

1. 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 5 days
- c. Once in a week
- d. Once in a shift**
- e. Once every 3 days

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

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

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

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

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

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

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

- a. 7%**
- b. 15%
- c. 10%
- d. 5%
- e. 25%

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

7. 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. Economical
- b. Sociocultural**
- c. Legal
- d. Technological
- e. Political

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

a. At least twice a week

b. At least twice a month

c. At least once a week

d. At least once a month

e. At least once per shift

9. 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. Collective

b. Democratic

c. Liberal

d. Authoritarian

e. Direct

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

a. Metamizole sodium

b. Acetylsalicylic acid

c. Nimesulide

d. Ibuprofen

e. Indomethacin

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

a. Sodium hydroxide

b. Sodium edetate

c. Sodium thiosulfate

d. Hydrochloric acid

e. Potassium bromate

12. Camomile flowers are a popular medicinal substance in scientific medicine. What plant is the source of this herbal raw material?

a. *Anthemis arvensis*

b. *Chamomilla recutita*

c. *Leucanthemum vulgare*

d. *Tripleurospermum inodorum*

e. *Anthemis cotula*

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

a. Dissolve in alkaline medium

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

c. Add equal amount of sodium chloride

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

e. Dissolve in the water free of redox substances

14. 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. Tannins

c. Flavonoids

d. Alkaloids

e. Polysaccharides

15. 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. Paracetamol

b. Xylometazoline

- c. Lactulose
- d. Acyclovir
- e. Dexamethasone

16. 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. Simulation
- b. Economic

c. Organizational

- d. Legal
- e. Psychosocial

17. 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. Mutual potentiation

b. Antibiotic malabsorption

- c. Acceleration of metabolism and excretion
- d. Inhibition of hepatic microsomal enzymes
- e. Relative overdosage

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

a. To improve its chemical resistance

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

19. A pharmaceutical company produces Lugol's iodine solution. By type of solvent this solution belongs to the following group:

a. Glycerine solutions

- b. Chloroform solutions
- c. Water solutions
- d. Oil solutions
- e. Alcohol solutions

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

- a. Drug manufacturer
- b. Pharmacist

c. Patient

- d. Head manager of the retail pharmacy
- e. Physician

21. 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. Polysaccharides

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

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

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

e. Injection solutions with thermolabile substances

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

24. To stabilize the suspension a pharmacist has used potassium soap. What substance does this suspension contain?

- a. Sulfur**
- b. Menthol
- c. Phenyl salicylate
- d. Camphor
- e. Basic bismuth nitrate

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

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

26. 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. 41
- c. 36
- d. 40
- e. 38

27. What is present in the structure of procaine hydrochloride, making its alkalimetric titration possible?

- a. Bound hydrochloric acid**
- b. Unsubstituted aromatic cycle
- c. Residue of n-aminobenzoic acid
- d. Ester bond
- e. Diethylamino group

28. What semi-synthetic antibiotic can be synthesized in the process of reaction between 6-aminopenicillanic acid and phenylaminoacetic acid chloranhydride?

- a. Ampicillin**
- b. Cephalexin
- c. Amikacin
- d. Rifampicin
- e. Methacycline

29. 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. Tetracaine
- c. Atropine sulfate
- d. Tramadol
- e. Zopiklon

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

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

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

32. 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. 300 mg
- b. 500 mg
- c. 200 mg
- d. 100 mg**
- e. 400 mg

33. 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. Hepatoprotectors
- b. Antispasmodics**
- c. Cholagogues
- d. Antacids
- e. Antibiotics

34. 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. Valerian rootstock**
- c. Rhubarb roots
- d. Oak bark
- e. Buckthorn bark

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

36. 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. Rhizoma Tormentillae
- d. Cortex Viburni opuli
- e. Folium Menthae piperitae

37. The method of stirring-up (dispersion) is used to make suspensions with a certain substance. Name this substance:

a. Basic bismuth nitrate

- b. Ethazole
- c. Camphor
- d. Sulfur
- e. Streptocide (Sulfanilamide)

38. 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. NS-2 A (neutral glass 2A)
- b. NS-2 (neutral glass 2)

c. USP-1

- d. AB-1 (non-boric glass)
- e. MTB (colorless glass for medical containers)

39. 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. Social responsibility**
- c. Financial activity
- d. Charity
- e. Commercial activity

40. 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. Legal management methods
- c. Indirect control methods

d. Economic management methods

- e. Organizational management methods

41. Every pharmacy as a business has its income and expenditure operations. What business transaction will result in a summary increase of stocked goods?

