetate for injections. What filling technique should be used to fill the ampoules with this solution?

a. Syringe

b. Vapor condensation

c. Syringe and vapor condensation

d. Vacuum

e. Syringe and vacuum

643. A woman came to a doctor with complaints of heartburn. She has been taking diclofenac sodium for a long time due to diagnosed rheumatoid arthritis. What medicine can the doctor prescribe for the prevention of gastropathy?

a. Clarithromycin

b. Metoclopramide

c. Omeprazole

d. Papaverine hydrochloride

e. Acetylsalicylic acid

644. What substance can be determined using the Beilstein test during rapid analysis of drugs?

a. Hydrogen

b. Chlorine

c. Oxygen

d. Fluoride

e. Nitrogen

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

a. Lincomycin hydrochloride

b. Kanamycin monosulfate

c. Amoxicillin

d. Doxycycline hydrochloride

e. Streptomycin sulfate

646. What medicine is used for anesthesia and cannot be prescribed to outpatients, according to Decree №360?

- a. Suprastin (Chloropyramine)
- b. Metoprolol
- c. Anaesthesin (Benzocaine)
- d. Sodium thiopental**
- e. Midecamycin

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

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

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

- a. Ascorbic acid
- b. Zinc oxide
- c. Glucose
- d. Magnesium oxide
- e. Xeroform (bismuth tribromphenolate and bismuth oxide complex)**

649. In production of extraction drugs with maximum purity level, the extracts are purified using the method of liquid-liquid extraction, which is the process of:

- a. Dialysis
- b. Electrolyte action
- c. Extraction from one liquid using another**
- d. Ultrasound exposure
- e. Heating the extract

650. A pharmaceutical factory produces Thiamazole (Merkazolil) that is a medicinal substance with an antithyroid effect. Select from the list one of the initial compounds in its synthesis.

- a. Naphthoquinone
- b. Acridine
- c. Furfural
- d. Hydroxyquinoline
- e. Methyl isothiocyanate**

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

- a. Manufacturing costs
- b. State regulation of price formation**
- c. The stage of the product life cycle
- d. Marketing strategy of the company
- e. Marketing goals of the company

652. Tosylchloramide sodium (chloramine) has a disinfecting effect due to the release of active chlorine in an acidic medium. What method is used to quantify it?

- a. Nitritometry
- b. Iodometry**
- c. Complexonometry
- d. Permanganatometry
- e. Iodochlorometry

653. A pharmacist needs to prepare a trituration of platyphylline hydrotartrate (1:10). What filler would be optimal for making this trituration?

- a. Refined sugar
- b. Lactose**
- c. Corn starch

- d. Mannitol
- e. Rice starch

654. How often should a pharmacy make an inventory of its fixed assets?

- a. At least twice a year
- b. At least once in a quarter
- c. Once every three years
- d. At least thrice a year
- e. Once a year**

655. The presence of a primary aromatic amino group in sulfanilamide structure can be confirmed with a reaction that produces:

- a. Murexide
- b. Fluorescein
- c. Azo dye**
- d. Diazonium salts
- e. Iodoform

656. The method of stirring-up (dispersion) is used to make suspensions with a certain substance. Name this substance:

- a. Streptocide (Sulfanilamide)
- b. Camphor
- c. Basic bismuth nitrate**
- d. Sulfur
- e. Ethazole

657. What solution should be used by an expert at the laboratory of the pharmaceutical product certification center to identify the medicines that contain potassium ions?

- a. Sodium cobaltinitrite**
- b. Magnesium sulfate
- c. Ammonium oxalate
- d. Sodium hydroxide
- e. Barium chloride

658. What group of antibacterial agents is used as first-line drugs in treatment of uncomplicated community-acquired pneumonia in young people?

- a. Aminoglycosides
- b. Semisynthetic penicillins**
- c. Tetracyclines
- d. Nitrofurans
- e. Oxyquinolines

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

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

660. Adrenergic drug adrenaline tartrate contains phenolic hydroxyls in its structure. What solution should be used to conduct a reaction for their detection?

- a. Potassium bromide solution
- b. Magnesium sulfate solution
- c. Sodium nitrate solution
- d. Iron (III) chloride solution**
- e. Copper (II) sulfate solution

661. At a pharmacy, the pharmacist makes vaginal suppositories. What is the permissible range of

the average weight of such suppositories?

- a. 2.0-6.5 g
- b. 3.0-7.0 g
- c. 4.0-7.5 g
- d. 1.0-4.0 g
- e. 1.5-6.0 g**

662. During identification of a herbal raw material, an analytical chemist prepared water-based extractions and shook the test tube, which resulted in the formation of a large amount of stable foam. What bioactive substances are present in the material?

- a. Fatty oil
- b. Alkaloids
- c. Anthracene derivatives
- d. Tannins
- e. Saponins**

663. When analyzing the activity of the pharmacy, the pharmacy's head manager performed the following calculations: the manager subtracted the cost price of the sold goods from the proceeds from the sales of goods at retail prices. What indicator was calculated by the pharmacy's head manager?

- a. Profitability
- b. Commodity circulation
- c. Profit
- d. Expenses
- e. Markups**

664. According to ecological survey, a certain pharmaceutical manufacturer holds the first place among the local "green" industries. What marketing concept is chosen by this manufacturer in relations with its customers?

- a. Product development
- b. Production development
- c. Integrated marketing
- d. Socio-ethical marketing**
- e. Intensification of commercial effort

665. The analyst determines quantitative content of sodium benzoate by means of acidimetry in non-aqueous medium according to the State Pharmacopoeia of Ukraine. What reagent is used as a solvent in this case?

- a. Concentrated sulfuric acid
- b. Anhydrous acetic acid**
- c. Sulfanilic acid
- d. Dimethyl formamide
- e. Pyridine

666. Difference between the retail price of products sold and the margin determines:

- a. Production cost**
- b. Margin
- c. Income
- d. Breakeven
- e. Markup

667. According to the current Ukrainian legislation all drugs are divided into two categories: prescription and nonprescription (over-the-counter). Which one of the listed drugs requires no prescription?

- a. Tramadol, capsules, 0,05 №10
- b. Phenobarbital, tablets, 100 mg №6
- c. Ascorbic acid, 500 mg №30**
- d. Ketamine, 5% infusion solution, 2 ml №10

e. Clonidine, ampoules, 1 ml of 0,01% solution №10

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

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

669. An analytical quality control laboratory analyzes a resorcinol substance. What method is used for its quantitative determination?

- a. Argentometry
- b. Bromometry**
- c. Mercurimetry
- d. Nitritometry
- e. Complexometric titration

670. A pharmacy has received a prescription for the preparation of a solution. What substance requires the presence of sodium chloride and a hot solvent during the dissolution?

- a. Streptocide (Sulfanilamide)
- b. Sodium bromide
- c. Sodium iodide
- d. Urotropin
- e. Furacilin (Nitrofurazone)**

671. The head manager of a pharmacy has transferred to the deputy head manager the authority to select the range of products for sale and make decisions about the nomenclature and amount of medicines and medical products to be purchased from suppliers and the terms of such purchase contracts. What is this action called in the management theory?

- a. Planning
- b. Motivation
- c. Delegation**
- d. Organization
- e. Control

672. What packaging should the pharmacist use for a baby powder?

- a. Parchment
- b. Container with a lid that has holes in it**
- c. Ordinary paper capsules
- d. Wax paper
- e. Gelatin capsules

673. A pharmacist at the pharmacy has received a promotion. What type of job rotation is it?

- a. -
- b. Horizontal
- c. Vertical**
- d. Mixed
- e. Combined

674. Companies draw up their balance sheets to obtain information about the availability and composition of their property. What section of the balance sheet includes accounts receivable for goods?

- a. Current liabilities
- b. Non-current assets
- c. Equity capital
- d. Long-term liabilities
- e. Assets**

675. Most types of herbal raw materials are stored dry. However, for juice production the factories

receive fresh herbal material. Name one such plant that is processed fresh:

- a. *Althaea officinalis*
- b. *Urtica dioica*
- c. *Rosa canina*
- d. *Capsella bursa-pastoris*
- e. *Plantago major***

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

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

677. How should the tablets of pancreatin enzyme preparation be taken?

- a. 1 hour after a meal
- b. Regardless of food intake
- c. 2 hours before a meal
- d. 1 hour before a meal
- e. During eating**

678. Merchandising is a complex of communication techniques that aim to increase the sales in the pharmacies. The main goal of merchandising is:

- a. -
- b. Decrease of the competition between the drug analogues
- c. Expanding the range of pharmaceutical goods
- d. Quick sales of the whole range of goods on offer in the pharmacies and an overall increase of sales**
- e. Price-cutting for unpopular medicines

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

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

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

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

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

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

682. Polyethylene oxide base belongs to the following group:

- a. Fat
- b. Emulsion
- c. Amphiphilic
- d. Hydrophilic**

e. Hydrophobic

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

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

e. Thiourea solution

684. There are certain legal requirements to the format of a prescription. Physicians that have a private practice must state the following in the upper left corner of a prescription form:

- a. License number
- b. Surname and initials of the doctor
- c. Own address
- d. Medical facility seal

e. Own address, license number and its date of issue

685. 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. Permanganatometry

b. Acid-base titration in nonaqueous medium

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

686. What medicinal substance is a derivative of morphinan?

- a. Pachycarpine hydroiodide
- b. Caffeine

c. Codeine

- d. Quinine sulfate
- e. Cocaine hydrochloride

687. In the process of pharmaceutical company entering an offshore market the traditions and customs, religion, system of values, and education level of the local population were analyzed. What factors of international marketing environment were researched?

a. Sociocultural

- b. Technological
- c. Legal
- d. Economical
- e. Political

688. A 36-year-old patient developed acute pyelonephritis. What antibacterial agents has a nephrotoxic effect?

- a. Erythromycin
- b. Penicillin
- c. Tetracycline

d. Gentamicin

e. Ampicillin

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

a. Sodium sulfite

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

690. To restore the demand for a traditional medicine, the manufacturer has improved its characteristics, increased advertising costs, reduced prices, and involved new intermediaries. What type of marketing is used in this case?

- a. Remarketing
- b. Synchromarketing
- c. -
- d. Countermarketing
- e. Conversion marketing

691. To identify acetylsalicylic acid, the substance is subjected to alkaline hydrolysis. After acidification of the reaction mixture, acetic acid is formed, which can be detected using the reaction with ethanol in the presence of concentrated sulfuric acid. What reaction product causes the characteristic odor in this case?