- a. Receipt of low-value wearing goods
- b. Goods receipt from the supplier**
- c. Debt recovery from a person accountable
- d. Issuing money to be accounted for
- e. Money transfer from a bank to the cash desk

42. Hypericum perforatum grass contains hypericin. What is the pharmacological effect of this substance?

- a. Antidepressant**
- b. Antiasthmatic
- c. Anticonvulsant
- d. Expectorant
- e. Analgesic

43. What medicinal substance can be mixed with the powder mass without an additional comminution?

- a. Salicylic acid
- b. Starch**
- c. Camphor
- d. Streptocide (Sulfanilamide)
- e. Menthol

44. 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. Economic
- c. Environmental and ecological
- d. Socio-demographic**
- e. Political

45. 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. Glutamic
- b. Hexanic
- c. Glutaconic**
- d. Glyoxylic
- e. Gluconic

46. 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. Nicotinic acid**
- b. Salicylic acid
- c. Benzoic acid
- d. Ascorbic acid
- e. Citric acid

47. 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 immediately without cooling
- c. Infusion is made and acidated with hydrochloric acid
- d. Infusion is made in a slightly alkaline medium
- e. Decoction is made and filtered after complete cooling**

48. Lipophilicity is very important for the bioavailability of a substance. Name the numerical parameter that characterizes lipophilicity.

- a. Coefficient of surface tension
- b. Stoichiometric coefficient
- c. Distribution coefficient**
- d. Correction factor
- e. Coefficient of viscosity

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

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

50. 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. Flaxseed oil
- d. Castor oil**
- e. Cocoa butter

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

- a. 15 minutes

b. 40 minutes

c. 45 minutes

d. 25 minutes

e. 30 minutes

52. What pharmacy department carries out the individual production of extemporaneous medicines, their quality control, and their dispensing to consumers?

a. Over-the-counter sales

b. Medical cosmetics

c. Ready-made dosage forms

d. Stock of goods

e. Prescription and production

53. 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. Eucalyptus globulus

c. Juniperus communis

d. Origanum vulgare

e. Inula helenium

54. All business transactions at a pharmacy must be documented. What type of cash operation must be recorded with a receipt cash order?

a. Advance salary payments

b. Transfer of the revenue to the bank account

c. Salary payments

d. Revenue of the pharmacy

e. Issuing cash sums to be accounted for

55. Different types of granulation are used in the tablet production. What is the most productive method of structural granulation?

a. Granulation in spray dryers

b. Wet granulation in vertical granulators

c. Granulation using briquetting

d. Granulation in the fluidized bed

e. Granulation in the dragee pan

56. How often should a pharmacy make an inventory of its fixed assets?

a. Once every three years

b. Once a year

c. At least thrice a year

d. At least twice a year

e. At least once in a quarter

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

a. 0.9%

b. 10.0%

c. 5.0%

d. 1.0%

e. 1.8%

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

a. Weibel stabilizer

b. Sodium sulfite

c. 0.1 M solution of hydrochloric acid

d. 0.1 M solution of sodium hydroxide

e. Boric acid

59. 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 nitrite
- b. Calcium chloride
- c. Ammonium hydroxide
- d. Sodium carbonate

e. Silver nitrate

60. When a pharmacy restocks its medical products, the incoming products must undergo quality assessment. Who conducts the assessment in this case?