- a. Ethyl acetate
- b. Ammonia
- c. Sulfur dioxide
- d. Benzaldehyde
- e. Pyridine

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

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

693. A patient with arterial hypertension was prescribed enalapril, but after two weeks of treatment, taking this drug at the dose of 10 mg twice a day, the patient developed a dry non-productive cough. What is the likely cause of this side effect?

- a. Gastroesophageal reflux
- b. Inhibition of histamine synthesis
- c. Accumulation of residual bradykinin in the blood
- d. Exacerbation of chronic bronchitis
- e. Increased tone of the cough center

694. Complex drug product Urolesan is a litholytic, antispasmodic, and diuretic agent. It contains ethanolic extract of:

- a. *Origanum vulgare*
- b. -
- c. *Rhododendron tomentosum*
- d. *Thymus serpyllum*
- e. *Matricaria chamomilla*

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

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

696. A pharmaceutical company produces liquid dosage forms. What principle is used in rotary pulsation apparatus to obtain an emulsion?

- a. Coacervation
- b. Solubilization
- c. Maceration
- d. Mechanical dispersion
- e. Ultrasonic dispersion

697. Advertising is the most popular and widely used part of marketing communications system. What cannot be included into the advertisements for medicines?

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

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

- a. Pharmacological action
- b. Appearance
- c. Marking
- d. Trade dress
- e. Quality**

699. An analyst of a chemical laboratory had received a glucose substance for analysis. To check its quality he used a polarimeter. The analyst measured:

- a. Optical density
- b. Specific gravity
- c. Melting point
- d. Refractive index
- e. Angle of rotation**

700. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds with the following drug:

- a. Dibazol (Bendazol)
- b. Ofloxacin
- c. Chingamin (Chloroquine)
- d. Nitroxoline**
- e. Quinocide

701. A pharmaceutical company produces tablets. Tableting by means of direct compression requires:

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

702. What antacid can cause constipations, osteoporosis, and encephalopathy when taken for a long period of time?

- a. Magnesium oxide
- b. Sodium alginate
- c. Sodium bicarbonate
- d. Aluminium hydroxide**
- e. Calcium carbonate

703. Bilitrast is an X-ray contrast substance. What reagent can confirm the presence of phenolic hydroxyl in its molecule?

- a. Silver nitrate solution
- b. Alcoholic iodine solution
- c. Hydrochloric acid solution
- d. Iodine dissolved in potassium iodide
- e. Iron(III) chloride solution**

704. What semi-synthetic antibiotic can be synthesized in the process of reaction between 6-aminopenicillanic acid and phenylaminoacetic acid chloranhydride?

- a. Cephalexin

- b. Rifampicin
- c. Amikacin
- d. Methacycline

e. Ampicillin

705. A pharmacy has received a prescription, written in an incorrect format. In this case, the dispensing chemist, tasked with the incoming control of the prescriptions, must do the following:

- a. Register the prescription in the log book and sell this medicine to the patient
- b. Sell this medicine to the patient

c. Affix the <<Invalid prescription>> stamp to the prescription and return it to the patient

- d. Give the patient a copy of the prescription
- e. Notify the head manager of the pharmacy

706. To prepare eyedrops with antibiotic a dispensing chemist has been using flowing steam sterilization under 100°C for 30 minutes. What antibiotic allows for such sterilization?

a. Streptomycin sulfate

b. Levomycetin (Chloramphenicol)

- c. Erythromycin
- d. Sodium benzylpenicillin
- e. Biomycin

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

- a. Bradycardia
- b. Elevated blood pressure

c. Constipation

- d. Dysbiosis
- e. Osteoporosis

708. Different types of granulation are used in the tablet production. What is the most productive method of structural granulation?

- a. Granulation using briquetting
- b. Granulation in spray dryers

c. Granulation in the fluidized bed

- d. Wet granulation in vertical granulators
- e. Granulation in the dragee pan

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

- a. Ester group
- b. Carboxyl group
- c. Aliphatic amino group
- d. Primary aromatic amino group

e. Phenolic hydroxyl

710. A pharmacist prepares suppositories by pouring. Name the coefficient for substitution of fatty vehicle with glycerinated gelatin vehicle:

- a. 1.25
- b. 1.11
- c. 1.31
- d. 1.20

e. 1.21

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

- a. Iron(II) sulfate
- b. Calcium chloride
- c. Sodium hydroxide

d. Potassium ferrocyanide

e. Potassium bromide

712. 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. The receipt form is not kept by the pharmacy

d. One year, not counting the current one

e. One month, not counting the current one

713. A pharmacist prepares a suspension with a hydrophobic substance. What stabilizer is necessary for this dispersion system?

a. Boric acid

b. Nipagin (Methylparaben)

c. Methyl cellulose

d. Sodium chloride

e. Glucose

714. A pharmacy receives centralized deliveries of goods from the warehouse. Specify the document that is **NOT NECESSARY** for accounting of goods receipt by the pharmacy:

a. Cash receipt order

b. Goods received record book by item and supplier

c. Financial operating report of the pharmacy

d. Goods report (Inventory change report)

e. Goods received record book by groups of goods

715. What antibiotic has beta-lactam cycle in its structure?

a. Benzylpenicillin potassium salt

b. Chloramphenicol

c. Streptomycin sulfate

d. Lincomycin hydrochloride

e. Doxycycline hyclate

716. Medicinal dyes should be stored in a special cabinet. Which of the listed medical products is a dye:

a. Glucose

b. Ascorbic acid

c. Brilliant green

d. Hydrogen peroxide

e. Ethyl alcohol

717. To increase its sales, the "Have a good day!" pharmacy introduced a discount system. According to this system if a customer buys 100 UAH worth of medical products, this customer receives 2% discount. What marketing communication has this pharmacy implemented?

a. Personal sale

b. Salesmen-oriented sales promotion

c. Consumer-oriented sales promotion

d. Middlemen-oriented sales promotion

e. Public relations, sponsorship

718. What is the mandatory component of medical product advertising for end users, according to the law of Ukraine "On Advertising"?

a. Naming and mentioning celebrities, movie and cartoon characters, competent authorities

b. Reference to the drug as the most effective

c. Warning that self-medication can be harmful to health

d. Comparison with other medical products

e. References to the cases of successful drug use

719. A 63-year-old man suffering from ischemic heart disease was diagnosed with angle closure

glaucoma. What group of drugs is CONTRAINDICATED in this case?

- a. beta-adrenergic blockers
- b. Anticoagulants
- c. Nitrates**
- d. Calcium antagonists
- e. Statins

720. What fatty oil is nondrying due to its oleic acid glyceride content?

- a. Cucurbitae oleum
- b. Helianthi oleum
- c. Maydis oleum
- d. Ricini oleum**
- e. Lini oleum

721. Herbal mixtures contain several types of comminuted or non-comminuted herbal raw material. What stage is NOT a part of herbal mixture production?

- a. Sifting
- b. Extraction**
- c. Marking
- d. Mixing
- e. Packing

722. What medicine would be most advisable for symptomatic treatment of constipation in pregnant women?

- a. Bisacodyl
- b. Ononis herbal medicine
- c. Lactulose**
- d. Senadexine (sennosides A and B)
- e. Macrogol

723. A man with arterial hypertension has blood pressure of 160/100 mm Hg and heart rate of 64/min. and presents with signs of fluid retention (pastose shins, dyspnea, etc.). What hypotensive agent is the drug of choice in case of edema syndrome?

- a. Metoprolol
- b. Hydrochlorothiazide**
- c. Enalapril
- d. Losartan
- e. Amlodipine

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

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

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

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

726. A pharmaceutical company uses various methods of advertising. What method of advertising foresees its distribution to everyone, not just the target audience?

- a. Advertising souvenirs

b. Professional-targeted advertising

c. Out-of-home advertising

d. -

e. Postal cards and pamphlets

727. Batches of several fatty oils were sent to the analytical quality control laboratory. One of the criteria for the study of fatty oils is determining their solubility. What oil is well soluble in ethyl alcohol?

a. Olive oil

b. Sunflower oil

c. Castor oil

d. Cocoa butter

e. Flaxseed oil

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

a. Concentrated sulfuric acid

b. Copper tartrate reagent

c. Hydroxylamine hydrochloride

d. Phenylhydrazine sulfate

e. Acetic anhydride

729. 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. Essential oils

b. Fatty oils

c. Inulin

d. Pectin

e. Slime

730. A tincture of *Fructus Capsici* is used as a distracting agent and an irritant in cases of neuralgia, radiculitis, and myositis. What bioactive substance of *Fructus Capsici* has such an effect?

a. Capsaicin

b. Colchicine

c. Inulin

d. Schisandrin

e. Ephedrine

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

a. Loperamide

b. Platyphyllin

c. Papaverine

d. Ursodeoxycholic acid

e. Domperidone

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

a. 25%

b. 10%

c. 15%

d. 5%

e. 7%

733. Prior to making a sodium chloride isotonic solution a pharmacist baked the powder in a dry heat box. What substances are removed by this operation?

a. Redox substances

b. Moisture

- c. Chlorides
- d. Sulfates

e. Pyrogenic substances

734. What prescription form is used to prescribe psychotropic drugs in their pure form or in a mixture with indifferent substances for the dispensation free of charge or at a discount?

- a. Two copies of prescription form f-3
- b. Prescription form f-3

c. Two prescription forms f-1 and f-3

- d. Two copies of prescription form f-1
- e. Prescription form f-1

735. An analytical pharmacist quantifies the ascorbic acid substance using the iodometric method. What indicator must be used in the process?

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

e. Starch

736. A pharmacy needs to prepare a furacilin (nitrofurazone) solution (1:5000). What are the specifics of furacilin dissolution?

- a. In the purified water, after grinding it down
- b. In the purified water, filtered in advance

c. In the boiling water in the presence of sodium chloride

- d. In the minimal amount of ethanol
- e. In the cold purified water

737. The procedure for circulation of narcotic drugs, psychotropic substances, and precursors in pharmacies is regulated by law. Which one of the medicines listed below is a narcotic drug?

a. Tramadol

- b. Zopiclone
- c. Prednisolone
- d. Atropine sulfate
- e. Ethyl alcohol

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

- a. Dispersed with glycerine
- b. Comminuted with alcohol
- c. Dissolved in the boiling water

d. Dissolved in the saturated solution of potassium iodide

- e. Reduced to fine powder

739. Helichrysum arenarium herbal raw material has anti-inflammatory and choleretic effect. What parts of this plant are harvested?

- a. Fruits
- b. Roots
- c. Rhizomes
- d. Grass

e. Flowers

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

- a. Mechanical strength
- b. Dry residue
- c. Boiling point
- d. Resuspension

e. Dissolution time

741. In the process of industrial production, certain adjuvants are included in the soft dosage forms as pH regulators. Name these adjuvants:

- a. Benzalkonium chloride, benzyl alcohol
- b. Glycerine, dimethyl sulfoxide
- c. Citric acid, sodium phosphate salts**
- d. Sodium lauryl sulfate, tween emulsifiers
- e. Paraffin, spermaceti

742. What type of loan does the pharmacy receive in the form of goods, and returns mainly in monetary form?

- a. State loan
- b. Prolonged loan
- c. Term loan
- d. Commercial loan**
- e. Bank loan

743. To prepare a suspension a medicinal substance should be triturated with a small amount of liquid. Specify the optimal amount of liquid for trituration of 10 g of zinc oxide according to the Deriagin's rule:

- a. 0,5 ml
- b. 10 ml
- c. 1 ml
- d. 5 ml**
- e. 2 ml

744. Organizationally, a pharmacy is divided into separate departments: Prescription and Extemporaneous Medicines, Stock Department, and Over-the-Counter Medicines. What organizational management structure can be characterized by such a division?

- a. Line and staff
- b. Functional**
- c. Divisional
- d. Matrix
- e. Linear

745. To stabilize the suspension a pharmacist has used potassium soap. What substance does this suspension contain?

- a. Camphor
- b. Sulfur**
- c. Menthol
- d. Basic bismuth nitrate
- e. Phenyl salicylate

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

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

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

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

748. Every pharmacy as a business has its income and expenditure operations. What business transaction will result in a summary increase of stocked goods?

- a. Issuing money to be accounted for
- b. Goods receipt from the supplier**
- c. Money transfer from a bank to the cash desk
- d. Receipt of low-value wearing goods
- e. Debt recovery from a person accountable

749. What document is used during transactions with consumers, confirming the fact of sale or return of goods and the fact of receiving a payment or making a refund?

- a. Cash book
- b. Accompanying statement to the bag with cash
- c. Fiscal cash receipt for the goods/services**
- d. Transactions ledger
- e. Request for a cash transfer

750. A pharmaceutical company produces medicinal syrups. What substances ensure the microbial stability of this dosage form?

- a. Thickeners
- b. Preservatives**
- c. Pectin substances
- d. Solubilizers
- e. Emulsifiers

751. Propellants are used in aerosols production. Specify the function of propellants:

- a. Emulsification
- b. Dispersion
- c. Create pressure in the package**
- d. Stabilization
- e. Action prolongation

752. A pharmacy has received a formulation for the solution with a substance that moderately expands in the cold water. Name this substance:

- a. Protargol (Silver proteinate)
- b. Calcium chloride
- c. Sodium chloride
- d. Gelatin**
- e. Glucose

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

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

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

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

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

- a. Erysimum canescens

b. *Adonis vernalis*

c. *Digitalis lanata*

d. *Convallaria majalis*

e. *Strophanthus kombe*

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

a. Semantic barriers

b. Poor feedback

c. Nonverbal barriers

d. Lack of understanding of the information's importance

e. Psychological distance

757. Hydrogen sulfide is being produced in the process of dry pyrolysis of a certain sulfanilamide drug. Name this drug:

a. Soluble streptocide

b. Norsulfazole

c. Sulfadimezinum (Sulfadimine)

d. Sulfacil sodium

e. Streptocide

758. Profitability is an economic parameter that characterizes the effectiveness of the pharmacy's commercial, financial, and manufacturing activity. What parameters are used to determine the profitability of sales?

a. Profit turnover of goods

b. Turnover of goods wages

c. Cost price of products liquidity

d. Turnover of goods cost price of products

e. Liquidity solvency

759. A 35-year-old patient with tachycardia has been administered propranolol. Which of the following reactions may be caused by the use of beta-blockers?

a. Cumulation

b. Drug dependence

c. Constipations

d. Blood pressure rise

e. Bronchospasm

760. 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. Salicylic acid

b. Phenyl salicylate

c. Acetylsalicylic acid

d. Sodium benzoate

e. Benzoic acid

761. What is present in the structure of procaine hydrochloride, making its alkalimetric titration possible?

a. Residue of n-aminobenzoic acid

b. Diethylamino group

c. Unsubstituted aromatic cycle

d. Ester bond

e. Bound hydrochloric acid

762. For rapid analysis of a dosage form with procaine hydrochloride, an analytical chemist performed necessary chemical reactions. What reaction is a variation of Schiff base formation?

a. Iodoform test

b. Lignin test

- c. Hydroxamic reaction
- d. Azo dye formation
- e. <<Silver mirror>> reaction

763. Incoming medicines inspection is performed by an authorized employee. What is textbfNOT a part of the responsibilities of this person?

- a. To keep a roster of incoming medicines
- b. -

c. To draw up orders for medicines and medical products, to conclude sales contracts

- d. To draw up conclusions regarding inspection of incoming medicines
- e. To check the pharmacy stock for low-quality or fake medicines

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

- a. For preparation of dry extracts

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

- c. For preparation of tinctures
- d. For preparation of thick extracts
- e. To be used as ready-made medicines

765. The duration of a maternity leave for pregnancy and childbirth is calculated in total. What is the total number of calendar days allocated for a maternity leave?

- a. 50 days

b. 126 days

- c. 115 days
- d. 100 days
- e. 70 days

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

- a. 0.025

b. 0.05

- c. 5.0
- d. 0.25
- e. 0.5

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

- a. Molisch's test

b. Foaming reaction

- c. Reaction with iron(III) chloride
- d. Dragendorff's test
- e. Fehling's test

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

- a. Payment order
- b. Cash cheque
- c. Cheque payable

d. Payment summary

- e. Payment request and order

769. Identification of potassium iodide requires performing an oxidation reaction in acid medium, which produces free iodine that colors chloroform layer. What reagent is used for such a reaction?

- a. Silver nitrate

b. Sodium nitrite

- c. Barium chloride

- d. Ammonium oxalate
- e. Sodium carbonate

770. A pharmacy pays considerable attention to the technique of medicine placement in the glass cabinets and on the shelves to create favorable conditions for sales and attracting the attention of consumers. Name this set of measures:

- a. Public relations
- b. Merchandising**
- c. Lobbying
- d. Advertising
- e. Personal sale

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

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

773. 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. Public relations**
- d. Direct marketing
- e. Personal selling

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

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

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

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

776. Thymol and carvacrol are the main active substances of *Thymus vulgaris*. They belong to the following class of bioactive substances:

- a. Essential oils**
- b. Flavonoids
- c. Anthracene derivatives

- d. Alkaloids
- e. Iridoids

777. A pharmacy customer complains of constricting, sometimes burning pain behind the sternum, with irradiation to the neck and left arm. The pain lasts for 5-10 minutes. What drug should be given to this customer for emergency aid?

- a. Nifedipine
- b. Bisoprolol
- c. Isosorbide dinitrate
- d. Nitroglycerine**
- e. Digoxin

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

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

779. A thymol-containing herbal raw material is stored in the warehouse of a pharmaceutical company. What are its proper storage conditions?

- a. In metal containers
- b. Under CO₂-free conditions
- c. Under normal conditions
- d. Under the temperature of -5°C
- e. Separate from the others**

780. A 35-year-old patient has been prescribed a potassium-sparing diuretic. Select one such drug from the list:

- a. Bisoprolol
- b. Prazosin
- c. Diltiazem
- d. Triamterene**
- e. Furosemide

781. A pharmacist needs to weigh out a medicinal substance from the general list - glucose. What minimum amount of glucose can be weighed out using one-gram hand scales?

- a. 0.05 g
- b. 0.04 g
- c. 0.01 g
- d. 0.03 g
- e. 0.02 g**

782. A certain management style can be characterized by the following features: the authority is highly centralized; work duties of the employees are very structured; the ability of employees to make decisions is extremely limited; strict compliance with numerous rules and regulations is prioritized. Name this management style:

- a. Democratic
- b. Authoritarian**
- c. Direct
- d. Liberal
- e. Collective

783. A certain substance is yellow, but does not leave a colored mark on the filter paper, mortar, and pestle. Powders with this substance are prepared according to the general rules. Name this substance:

- a. Riboflavin
- b. Furacilin (Nitrofuril)

- c. Brilliant green
- d. Methylene blue

e. Sulfur

784. To minimize business risks, the board of directors of a pharmaceutical company decides to expand into a market of plant protection products. Such approach to risk management is called:

- a. Integration
- b. Intensification
- c. Consolidation

d. Diversification

e. Insurance

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

- a. Behavioral approach
- b. -

c. Demographic approach

- d. Geographical approach
- e. Psychographic approach

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

a. *Bidens tripartita*

- b. *Bidens radiata*
- c. *Bidens aurea*
- d. *Bidens frondosa*
- e. *Bidens cernua*

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

a. *Polygonum alpinum*

b. *Polygonum bistorta*

- c. *Polygonum aviculare*
- d. *Polygonum hydropiper*
- e. *Polygonum persicaria*

788. When a pharmacy restocks its medical products, the incoming products must undergo quality assessment. Who conducts the assessment in this case?

a. An authorized person

- b. A representative of the laboratory
- c. The head manager of the pharmacy
- d. A pharmacist
- e. A financially accountable person

789. What preparation has an antiemetic effect?

- a. Clarithromycin
- b. Loperamide
- c. Aluminum phosphate
- d. Sodium bicarbonate

e. Metoclopramide

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

- a. Alkaloids
- b. Simple phenols
- c. Flavonoids

d. Iridoids

e. Saponins

791. A pharmacy sells various medicines. What medicine is a subject to strict accounting in a special inventory log?

- a. Microfollin (Ethinylestradiol), tablets
- b. Retabolil (Nandrolone)
- c. Tramadol, tablets**
- d. Hydrocortisone acetate
- e. Gentamicin sulfate

792. What tincture is industrially manufactured at the ratio of 1:2?

- a. Leonurus
- b. Styphnolobium japonicum**
- c. Mentha
- d. Hypericum
- e. Atropa belladonna

793. What stabilizer must the pharmacist add, when preparing an atropine sulfate solution for injections?

- a. Sodium hydroxide
- b. Sodium metabisulfite
- c. Sodium bicarbonate
- d. Hydrochloric acid**
- e. Ascorbic acid

794. What pharmacotherapeutic characteristic of a medicine allows its classification as over-the-counter drug?

- a. Medicine contains substances that require additional research into their activity and side-effects
- b. Medicine is available only by prescription
- c. Medicine can cause no direct or indirect harm to the patient's health**
- d. Medicine is available only for in-patient treatment
- e. Medicine has entered the pharmaceutical market only recently and actual experience with its practical application is limited

795. The cashier of a pharmacy must record all receipt and withdrawal cash transactions in the relevant documents. What document must be drawn up for issuing cash sums to be accounted for?