- a. A pharmacist
- b. An authorized person**
- c. A financially accountable person
- d. A representative of the laboratory
- e. The head manager of the pharmacy

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

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

62. 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. Prednisolone
- b. Papaverine hydrochloride
- c. Suprastin (Chloropyramine)
- d. Euphylline (Aminophylline)**
- e. Ambroxol

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

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

64. What device is used to disperse medicinal substances and homogenize ointments?

- a. Dismembrator
- b. Excelsior
- c. Double-slide tablet press machine
- d. Three-roll ointment mill**
- e. Disintegrator

65. 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. 0.25 g**
- b. 0.5 g
- c. 0.2 g
- d. 0.1 g
- e. 0.3 g

66. Bilirast is an X-ray contrast substance. What reagent can confirm the presence of phenolic hydroxyl in its molecule?

a. Iron(III) chloride solution

- b. Iodine dissolved in potassium iodide
- c. Alcoholic iodine solution
- d. Silver nitrate solution
- e. Hydrochloric acid solution

67. A folic acid molecule has a heterocyclic system, consisting of two condensed heterocycles - pyrimidine and pyrazine. Name this system:

a. Phenothiazine

b. Pteridine

- c. Isoalloxazine
- d. Corrin
- e. Purine

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

a. Stimulational marketing

b. Remarketing

- c. Conversion marketing
- d. Evolving marketing
- e. Synchromarketing

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

a. Mercurimetry

b. Permanganatometry

c. Complexonometry

d. Bromatometry

e. Argentometry

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

a. Mechanical strength

b. Boiling point

c. Dry residue

d. Dissolution time

e. Resuspension

71. 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. Inhibitors of protein-degrading enzymes

d. Alpha-blockers

e. Beta-blockers

72. 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. Adsorption chromatography

b. Paper chromatography

c. Thin layer chromatography

d. Gas chromatography

e. Ion-exchange chromatography

73. The chemical name of 2-benzyl-1H-benzimidazole hydrochloride corresponds with the following medicinal substance:

a. Vicasol (Menadione)

b. Phenazepam

- c. Indometacin
- d. Omeprazole

e. Dibazol (Bendazolum)

74. 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 an alcohol or ether
- c. Comminute it with glycerin
- d. Dissolve it in the molten base

e. First dissolve it in the minimum amount of water

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

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

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

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

77. Galenical preparations include:

- a. Spansules
- b. Capsules
- c. Tinctures**
- d. Granules
- e. Aerosols

78. 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. 30 000 UAH
- c. 40 000 UAH
- d. 15 000 UAH

e. 5 000 UAH

79. 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

80. Which of the following pricing factors of a manufacturing pharmaceutical enterprise is internal?

- a. Participants in sales channels
- b. Consumers
- c. Expenses**
- d. Competitors
- e. State regulation of prices

81. 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. Enzymatic agents
- c. Probiotics**
- d. Sorbents
- e. Antacids

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

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

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

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

84. 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 50% discount
- c. With 70% discount
- d. At full cost
- e. With 30% discount

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

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

86. A pharmacy has received a formulation for the solution with a substance that moderately expands in the cold water. Name this substance:

- a. Calcium chloride
- b. Gelatin**
- c. Sodium chloride
- d. Protargol (Silver proteinate)
- e. Glucose

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

- a. 20% sodium bromide solution
- b. Purified water
- c. Tincture of valerian**
- d. Potassium bromide
- e. Simple syrup

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

- a. Work schedule
- b. Payroll
- c. Medical certificate
- d. Employee time sheet**

e. Material aid log book

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

a. Captopril

b. Alpha-methyldopa

c. Furosemide

d. Propranolol

e. Sodium nitroprusside

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

a. Psychotropic drugs at the full price

b. Medicines provided for free or at a discount due to social benefit programs

c. Anabolic steroids at the full price

d. Narcotic substances in their pure form at the full price

e. Clophelin (clonidine) tablets at the full price

91. A 35-year-old patient has been prescribed a potassium-sparing diuretic. Select one such drug from the list:

a. Diltiazem

b. Bisoprolol

c. Furosemide

d. Prazosin

e. Triamterene

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

a. -

b. Bonuses

c. In-store advertising

d. Coupons

e. Layout of medical products in shop-windows and on shelves

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

a. -

b. Reduction of the antibacterial effect of doxycycline

c. Increase of the antibacterial effect of doxycycline

d. Reduction of oral contraceptives effectiveness

e. Increase of oral contraceptives effectiveness

94. 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. *Vaccinium myrtillus*

b. *Rhamnus cathartica*

c. *Ribes nigrum*

d. *Schisandra chinensis*

e. *Prunus padus*

95. General sedimentation reagents are used to identify alkaloids in an extract obtained from herbal raw materials. Select from the list one such reagent.

a. Froehde reagent

b. Erdman reagent

c. Dragendorff reagent

d. Vitali-Morin reagent

e. Marquis reagent

96. 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 process of extraction from one liquid using another liquid
- b. The characteristic of biopolymer molecules that does not allow them to pass through semi-permeable membranes**
- c. The process of heating the extract
- d. The process of electrolyte action
- e. The process of gas absorption

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

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

98. 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. Tachyphylaxis**
- b. Tolerance
- c. Antagonism
- d. Synergism
- e. Withdrawal syndrome

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

100. 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. Market-oriented
- b. Product-oriented
- c. Regional
- d. Functional**
- e. Segment-oriented

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

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

- a. Bromphenol blue
- b. Iron (III) ammonium sulphate**
- c. Sodium eosinate
- d. Starch
- e. Potassium chromate

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

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

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

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

106. A patient diagnosed with hypertension and bronchial asthma had a bronchospasm attack, while undergoing therapy. What drug has most likely caused this complication?

- a. Fenoterol
- b. Nitroglycerin
- c. Verapamil
- d. Propranolol**
- e. Amlodipine

107. 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. Atropine
- c. Azulene
- d. Acteoside
- e. Aucubin**

108. 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. 5.0 g and 110 mL
- b. 10.0 g and 120 mL**
- c. 20.0 g and 140 mL
- d. 10.0 g and 100 mL
- e. 0.25 g and 100 mL

109. 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. Isosorbide dinitrate
- b. Nifedipine
- c. Bisoprolol
- d. Digoxin

e. Nitroglycerine

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

a. Sodium nitrite solution

b. Potassium thiocyanate solution

c. Ammonium chloride solution

d. Potassium permanganate solution

e. Ammonia solution

111. What medicine is simultaneously a mucolytic and an antidote against a paracetamol overdose?

a. Acetylcysteine

b. Carbocysteine

c. Bromhexine

d. Trypsin

e. Ambroxol

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

a. Gastrically absorbed

b. Intestinally absorbed

c. Water-soluble

d. -

e. Fat-soluble

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

a. Length of distribution channel

b. Volume of distribution channel

c. Level of distribution channel

d. -

e. Width of distribution channel

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

a. With a 10% discount

b. 100% free

c. For the full cost

d. For 50% of the cost

e. With a 25% discount

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

a. Contains excessive moisture

b. Contains poisonous plants

c. Has first-degree vermin infestation

d. Contains other parts of the target plant

e. Contains other non-poisonous plants

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

a. Demineralized water

b. Mint water

c. Freshly prepared purified water

d. Water for injections

e. Ethyl alcohol

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

a. Polygonum persicaria

b. Polygonum hydropiper

- c. Polygonum aviculare
- d. Polygonum alpinum

e. Polygonum bistorta

118. 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 Chelidonii
- b. Radices Berberidis
- c. Fructus Capsici
- d. Herba Thermopsis lanceolatae

e. Folia Belladonnae

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

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

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

121. 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. Starch
- b. Streptocid**
- c. Talcum
- d. Bolus alba
- e. Zinc oxide

122. 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. Chloramine solution
- b. Lanthanum(III) nitrate solution
- c. Glyoxal-hydroxyanil solution
- d. Diphenylamine solution**
- e. Thiourea solution

123. Which one of the listed solutions for injections must be stabilized with a 0.1 mol-eq/L solution of hydrochloric acid?

- a. Sodium bicarbonate
- b. Ascorbic acid
- c. Caffeine and sodium benzoate
- d. Novocaine (Procaine)**
- e. Sodium thiosulfate

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

- a. Ononis arvensis
- b. Bidens tripartita
- c. Styphnolobium japonicum**
- d. Thermopsis alterniflora

e. *Glycyrrhiza glabra*

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

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

126. Powders are a solid dosage form for internal or external use. What stage is NOT a part of powder production?

- a. Sifting
- b. Mixing
- c. Granulation**
- d. Comminution
- e. Packing

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

- a. *Frangula alnus***
- b. *Eucalyptus globulus*
- c. *Calendula officinalis*
- d. *Salvia officinalis*
- e. *Bidens tripartita*