- a. Expense invoice
- b. Receipt for issuing money
- c. Profit invoice
- d. Disbursement cash order**
- e. Cashier's check

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

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

797. A 25-year-old woman is in the third trimester of her pregnancy. During her regular examination, US detected a malformation in the fetus. Medical history of the patient shows that she was taking large doses of diazepam without prescription during her pregnancy. What type of side effect has occurred in this case?

- a. Teratogenic**
- b. Carcinogenic
- c. Fetotoxic
- d. Mutagenic
- e. Embryotoxic

798. What drug, due to beta-lactam ring in its structure, has positive reaction with hydroxylamine

hydrochloride solution in the presence of sodium hydroxide with subsequent addition of iron (III) chloride solution?

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

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

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

800. What is the fundamental difference of the Japanese management model?

- a. Strict control procedure
- b. Focus on individual results
- c. Strictly formalized management system
- d. Individualism
- e. Collectivism**

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

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

802. A 10-year-old child was prescribed an antibiotic to treat pneumonia, after which the mother noticed deterioration of the child's hearing. What group of antibiotics could have caused such a complication?

- a. Penicillins
- b. Fluoroquinolones
- c. Cephalosporins
- d. Macrolides
- e. Aminoglycosides**

803. What preparation has an antacid effect?

- a. Famotidine
- b. Omeprazole
- c. Aluminum phosphate**
- d. Ranitidine
- e. Pirenzepine

804. 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. Sodium eosinate
- c. Methylene blue
- d. Potassium chromate
- e. Calconcarboxylic acid

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

- a. Olimetinum
- b. Bellasthesin**

- c. Urolesan
- d. Solutan
- e. Herbogastrine

806. What medicines cannot be advertised in pharmacies and their structural units?

- a. Dietary supplements
- b. Disinfectants
- c. Cosmetics
- d. Prescription medicines**
- e. Over-the-counter medicines

807. What factor enables the extraction of maximum amount of alkaloids from the herbal raw material?

- a. Certain value of the solution pH**
- b. Preliminary processing of raw materials for their saturation with 96% alcohol
- c. Slight heating
- d. Intense heating
- e. Herbal raw material should be fresh

808. What property of the tablet mass determines the most how fast a matrix hole of the tablet press machine is filled?

- a. Humidity
- b. Fluidity (flowability)**
- c. Relative density
- d. Porosity
- e. Bulk density

809. During drug identification, a sample of the substance was moistened with concentrated sulfuric acid and the bottom of the test tube was carefully heated. A white plaque appeared that coated the test tube walls from the inside. What substance can be detected using this reaction?

- a. Morphine hydrochloride
- b. Theophylline monohydrate
- c. Benzocaine
- d. Sodium benzoate**
- e. Nitrofural (Nitrofurazone)

810. Throughout the year, three employees voluntarily resigned from a pharmaceutical company. What type of employee movement is it?

- a. Vertical job rotation
- b. Horizontal job rotation
- c. Recruiting
- d. -
- e. Staff turnover**

811. 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. Physical dependence
- b. Cumulation
- c. Psychological dependence
- d. Sensitization
- e. Tolerance**

812. A pharmacy has received a receipt for preparation of a dermatological ointment with a non-specified vehicle. What vehicle should be used in this case?

- a. Soap-glycerine base
- b. Vaseline and lanolin
- c. Vaseline**
- d. Gelatin-glycerine gel

e. Lanolin

813. 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. Growth
- b. Saturation
- c. Maturity
- d. Introduction**
- e. Decline

814. 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. Fixed price
- b. Free-of-control price
- c. Indicative price
- d. Contract price
- e. Controlled price**

815. A dispensing chemist specifies the name of a herbal raw material, its mass, the area where it has been harvested, and the date of harvest. Name this procedure:

- a. Sorting of herbal raw material
- b. Standardization of herbal raw material
- c. Harvesting of herbal raw material
- d. Marking of herbal raw material**
- e. Packing of herbal raw material

816. Chromatographic methods are used in pharmaceutical analysis. What type of chromatography is based on reversible chemisorption of the ions of the analyte solution by the ionogenic groups of the sorbent?

- a. Gas chromatography
- b. Ion-exchange chromatography**
- c. Adsorption chromatography
- d. Thin layer chromatography
- e. Paper chromatography

817. A patient with ischemic heart disease and chronic circulatory failure had been taking for a long time one of the drugs listed below. He developed hypokalemia, which resulted in cardiac rhythm disturbance and muscle weakness. What drug can lead to this complication as a side effect?

- a. Lisinopril
- b. Spironolactone
- c. Nifedipine
- d. Propranolol
- e. Furosemide**

818. A pharmacy prepares 10% sodium chloride injection solution. What sterilization would be optimal in this case?

- a. Irradiation sterilization
- b. Autoclave chamber with high-pressure saturated steam**
- c. Gas sterilization
- d. Dry-heat sterilization
- e. Sterile filtration through membrane

819. Quality of dried extracts is assessed according to several criteria. Specify the highest acceptable amount of moisture in dried extracts according to the State Pharmacopoeia of Ukraine:

- a. 75%
- b. 20%
- c. 95%
- d. 5%**

e. 25%

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

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

821. A patient with angina pectoris takes long-acting nitrates. Consult him what side-effect is the most common for these drugs:

- a. Nausea
- b. Headache**
- c. Constipation
- d. Vomiting
- e. Diarrhea

822. What medicines should be listed at the beginning of an extemporaneous drug formulation according to the regulations?

- a. Solutions
- b. Narcotic substances**
- c. Substances that are hard to comminute
- d. All medicines are written in a random order
- e. Medicines included in the Essential Medicines List

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

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

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

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

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

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

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

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

a. Polysaccharides

b. Thioglycosides

c. Alkaloids

d. Fatty oil

e. Flavonoids

828. The duty of a cash desk operator is to perform cash receipt and withdrawal transactions on the grounds of the relevant cash orders. Select from the list below a receipt transaction.

a. Withdrawing sales proceeds for the transfer to the current account

b. Issuing a cash sum to be accounted for

c. Salary payments

d. Payment for the goods purchased for the business needs

e. Receipt of funds for advance salary payments

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

a. Balance sheet

b. Full material liability contract

c. Credit contract

d. License

e. Auditor's conclusion

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

a. Microscope

b. Friabilators

c. Laboratory identifiers

d. Various vibrosieves

e. Standard set of sieves

831. Marketing department of the Public Company "Lugansk Chemical Pharmaceutical Factory" determined that the demand for a herbal cough remedy, manufactured for children as a syrup, fluctuates significantly within a year. Such demand is considered to be:

a. Irrational

b. Inadequate

c. Irregular

d. Incorrect

e. Unrealized

832. A 6-year-old girl has been suffering from bronchial asthma for 3 years. To stop the attacks, the pediatrician prescribed her a short-acting beta₂-adrenomimetic. What medicine was prescribed by the doctor in this case?

a. Fluticasone

b. Salbutamol

c. Tiotropium bromide

d. Budesonide

e. Ipratropium bromide

833. A 60-year-old patient, who had suffered a myocardial infarction, was prescribed acetylsalicylic acid as an antiaggregant. Specify the optimal daily dosage of acetylsalicylic acid for antiaggregatory effect:

a. 200 mg

b. 500 mg

c. 300 mg

d. 100 mg

e. 400 mg

834. To identify a medicinal substance, an analytical chemist performed a reaction of azo dye formation. This reaction is characteristic of the following medicine:

- a. Chlorpropamide
- b. Phenyl salicylate
- c. Benzocaine**
- d. Acetylsalicylic acid
- e. Resorcinol

835. A pharmacy has received the following formulation: Rp.: Spiritus aethylici 20 ml Resorcini 0.2 M.D.S. Wipe the affected skin areas twice a day. endtabular What is the optimal preparation technique in this case?

- a. Comminute the substance in a mortar, add the solvent
- b. Measure out the substance into a vial for dispensing, measure out ethyl alcohol, shake the vial**
- c. Measure out the substance into a stand, measure out the solvent
- d. Measure out the solvent into a stand, measure out the substance
- e. Measure out ethyl alcohol into a vial for dispensing, measure out salicylic acid

836. A pharmaceutical company lacks the manufacturing power to satisfy the demand for certain medicines. The company increased the price of these medicines and stopped advertising them. What type of marketing is it?

- a. Remarketing
- b. Synchromarketing
- c. Demarketing**
- d. Conversion marketing
- e. Stimulation marketing

837. A system of indicators characterizes financial and business activity of an organization and the state of its assets and sources on the certain day in the monetary unit. Name this system:

- a. Turnover balance sheet
- b. Double entry
- c. Receipts and expenditures report
- d. Business transactions log book
- e. Balance sheet**

838. A pharmacist has prepared a medicine by dissolving the active substances in the water that was acidified with hydrochloric acid solution (1:10). Such preparation technology is characteristic of:

- a. Pepsin**
- b. Tannin
- c. Osarsol
- d. Copper sulfate
- e. Collargol (Colloidal silver)

839. During storage, suspension instability manifests itself as:

- a. Caking of particles
- b. Sedimentation of particles**
- c. Dissolution of particles
- d. Flocculation of particles
- e. Change of particles shape

840. Local anesthetics can fall into different chemical classes. Benzocaine is a drug that belongs to:

- a. Aromatic amino acid amides
- b. Aromatic ketones
- c. Aromatic sulfo acid amides
- d. Aromatic amino acid esters**
- e. Aromatic amino-aldehydes

841. What oral hypoglycemic agent should be prescribed for a 47-year-old overweight patient with type 2 diabetes mellitus, if diet therapy is ineffective?

- a. Metronidazole
- b. Meloxicam
- c. Metoprolol

d. Metformin

e. Metoclopramide

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

a. Morphine hydrochloride

b. Papaverine hydrochloride

c. Ergotamine hydrotartrate

d. Codeine phosphate

e. Atropine sulfate

843. A pharmacist prepares a compound powder. What medicinal substance must be comminuted without adding an adjuvant liquid (alcohol or ether)?

a. Menthol

b. Camphor

c. Streptocide (Sulfanilamide)

d. Thymol

e. Zinc oxide

844. Prescriptions for psychotropic drugs remain in the pharmacy after the sale. How long must they be kept?

a. Five years

b. One year

c. One month

d. The prescription must be returned to the patient

e. Three years

845. A pharmaceutical factory uses maceration technique to produce tinctures. How long must herbal raw materials be steeped according to this technique?

a. 24 hours

b. 2 days

c. 5 days

d. 7 days

e. 12 hours

846. What substance forms a film coating of tablets and can be dissolved only in intestinal juice?

a. Benzylaminocellulose

b. Paraaminobenzoate of sugars

c. Sodium carboxymethyl cellulose

d. Diethylaminomethylcellulose

e. Acetylphthalylcellulose

847. Pharmacy workers can receive an extra pay, if they combine several professions or positions, take upon themselves the duties of a temporarily absent employee, or have to manage an increased workload. In this case, the maximum possible bonus constitutes the following percentage of the employee's salary:

a. 40%

b. 50%

c. 20%

d. 30%

e. 10%

848. What substance is most often used as a vehicle in triturations?

a. Glucose

b. Talcum

c. Lactose

d. Starch

e. Sucrose

849. 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. Glibenclamide
- b. Etacrynic acid
- c. Insulin**
- d. Urea
- e. Metformin

850. What substances are used as leaveners in <<effervescent>> tablets?

- a. Aerosil (fumed silica), polysorbate 80
- b. Sodium bicarbonate, agar agar
- c. Mixtures of sodium bicarbonate with tartaric or citric acid**
- d. Agar agar, alginic acid
- e. Starch, alginic acid

851. According to the rules in force, workrooms should regularly undergo humid disinfection. How often should the floors be washed?

- a. No less than once in a week
- b. No less than twice in a week
- c. No less than twice in a month
- d. No less than once in a shift**
- e. No less than thrice in a week

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

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

853. There are six types of intra-pharmacy control. Which of them requires determination of total mass or volume of a dosage form, as well as the number of doses and the mass of each dose?

- a. Survey control
- b. Organoleptic control
- c. Chemical control
- d. Written control
- e. Physical control**

854. A pharmacy owner starts a business in the retail sale of medicines. What document allows the pharmacy owner to trade for cash in his pharmacy?

- a. -
- b. License for production of medicines
- c. Quality certificate
- d. Trade patent**
- e. State registration certificate

855. A 12-year-old girl has been diagnosed with acute pyelonephritis. What antibacterial agent has an age limit for its prescription to a patient?

- a. Cefuroxime
- b. Benzylpenicillin sodium salt
- c. Clarithromycin
- d. Amoxicillin
- e. Levofloxacin**

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

- a. A deposit order should be filled in
- b. Information should be entered into the goods report
- c. No accounting documentation needs to be kept

d. An inventory list needs to be drawn up

e. It should be assigned an inventory number and registered in the inventory cards

857. A substance was received for analysis. The substance is a round seed 1-1,8 mm in diameter, yellow with bluish tint. When mashed with water, emits characteristic irritant odor; is sharp and acrid to taste. The raw material can be identified as:

a. Mustard seeds

b. Plantago psyllium seeds

c. Flax seeds

d. Fenugreek seeds

e. Nigella seeds

858. A doctor has asked a dispensing chemist for consultation on free dispensation of medicines. What free drugs can the doctor prescribe to an epileptic patient for outpatient treatment?

a. Any drugs registered for distribution in Ukraine

b. Only imported drugs

c. Only vital drugs

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

e. Only drugs produced domestically

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

a. Human blood

b. Bovine spleen

c. Bovine blood

d. Velvet antlers

e. Bovine trachea

860. If potassium salts are put into the colorless flame of a gas burner, the flame colors:

a. Red

b. Green

c. Violet

d. Yellow

e. Brick-red

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

a. Hypotension

b. Hypokalemia

c. Bradycardia

d. Constipation

e. Hypertension

862. Inorganic medicines are identified by their cations and anions. What should be used by an analytical chemist for identification of medicinal substances that contain potassium?

a. Benzoic acid solution

b. Hydrochloric acid solution

c. Acetic acid solution

d. Tartaric acid solution

e. Nitric acid solution

863. Drugs derived from Rauvolfia serpentina roots are used in hypertension treatment. Authenticity of Rauvolfia serpentina herbal raw material can be confirmed by its content of:

a. Reserpine

b. Atropine

c. Vinblastine

d. Hyoscyamine

e. Adonitoxin

864. During macroscopic analysis of rhizomes with roots, a pharmacist notes that rhizomes often

have a cavity in their center. The color of the raw material is reddish-brown on the outside, while on section reddish-brown bark and orange-red wood are visible. The taste is sweet at first, but becomes slightly astringent and bitter later. What plant is the source of this herbal raw material?

- a. *Mentha piperita*
- b. *Rubia tinctorum***
- c. *Thymus serpyllum*
- d. *Sambucus nigra*
- e. *Melissa officinalis*

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

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

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

- a. Absorption of the drug increases at night
- b. Risk of myopathy decreases
- c. Receptor sensitivity to low-density lipoproteins increases
- d. Catabolism rate of low-density lipoproteins increases
- e. Cholesterol biosynthesis occurs mainly at night**

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

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

868. Senna (cassia) foliage contains anthracene derivatives. Their presence can be confirmed by qualitative reaction with:

- a. Fehling's reagent
- b. Molisch's reagent
- c. Iron (II) sulfate
- d. Alkali**
- e. Iron ammonium alum

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

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

870. One of the substances listed below is textbfNOT a vitamin:

- a. Ergocalciferol
- b. Nicotinic acid
- c. Calcium pantothenate
- d. Calcium gluconate**
- e. Calcium pangamate

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

- a. Ethyl alcohol
- b. Purified water

c. Glycerine

- d. Atropa belladonna tincture
- e. Dimexide (dimethyl sulfoxide)

872. Cynara scolymus herbal raw material is a source of drugs with antisclerotic, choleretic, and hepatoprotective effect. What parts of the plant are harvested as a herbal raw material?

- a. Fruits
- b. Grass
- c. Roots
- d. Seeds

e. Leaves and flower heads

873. Buckthorn bark and its derivative drugs are used as laxatives in medicine. According to the State Pharmacopoeia of Ukraine during chromatographic identification of buckthorn bark it is necessary to detect:

a. Glucofrangulins

- b. Ginkgosides
- c. Panaxosides
- d. Lanatosides
- e. Purpurea glycosides

874. A pharmaceutical company studies the life cycle of a drug that is being introduced to the market. Name the stage, when sales volume grows slowly and large investments in organization of sales and manufacturing are necessary.

a. Decline phase

b. Market entry

- c. Maturity phase
- d. Testing phase
- e. Saturation phase

875. 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. Acetylcysteine
- b. Codeine phosphate
- c. Ascorbic acid

d. Doxycycline

e. Ambroxol

876. During stock-taking at a pharmacy, a surplus of material goods was discovered. What should the inventory committee do with the discovered surplus?

- a. Elimination
- b. Writing off
- c. Conducting an official investigation
- d. Confiscation

e. Recording as received

877. Adonis-derived drugs are popular cardiotonic agents. The stock of adonis herbal raw material is assessed by the method of:

- a. Geodesic
- b. By eye

c. Permanent quadrates

- d. Model specimen
- e. Projective cover

878. What device is used to disperse medicinal substances and homogenize ointments?

- a. Excelsior

- b. Dismembrator
- c. Double-slide tablet press machine
- d. Three-roll ointment mill**
- e. Disintegrator

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

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

880. An analytical pharmacist analyzes the antianginal agent glyceryl trinitrate (nitroglycerin). What solution would the pharmacist use to identify the nitrate ions that form after hydrolysis?

- a. Glyoxal-hydroxyanil solution
- b. Chloramine solution
- c. Lanthanum(III) nitrate solution
- d. Thiourea solution
- e. Diphenylamine solution**

881. In a pharmacy each employee is subordinate to only one manager, who makes all the management decisions. What type of organizational structure of the pharmacy's management is it?

- a. Linear**
- b. Adaptive
- c. Matrix
- d. Productive
- e. Functional

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

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

883. What concept can be described as "...an area of exchange with its characteristic system of economic relations between goods manufacturers and consumers"?

- a. Agreement
- b. Marketing
- c. Market**
- d. Sales
- e. Management

884. Infuser apparatus is used by a pharmacy to prepare:

- a. Infusions and decoctions**
- b. Ointments
- c. Emulsions
- d. Infusion solutions
- e. Suspensions

885. The head of a pharmacy uses a flexible system of pharmacy management methods. Select from the list below a measure that corresponds with organizational influence methods:

- a. -
- b. Clear distribution of tasks between the employees**
- c. Meeting the cultural and social needs of employees
- d. Promotion

e. Material reward (bonuses, increments, pay rise)

886. Various admixtures are possible in the process of harvesting, drying, and primary processing of herbal raw material. Organic admixtures include:

a. Non-harvested parts of the same plant

- b. Soil particles
- c. Glass fragments
- d. Metallic objects
- e. Sand

887. Silibor is a herbal drug that is used as a hepatoprotector. This drug is made from:

a. Semina Sylibi

- b. Flores Tanacetii
- c. Herba Equiseti arvensis
- d. Flores Centaureae cyani
- e. Flores Crataegi

888. Which one of the listed drugs is a glycoside antibiotic?

a. Erythromycin

- b. Polymyxin
- c. Cephalexin
- d. Tetracycline
- e. Levomycetin (Chloramphenicol)

889. Pharmacy assets can be divided into current and non-current. What should be classified as non-current assets when drawing up the balance sheet?

- a. Packaging
- b. Goods
- c. Herbal raw materials
- d. Monetary funds

e. Buildings

890. A private pharmacy has received a supply of a drug with 2,3-dihydro-2-methyl-1,4-naphthoquinone-2-sulfonate sodium as an active ingredient. Name this drug:

a. Ergocalciferol

b. Vicasol (Menadione)

- c. Rutin
- d. Riboflavin
- e. Cocarboxylase hydrochloride

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

- a. Tannins
- b. Polysaccharides
- c. Vitamins
- d. Alkaloids

e. Flavonoids

892. A medical facility located in Kyiv buys its diagnostic tools from a domestic manufacturer. What level of distribution channel is it?

a. Zero-level channel

- b. Four-level channel
- c. One-level channel
- d. Two-level channel
- e. Three-level channel

893. A compound powder is being made of ingredients taken in relatively equal measure. What

ingredients should be comminuted first?