128. 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. Formation of biostimulants**
- b. Extending the shelf life of raw materials
- c. Prevention of hydrolysis of bioactive substances
- d. Reducing the content of ballast substances
- e. Acceleration of bioactive substances extraction

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

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

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

131. 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. *Hyoscyamus niger* folium

b. *Urtica dioica* folium

c. *Althaea officinalis* herba

d. *Gnaphalium uliginosum* herba

e. *Digitalis purpurea* folium

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

a. Concentrated solution was added into the prepared extract

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

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

d. Dry substance was dissolved in the infusion apparatus

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

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

a. Altan

b. Phytolyt

c. Allochol

d. Chophytol

e. Cholosas

134. 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 Fehling's reagent

c. Reaction with iron sulfate

d. Reaction with an alkali

e. Reaction with Dragendorff's reagent

135. What group of antibacterial agents is used as first-line drugs in treatment of uncomplicated community-acquired pneumonia in young people?

a. Nitrofurans

b. Tetracyclines

c. Oxyquinolines

d. Semisynthetic penicillins

e. Aminoglycosides

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

a. Atropine sulfate eyedrops

b. Riboflavin-containing powders

c. Baby powder

d. Kvater's mixture

e. Streptocide (sulfanilamide) ointment

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

a. Xeroform

b. Camphor

c. Ephedrine hydrochloride

d. Menthol

e. Protargol (silver proteinate)

138. What packaging should the pharmacist use for a baby powder?

a. Container with a lid that has holes in it

b. Gelatin capsules

c. Wax paper

d. Parchment

e. Ordinary paper capsules

139. 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. Divisional

b. Matrix

c. Linear

d. Functional

e. Line and staff

140. To measure out a small amount of liquid, a stactometer is used. How many drops are there in 1 mL of purified water, if we are to use a standard stactometer?

a. 50

b. 20

c. 40

d. 10

e. 30

141. 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. Withdrawal syndrome

b. Idiosyncrasy

c. Cumulation

d. Sensitization

e. Tolerance

142. 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. Inhaled beta₂-adrenergic agonists

c. Mucolytics

d. Inhaled glucocorticosteroids

e. Herbal antiseptics

143. 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. The tincture is a non-recoverable reject material

b. This kind of deviation is not important

c. Dilute the tincture with extractant to normal concentration

d. Precipitate excessive active substances

e. Filter the tincture through adsorbent

144. 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. Codeine phosphate

c. Papaverine hydrochloride

d. Ergotamine hydrotartrate

e. Atropine sulfate

145. What indicator is used in iodometry for quantitative determination of caffeine in caffeine and sodium benzoate?

a. Bromthymol blue

b. Methyl orange

c. Potassium chromate

d. Eriochrome black

e. Starch

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

147. 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. Complexation**
- b. Reduction
- c. Hydrolysis
- d. Oxidation
- e. Neutralization

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

149. Vinblastine and Vincristine demonstrate antitumor activity. Name the herbal raw material used in production of these medicines:

- a. Rhizomata Nupharis lutei
- b. Folia Berberidis
- c. Herba Vincae minoris
- d. Herba Selaginis
- e. Folia Catharanthi rosei**

150. 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. Buckthorn bark
- c. Dandelion roots
- d. Lily-of-the-valley grass**
- e. Plantain foliage

151. What pharmacological group of drugs CANNOT be combined with expectorants?

- a. Decongestants
- b. Antitussive drugs**
- c. Mucolytic agents
- d. Antibacterial drugs
- e. Polyvitamins

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

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

153. 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. High risk of seizures

c. Increased hepatotoxic action of aminoglycosides

d. Increased hematotoxicity of gentamicin

e. High risk of allergic reactions

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

a. 1.0-4.0

b. 4.0-7.0

c. 3.0-6.0

d. 5.0-8.0

e. 2.0-5.0

155. 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. Matrix

b. Divisional

c. Line

d. Line and staff

e. Functional

156. 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. Centralized

c. Decentralized

d. Divisional

e. Functional

157. 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. Specifics of manufacturing process

c. Values, traditions, and behavioral norms characteristic of company employees

d. Legislation in force

e. License agreement

158. 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. Sodium carbonate

b. Ammonium oxalate

c. Barium chloride

d. Sodium nitrite

e. Silver nitrate

159. 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. Flavonoids

b. Coumarins

c. Essential oils

d. Tannins

e. Anthracene derivatives

160. A 36-year-old patient developed acute pyelonephritis. What antibacterial agents has a nephrotoxic effect?

a. Ampicillin

b. Gentamicin

- c. Penicillin
- d. Erythromycin
- e. Tetracycline

161. 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. Meloxicam
- b. Metoclopramide
- c. Metoprolol
- d. Metronidazole
- e. Metformin**