- a. Microcrystalline
- b. Colored
- c. Coloring
- d. Volatile

e. Macrocrystalline

894. When pressed, tablets stick to the tablet press. Why such adhesion occurs?

- a. Lamellar crystals in the tablet powder
- b. Inadequate flowability of the tablet substance
- c. High specific density of the powders

d. Excessive moisture of the tablet substance and high pressure

e. Heterogeneity of the granulated material

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

- a. Sodium nitrite
- b. Boric acid

c. Sodium chloride

- d. Glucose
- e. Sodium sulfate

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

- a. Fruiting
- b. Defoliation
- c. Dormancy

d. Sap flow

e. Flowering

897. A large pharmaceutical company produces a homogeneous selection of medicinal products and sells them on the domestic market. What model of marketing service organization was chosen by this company?

- a. Segment-oriented
- b. Product-oriented
- c. Market-oriented
- d. Regional

e. Functional

898. Manufacturer's marketing department detected negative demand for a certain goods. What would be the marketing task? What type of marketing should be applied?

- a. Demand stimulation, promotional marketing
- b. Demand decrease, demarketing

c. Demand making, conversion marketing

- d. Demand increase, remarketing
- e. Demand leveling, synchromarketing

899. What amount of the standard pharmacopoeial formaldehyde solution must be taken to prepare 100 mL of a 20% formalin solution?

- a. 10 mL
- b. 54 mL
- c. 30 mL
- d. 5 mL

e. 20 mL

900. A powder with a hard to disintegrate substance has been made in a pharmacy. Specify this substance:

- a. Sugar

- b. Osarsolum (Acetarsol)
- c. Sodium chlorides
- d. Camphor**
- e. Talcum

901. What amount of the standard pharmacopoeial fluid of aluminum acetate must be taken to prepare 100 mL of 10% Burov's solution?

- a. 12.5 mL
- b. 10 mL**
- c. 7.5 mL
- d. 6.25 mL
- e. 3 mL

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

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

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

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

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

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

905. When preparing compound powders, a pharmacist used the "three-layer" method. Which one of the listed substances is a dye?

- a. Camphor
- b. Ethacridine lactate**
- c. Sulfur
- d. Streptocide (Sulfanilamide)
- e. Protargol

906. A 67-year-old man with chronic heart failure takes digoxin. To reduce the side effects of digoxin, his doctor recommended him to combine this drug with:

- a. Potassium aspartate and magnesium aspartate**
- b. Hydrochlorothiazide
- c. Calcium gluconate
- d. Calcium chloride
- e. Euphyllin (Aminophylline)

907. The marketing department of a pharmaceutical company conducts a field research of the pharmaceutical market. What method of information collection belongs to the field research?

- a. Analysis of the periodical publications
- b. Customer survey**

- c. Analysis of the scientific publications
- d. Analysis of the company's statistical reports
- e. Analysis of the statistical reference books

908. In what order must alcohol-containing solutions be added into aqueous solutions during the preparation of liquid dosage forms?

- a. In the order of increasing volume of alcohol-containing solutions
- b. In the order of decreasing alcohol concentration
- c. First into the vial for dispensing
- d. In any order

e. In the order of increasing alcohol concentration

909. What substance is a component of the powders enclosed in gelatin capsules?

- a. Magnesium oxide
- b. Glucose
- c. Dimedrol (Diphenhydramine)
- d. Streptocide (Sulfanilamide)

e. Ethacridine lactate

910. The calculation of isotonic concentration using the cryoscopic method is based on the following law:

- a. -
- b. Boyle-Mariotte law
- c. Dalton's law

d. Raoult's law

e. Clapeyron-Mendeleev equation

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

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

e. 100% free

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

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

913. The amount of temporary disability benefits to be paid is calculated taking into account the insured record of service of an employee. What percentage of temporary disability benefits will be paid to an employee with a disability certificate and more than 8-year-long insured record of service?

a. 100% of salary

- b. 90% of salary
- c. 60% of salary
- d. 75% of salary
- e. 50% of salary

914. When preparing a solution, the pharmacist used an additional technique - grinding in a mortar with water. What substance typically requires this technique?

- a. Calcium gluconate
- b. Boric acid
- c. Silver nitrate
- d. Copper sulfate**
- e. Furacilin (Nitrofuril)

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

916. What should be the disintegration time for effervescent tablets according to the requirements of the State Pharmacopoeia of Ukraine?

- a. 15 minutes
- b. 5 minutes**
- c. 60 minutes
- d. 30 minutes
- e. 3 minutes

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

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

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

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

919. Snake venom-based drugs are widely applied in treatment of locomotor apparatus diseases. Main components of these venoms are:

- a. Cardiac glycosides
- b. Alkaloids
- c. Phenol-alcohols
- d. Toxic proteins**
- e. Glucosinolates

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

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

921. Pharmacies use cash registers during the sales of medicines. Name the document for the accounting of Z-reports:

- a. Prescription logbook
- b. Transactions ledger**
- c. Customers ledger
- d. Receipt book
- e. Cash book

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

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

923. Specify the indicator that measures the total contribution of various solutes to the osmotic pressure of the solution:

- a. Isohydricity
- b. Isoviscosity
- c. Isotonicity
- d. Osmolality**
- e. Apyrogenicity

924. A 45-year-old man has been taking long-acting nitrates twice a day for a year. Currently the decrease in effectiveness of the pharmacotherapy is being observed. What side-effect can be suspected in the first place?

- a. Progressing coronary atherosclerosis
- b. Myocardial infarction
- c. Progressing ischemic heart disease
- d. Development of nitrate tolerance**
- e. Impairment of coronary circulation

925. An 18-year-old girl was hospitalized with complaints of polyuria, dry skin, loss of weight, and general weakness. She was diagnosed with diabetes mellitus type I, first diagnosed. What drug should be taken first in the course of the therapy?

- a. Metformin
- b. Insulin**
- c. Exenatide
- d. Arphasetin
- e. Glibenclamid

926. What medicinal substance can be identified using hydroxamic test?

- a. Nitroxoline
- b. Bendazol
- c. Aceclidine**
- d. Metronidazole
- e. Nicotinic acid

927. The chemical structure of Strophanthus cardiac glycosides can be characterized by the presence of the following in position 10 of the steroid ring:

- a. Methoxy group
- b. Ethoxy group
- c. Aldehyde group**
- d. Alcoholic hydroxyl
- e. Phenolic hydroxyl

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

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

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

a. **Helianthus tuberosus**

b. Brassica juncea

c. Hypericum maculatum

d. Astragalus dasyanthus

e. Althaea officinalis

930. What is the purpose of injectable tablets?

a. **Obtaining injectable solutions**

b. Obtaining solutions for various pharmaceutical purposes

c. Sublingual use

d. Implantation

e. Oral use

931. Ampoule workshop of a factory produces 5% oil solution of tocopherol acetate for injections. What method of filling the ampoules is optimal in this case?

a. Syringe and devaporation

b. Vacuum

c. Syringe and vacuum

d. **Syringe**

e. Devaporation

932. When activated charcoal is included into the combined therapy, the sorption of other medicines:

a. Remains unchanged

b. Increases

c. Activates

d. **Decreases**

e. Accelerates

933. The extemporaneous compounding department of a pharmacy prepares eye drops. Which one of the listed substances is a preservative?

a. Methyl cellulose

b. **Benzalkonium chloride**

c. Acetate buffer

d. Sodium chloride

e. Polyvinyl alcohol

934. General sedimentation reagents are used to identify alkaloids in an extract obtained from herbal raw materials. Select from the list one such reagent.

a. Erdman reagent

b. Froehde reagent

c. **Dragendorff reagent**

d. Marquis reagent

e. Vitali-Morin reagent

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

a. n-Aminosalicylic acid

b. **n-Aminobenzoic acid**

c. n-Chlorobenzoic acid

d. n-Aminophthalic acid

e. n-Aminobenzene sulfonic acid

936. A patient diagnosed with hypertension and bronchial asthma had a bronchospasm attack, while undergoing therapy. What drug has most likely caused this complication?

a. Verapamil

b. Fenoterol

c. **Propranolol**

d. Nitroglycerin

e. Amlodipine

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

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

938. A factory workshop producing suspensions and emulsions is going to develop the manufacture of new drugs. What mechanisms can be used for the ultrasound processing of drugs?

- a. Liquid whistle, magnetostrictive source**
- b. Dismembrator, electrical impulse plasmolyzer
- c. Disintegrator, liquid whistle
- d. Centrifugal mixer with rotating housing
- e. Rotor-pulsation apparatus, dismembrator

939. In what capacity is benzyl alcohol used as a component of solutions for parenteral administration?

- a. pH regulator
- b. Antimicrobial preservative**
- c. Antioxidant
- d. Isotonicity regulator
- e. Buffer solution

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

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

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

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

942. A pharmacy has been licensed for wholesale distribution of medicinal products. What sales operation belongs to a wholesale distribution?

- a. Sale of ready-to-use drugs
- b. Sale of extemporal dosage forms
- c. Sale of over-the-counter drugs
- d. Sale to other organizations for commercial use**
- e. Sale of drugs to chronically ill patients

943. During an asphyxiating attack the patient with bronchial asthma was given intravenously a drug that caused nausea, headache, excitation, and palpitations as side effects. What drug can cause such reaction?

- a. Euphylline (Aminophylline)**
- b. Ambroxol
- c. Prednisolone
- d. Papaverine hydrochloride
- e. Suprastin (Chloropyramine)

944. 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. Grass
- b. Flowers
- c. Leaves
- d. Seeds**
- e. Roots

945. A pharmacy has received a prescription written on an F-3 form. The dispensing chemist, tasked with the incoming control of the prescription, noted that it was missing certain mandatory details. Such prescription forms must always have the following:

- a. Doctor's personal seal and signature
- b. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility, seal of the medical facility**
- c. Signature of the head manager of the medical facility or signature of the deputy head manager for medical work
- d. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility
- e. Medical facility stamp, signature of the head manager of the medical facility, seal of the medical facility

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

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

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

948. A patient, who has been taking warfarin for a long time, was recommended to take acetylsalicylic acid because of hyperthermic syndrome. What complication can be caused by such a combination of medicines?

- a. Hemorrhages**
- b. Hyperkalemia
- c. Hypokalemia
- d. Dysbacteriosis
- e. Thrombus formation

949. After a surgery, 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 it?

- a. Withdrawal syndrome**
- b. Steal syndrome
- c. Tachyphylaxis
- d. Rebound effect
- e. Idiosyncrasy

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

- a. Basic bismuth nitrate
- b. Camphor

- c. Potassium iodide
- d. Sodium chloride

e. Protargol

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

a. -

b. Captopril

- c. Hypothiazide (Hydrochlorothiazide)
- d. Furosemide
- e. Amlodipine

952. Each medical product that a pharmacy receives should have its quality certificate. How long should these certificates be kept by a pharmacy?

a. 3 years

- b. 1 year
- c. 2 years
- d. 6 years
- e. 5 years

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

- a. Calcium antagonists
- b. Ganglionic blockers

c. beta-adrenergic blockers

- d. alpha-adrenergic blockers
- e. Diuretics

954. When dispensing an antacid and ofloxacin in tablets, the dispensing chemist warned the customer that these drugs should be taken separately with 2-hour interval in between. Simultaneous taking of both drugs:

a. Increases risk of dysbiosis

b. Decreases ofloxacin absorption

- c. Increases antacid effectiveness
- d. Increases ofloxacin absorption
- e. Decreases antacid effectiveness

955. After the start of a treatment, a tuberculosis patient has developed red coloration of urine, saliva, and lacrimal fluid. What drug could have caused such changes in this case?

a. Ciprofloxacin

b. Rifampicin

- c. Isoniazid
- d. Benzylpenicillin (Penicillin G) sodium salt
- e. Alcoholic iodine solution

956. What hypotensive drug is an agent of choice for the patients suffering from arterial hypertension with concomitant type I diabetes mellitus?

- a. Hydrochlorothiazide
- b. Labetalol
- c. Carvedilol
- d. Atenolol

e. Lisinopril

957. Accounting records are classified by the type of asset accounting or by their sources. Active accounts keep record of the following:

- a. Debt settlement with the creditors
- b. Bank loans

c. Monetary funds

- d. Salaries payment
- e. Equity capital

958. Name the list of pharmacy's property that indicates the actual balance and value of pharmacy's stocks as determined in the process of stock-taking:

- a. Commodity report
- b. Cash flow register
- c. Register of requisitions
- d. Accounts ledger

e. Inventory

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

- a. Contractual

b. Multichannel

- c. Corporate
- d. Horizontal
- e. Administered

960. What is the duration of the leave due to pregnancy and childbirth?

- a. 70 working days
- b. 90 calendar days

c. 126 calendar days

- d. 56 calendar days
- e. 59 working days

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

- a. Calcium chloride
- b. Zinc oxide
- c. Magnesium sulfate

d. Potassium chromate

- e. Sodium chloride

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

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

c. $V = V_{\text{tincture}} + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$

- d. $E = \frac{m_{\text{losses}}}{m_{\text{raw material}}} \cdot 100\%$
- e. $m_{\text{raw material}} = m_{\text{end product}} + m_{\text{losses}}$

963. Camomile flowers are a popular medicinal substance in scientific medicine. What plant is the source of this herbal raw material?

- a. Anthemis cotula
- b. Leucanthemum vulgare
- c. Anthemis arvensis

d. Chamomilla recutita

- e. Tripleurospermum inodorum

964. Eradication therapy must be prescribed for a patient with peptic ulcer disease of the duodenum. What antisecretory agent must be included into the eradication therapy scheme?

- a. Ranitidine
- b. Phosphalugel (Aluminum phosphate)

c. Omeprazole

- d. Almagel
- e. Famotidine

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

- a. Informal
- b. Commercial
- c. Manufacturing
- d. Committee
- e. Formal

966. Commercial and financial activity of the pharmacies can be measured using a system of parameters. What parameter can be described as the sum of sold goods per employee (taking the average number of employees during the analyzed period)?

- a. Stock of goods
- b. Price index
- c. Profitability
- d. Labor productivity
- e. Turnover

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

- a. 5%
- b. 20%
- c. 15%
- d. 0%
- e. 18%

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

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

969. There are several indirect taxes in the Ukrainian taxation system. What indirect tax is paid by the consumer as a surcharge to the value of goods?

- a. Excise tax
- b. Individual income tax
- c. Income tax
- d. Single tax
- e. Commercial patent

970. A pharmaceutical company promotes a healthy lifestyle, provides sponsorship to an orphanage, and funds sporting events. Name this concept of the company activity:

- a. -
- b. Manufacturing activity
- c. Financial activity
- d. Commercial activity
- e. Social responsibility

971. A regional pharmaceutical market has a large number of pharmaceutical companies, none of which is able to control the market prices. The companies offer interchangeable medicines. What type of market is it?

- a. -
- b. Oligopolistic market
- c. Market with pure (free) competition
- d. Limited monopoly market
- e. Pure monopoly market

972. A pharmaceutical company produces aromatic waters. Peppermint water should be prepared in

the following proportion:

- a. 1:10
- b. 1:2000
- c. 1:4000
- d. 1:1000**
- e. 1:1

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

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

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

- a. Bureaucratic
- b. Decentralized
- c. Centralized
- d. Divisional**
- e. Functional

975. A dispensing chemist has a total insured work record of 10 years. It means that the dispensing chemist can expect the following amount of temporary disability benefits:

- a. 50% of the average salary
- b. 80% of the average salary
- c. 60% of the average salary
- d. 70% of the average salary
- e. 100% of the average salary**

976. Which of the plants listed below contain inulin?

- a. *Salvia officinalis*, *Artemisia absinthium*
- b. *Juniperus communis*, *Thymus serpyllum*
- c. *Rhamnus cathartica*, *Sorbus aucuparia*
- d. *Inula helenium*, *Helianthus tuberosus***
- e. *Ledum palustre*, *Acorus calamus*

977. 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. Fixed assets**
- d. Package
- e. Goods

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

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

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

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

980. A patient with arterial hypertension, who takes captopril, was prescribed a potassium-sparing diuretic, spironolactone. What complication can develop in the patient due to this combination of drugs?

- a. Hyperkalemia**
- b. Hybernatriemia
- c. Hyponatremia
- d. Hypoglycemia
- e. Hypocalcemia

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

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

982. Galenical preparations include:

- a. Aerosols
- b. Capsules
- c. Granules
- d. Tinctures**
- e. Spansules

983. A 60-year-old patient diagnosed with ischemic heart disease developed bradycardia of 50 min. What drug will be contraindicated in this case?

- a. Nitrosorbide (Isosorbide dinitrate)
- b. Propranolol**
- c. Heparin
- d. Nitroglycerin
- e. Nifedipine

984. Schedule of sanitation actions in pharmacies is regulated by the relevant regulatory acts. Cleaning day at a pharmacy must be scheduled at least once:

- a. In a month**
- b. In a week
- c. In 10 days
- d. In 3 days
- e. In 5 days

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

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

986. What imidazole derivative affects anaerobic microorganisms and protozoa and is effective against mixed infections?

- a. Caffeine
- b. Asparcam (Potassium aspartate and magnesium aspartate)

c. Metronidazole

d. Camphor

e. Dibazol (Bendazol)

987. Capsaicin is the main active substance of *Capsicum annuum*. It belongs to the following class of bioactive substances:

a. Iridoids

b. Phenolic compounds

c. Anthracene derivatives

d. Flavonoids

e. Alkaloids

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

a. Sales receipt

b. Settlement receipt

c. Invoice

d. Receipt

e. Cash register fiscal receipt

989. A pharmacist prepares 100 ml of glucose solution. Specify the amount of Weibel's stabilizer necessary in this case:

a. 10 ml

b. 20 ml

c. 15 ml

d. 5 ml

e. 2 ml

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

a. Clarithromycin

b. Amoxicillin

c. Metronidazole

d. Bismuth subcitrate

e. Omeprazole

991. A pharmaceutical company produces belladonna tincture. In the process of standardization, excessive content of active substances was detected. How can this situation be remedied?

a. This kind of deviation is not important

b. Precipitate excessive active substances

c. Dilute the tincture with extractant to normal concentration

d. Filter the tincture through adsorbent

e. The tincture is a non-recoverable reject material

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

a. Ofloxacin

b. Amoxicillin

c. Gentamicin

d. Co-trimoxazole

e. Norfloxacin

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

a. Pearl

b. Tubatine

c. OROS tablet

d. Spansule

e. Microcapsule

994. An analytical pharmacist uses cerimetry for quantification of nifedipine. What indicator is used in this method?

- a. Potassium chromate
- b. Methyl orange
- c. Tropeolin 00
- d. Phenolphthalein

e. Ferroin

995. A patient came to a pharmacy to buy a herbal antidepressant containing condensed anthracene derivatives and flavonoids. What herbal raw material is used to make this drug?

- a. Filicis maris rhizomata
- b. Urticae folia
- c. Uvae ursi folia

d. Hyperici herba

e. Rhodiola roseae rhizomata et radices

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

a. Glucose

- b. Butamide (Tolbutamide)
- c. Metformin
- d. Glibenclamid
- e. Insulin

997. Specify the optimal method for industrial production of suppositories:

a. Pouring into moulds

- b. Pressing
- c. Stamping
- d. Hand-rolling
- e. Lyophilization

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

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

e. Horizontal rotation

999. What medicine is recommended to reduce the risk of gastrointestinal bleeding during a long-term treatment with an acetylsalicylic acid-based antiaggregant?

a. Omeprazole

- b. Prednisolone
- c. Spironolactone
- d. Metamizole sodium
- e. Ceftriaxone

1000. What substance can be synthesized as a result of the condensation of 5-nitrofurfural with semicarbazide?

- a. Nitroxoline
- b. Metronidazole
- c. Norfloxacin
- d. Phthalazole (Phthalylsulfathiazole)

e. Nitrofural (Nitrofurazone)

1001. The "Pharmastar" pharmaceutical company develops new dosage forms for its medicines. What type of product policy in marketing is it?

- a. Reduction
- b. Modernization
- c. Differentiation

d. Product modification

- e. Diversification

1002. A patient diagnosed with acute rhinitis was using xylometazoline drops. After 7 days of treatment, the patient notes that the effect of the medicine decreased and was not restored after an increase in the dosage. What medical term characterizes a sudden decrease in the sensitivity to a medicine?

- a. Synergism
- b. Withdrawal syndrome

c. Tachyphylaxis

- d. Antagonism
- e. Tolerance

1003. What medicinal substance has an imidazole fragment in its structure?

- a. Nicotinic acid
- b. Thiamine bromide
- c. Phenazone
- d. Nitrofurantoin

e. Pilocarpine hydrochloride

1004. Tween-80 is being introduced into an emulsion system. What is the role of Tween-80 in emulsions?

a. Emulsifier

- b. Antioxidant
- c. Solvent
- d. Preservative
- e. Taste correction agent

1005. The Income Statement 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. 35 000 UAH
- b. 40 000 UAH

c. 5 000 UAH

- d. 30 000 UAH
- e. 15 000 UAH

1006. 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. Glycyrrhiza glabra
- c. Bidens tripartita
- d. Ononis arvensis
- e. Thermopsis alterniflora

1007. Phytochemical workshop of a factory manufactures pancreatin. What is the source material for obtaining pancreatin?

- a. Gastric mucosa of pigs

b. Pancreas of pigs or cattle

- c. Egg white
- d. Lungs of cattle
- e. Heart of cattle

1008. Oblong tablets are called:

a. Caplets

- b. Pellets

- c. Dragee
- d. Forte tablets
- e. Capsules

1009. What drug is used to treat hyperthyroidism?

- a. Prednisolone
- b. Metformin
- c. Mercazolil (Thiamazole)**
- d. Insulin
- e. Oxytocin

1010. Anthocyanidins are euflavonoid compounds that color plant tissues in shades that vary from pink to black-purple. What characteristic feature of anthocyanidins is used in their analysis?

- a. Ability to sublime
- b. Alcohol precipitation
- c. Solubility in fats
- d. Ability to change color depending on the pH of the medium**
- e. Amorphous state

1011. A pharmaceutical company plans to introduce traditional herbal remedies to new markets. What marketing opportunity according to Ansoff Matrix was used by the company?

- a. Consolidation
- b. Market development**
- c. Product development
- d. Market penetration
- e. Diversification

1012. How long can vasoconstrictors for symptomatic treatment of rhinitis be used?

- a. 2 weeks
- b. 1 month
- c. 5-7 days**
- d. 3 weeks
- e. 5 weeks

1013. To prepare decoctions with the volume of 1000-3000 ml, they should be infused in a boiling water bath for:

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

1014. The Dobropharma pharmacy manager makes plans for standard stock of various groups of goods, based on their purpose. Convenience goods belong to the following group:

- a. Single delivery
- b. Specific demand
- c. Current demand**
- d. Prior delivery
- e. Seasonal accumulation

1015. A pharmaceutical company produces a medicine under the brand name "Corglyconum". What herbal raw material is used in preparation of this drug?

- a. Wormwood grass
- b. Plantain foliage
- c. Dandelion roots
- d. Buckthorn bark
- e. Lily-of-the-valley grass**

1016. What adjuvants are added to a tablet mass to promote its breakup?

- a. Lubricants
- b. Fillers
- c. Thickeners
- d. Antioxidants
- e. Disintegrants**

1017. Money received for the goods sold are being transferred to the pharmacy from its outlet. What document must be drawn up by a cashier for the receipt of this monetary sum?

- a. Bank statement
- b. Cash receipt order**
- c. Cash withdrawal order
- d. Cashier's check
- e. Payment order

1018. Which of the following pricing factors of a manufacturing pharmaceutical enterprise is internal?

- a. Consumers
- b. Participants in sales channels
- c. Expenses**
- d. State regulation of prices
- e. Competitors

1019. What adjuvants improve the wettability and water permeability of the components during the tablet production?

- a. Film formers
- b. Solvents
- c. Leaveners**
- d. Thickeners
- e. Antifriction materials

1020. A pharmacist-analyst of a control-analytical laboratory performs identification of a drug substance in accordance with the State Pharmacopoeia of Ukraine regulations. What result is observed during the test for benzoates with a solution of iron(III) chloride?

- a. A pale yellow ether-soluble precipitate forms**
- b. A white precipitate forms, which is insoluble in a diluted hydrochloric acid
- c. The solution colors blue and becomes colorless after the addition of ammonia solution
- d. An intense blue coloring appears
- e. A black precipitate forms, which dissolves if a diluted sodium hydroxide solution is added

1021. 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. Aurine dye
- d. Indophenol dye
- e. Iron(III) hydroxamate

1022. A patient is 20 years old. After she was stung by a bee the patient developed Quincke's disease; rash in the form of blisters and papulae appeared on her torso. First aid in this case should start with administering the following drug:

- a. Prednisolone**
- b. Rheopolyglukin (Dextran)
- c. Haemodes
- d. Fresh frozen plasma
- e. Penicillin

1023. An analytical pharmacist is testing a thiamine hydrobromide substance. What solution would the pharmacist use to determine sulfate impurities?

- a. Ammonium oxalate solution
- b. Barium chloride solution**

- c. Sodium nitrite solution
- d. Calcium chloride solution
- e. Sodium benzoate solution

1024. An analytical chemist analyses the substance of racemic menthol according to the State Pharmacopoeia of Ukraine. To identify the drug and determine its purity he uses optical rotation that should occur within the interval:

- a. From $+10^{\circ}$ to $+13^{\circ}$
- b. From -102° to -105°
- c. From $+0,2^{\circ}$ to $-0,2^{\circ}$
- d. From -48° to -51°
- e. From $+50^{\circ}$ to $+56^{\circ}$

1025. Representatives of the family Solanaceae are widely used in medical practice as alkaloid-containing plants. Which representative is the source for production of semi-synthetic steroid hormones?

- a. Solanum tuberosum
- b. Solanum laciniatum
- c. Hyoscyamus niger
- d. Datura Stramonium
- e. Atropa belladonna

1026. Concentrated solutions are used to speed up the preparation of mixtures. What volume of a 5% sodium bicarbonate solution (1:20) must be taken to prepare a mixture that contains 6.0 g of the medicinal substance?

- a. 120 mL
- b. 7.5 mL
- c. 30 mL
- d. 90 mL
- e. 60 mL

1027. An analytical chemist performs the identification of ascorbic acid in an injection solution according to the State Pharmacopoeia of Ukraine. Its interaction with a certain solution produces a gray precipitate. Name this solution:

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

1028. 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 bicarbonate solution
- c. Sodium acetate solution
- d. Iron(III) chloride solution
- e. Potassium hydroxide solution

1029. The extraction process consists of several stages. What is the final stage of the extraction process?

- a. Mass transfer
- b. Dissolution
- c. Washing the herbal raw material with an extractant
- d. Extraction of primary juice
- e. Maceration

1030. A pharmaceutical company develops the manufacture of new products. What part of the production procedures contains the description of the end product and lists its physical and chemical properties?

a. Characteristics of the raw stock, materials, and intermediate products

b. Characteristics of the end product

c. Description of the manufacturing process

d. Characteristics of the auxiliary raw stock and materials

e. Information materials

1031. Weibel's liquid is necessary to stabilize the solution of a certain substance. Name this substance:

a. Potassium chloride

b. Sodium chloride

c. Magnesium sulfate

d. Glucose

e. Novocaine

1032. A 45-year-old man complains of wet cough. He has been suffering from chronic bronchitis for 20 years. The patient is a smoker. He needs a mucolytic agent that will facilitate expectoration and production of surfactant. What drug can be recommended to the patient in this case?

a. Proteolytic enzymes

b. Ambroxol

c. Thermopsis preparations

d. Licorice root

e. Potassium iodide

1033. What is the minimum permissible total area of a pharmaceutical sales point, according to the current Licensing Requirements?

a. No less than 250 m²

b. No less than 50 m²

c. No less than 40 m²

d. No less than 18 m²

e. No less than 30 m²

1034. A pharmaceutical company produces deep-acting ointments. What is the mechanism of action of the active substances contained in resorptive ointments?

a. Protect the skin from external factors

b. Protect the skin from microbial infection

c. Prevent drying and contamination of the epidermis

d. Absorbed by the outer layers of the skin

e. Reach the systemic circulation and enhance the effect of drugs

1035. What medicinal substance can be mixed with the powder mass without an additional comminution?

a. Salicylic acid

b. Camphor

c. Menthol

d. Streptocide (Sulfanilamide)

e. Starch

1036. An analytical pharmacist conducts a quantitative analysis of sodium benzoate and uses a hydrochloric acid solution as a titrant. What method of quantification is being used in this case?

a. Bromatometry

b. Nitritometry

c. Iodometry

d. Complexometry

e. Acidimetry

1037. A pharmacist has prepared a suspension that contains basic bismuth nitrate. What method was used in the process of its preparation?

a. Continental method

b. Dispersion with stirring

- c. Physical condensation
- d. Chemical condensation
- e. Solvent replacement method

1038. What medicine is simultaneously a mucolytic and an antidote against a paracetamol overdose?

- a. Bromhexine
- b. Ambroxol
- c. Trypsin
- d. Acetylcysteine**
- e. Carbocysteine

1039. If a pharmacy plans to temporarily close for repairs or re-equipment, the State Service of Ukraine on Medicines and Drugs Control must be notified in advance no later than:

- a. 3 months before the closure
- b. 1 month before the closure
- c. Notification is optional
- d. 10 working days before the closure**
- e. 20 working days before the closure

1040. Hypericum perforatum grass contains hypericin. What is the pharmacological effect of this substance?

- a. Antiasthmatic
- b. Anticonvulsant
- c. Antidepressant**
- d. Expectorant
- e. Analgesic

1041. A pharmacist makes powders by grinding one of the formulation components with ethyl alcohol. This technology is typically applied when working with the following substance:

- a. Streptocid**
- b. Bolus alba
- c. Zinc oxide
- d. Talcum
- e. Starch

1042. How long must a pharmacy keep its logbooks with the records about the balance of narcotic drugs, psychotropic substances, and precursors?

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

1043. A herbal mix contains Cortex Frangulae, Folia Urticae, and Herba Millefolii. Name the characteristic microscopic features that allow identification of Folia Urticae herbal raw material:

- a. Simple capitate hairs
- b. Many-armed, two-armed, and simple hairs
- c. T-shaped hairs along the leaf margin
- d. Bast fibers, tracheids, starch, vessels
- e. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate**

1044. A pharmaceutical company produces biogenic stimulants. In the course of manufacturing process the raw materials are being subjected to adverse conditions. What is the purpose of this procedure?

- a. Extending the shelf life of raw materials
- b. Reducing the content of ballast substances
- c. Prevention of hydrolysis of bioactive substances
- d. Acceleration of bioactive substances extraction