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

- a. Leavening agents
- b. Thickeners
- c. Corrigents**
- d. Antioxidants
- e. Fillers

163. 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. Thrombus formation
- b. Hyperkalemia
- c. Dysbacteriosis
- d. Hypokalemia
- e. Hemorrhages**

164. Phospholipids are used in medicine in production of hepatoprotectors. What oil is a source of phospholipids?

- a. Oleum Ricini
- b. Oleum Amygdalarum
- c. Oleum Sojae**
- d. Oleum Cucurbitae
- e. Oleum Lini

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

- a. Oleum Lini
- b. Oleum Cucurbitae
- c. Oleum Maydis
- d. Oleum Amygdalarum**
- e. Oleum Ricini

166. 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. Hydrochloric acid
- d. Cobalt nitrate solution
- e. Cyanogen bromide reagent**

167. 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. Permanganatometry
- b. Complexonometry
- c. Iodometry**
- d. Nitritometry
- e. Iodochlorometry

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

- a. Blue precipitate
- b. White precipitate**
- c. Yellow precipitate
- d. Black precipitate
- e. Light green precipitate

169. Genetically induced adverse reaction to a certain drug is caused by various enzyme defects. Name this reaction:

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

170. 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. Hydrochlorothiazide**
- b. Metoprolol
- c. Amlodipine
- d. Losartan
- e. Enalapril

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

172. 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. Manufacture improvement
- c. Product improvement**
- d. Socioethical marketing
- e. Intensification of commercial effort

173. An analytical chemist should use the following solution to identify sodium-containing substances:

- a. Sodium citrate
- b. Potassium permanganate
- c. Barium hydroxide
- d. Potassium pyroantimonate**
- e. Potassium carbonate

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

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

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

- a. Purification methods

- b. Dry residue
- c. Acid value and peroxide value
- d. Moisture content

e. Particle size

176. 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. Nifedipine
- b. Furosemide**
- c. Spironolactone
- d. Propranolol
- e. Lisinopril

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

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

- a. Benzimidazole**
- b. Acridine
- c. Purine
- d. Phenothiazine
- e. Indole

179. 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. Once every 2 years
- b. Once every 5 years**
- c. Every year
- d. Once every 3 years
- e. Once every 10 years

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

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

181. What substance can be determined using the Beilstein test during rapid analysis of drugs?

- a. Fluoride
- b. Nitrogen
- c. Chlorine**
- d. Oxygen
- e. Hydrogen

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

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

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

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

184. 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. 2 ml
- b. 5 ml
- c. 1 ml
- d. 0,5 ml
- e. 10 ml

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

- a. Cumulation
- b. Physical dependence
- c. Psychological dependence
- d. Sensitization

e. Tolerance

186. 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. Stabilizers
- c. Plasticizers
- d. Thickeners
- e. Preservatives

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

- a. Folia Urticae
- b. Folia Menthae
- c. Folia Farfarae
- d. Folia Uvae-ursi
- e. Folia Eucalypti

188. Phenyllic salicylas can be identified by the smell of phenol that is produced when the following is added into the preparation:

- a. AgNO₃
- b. CoCl₂
- c. NaCl
- d. CuSO₄
- e. H₂SO₄

189. Difference between the retail price of products sold and the margin determines:

- a. Margin
- b. Income
- c. Breakeven

d. Markup

e. Production cost

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

a. Sodium chloride

b. Camphor

c. Potassium iodide

d. Protargol

e. Basic bismuth nitrate

191. 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 should be added on the top of the prepared mixture of other ingredients

c. Mix the components in the ascending order based on their amount

d. Riboflavin powder should be sifted in advance

e. "Three layers" method

192. Oblong tablets are called:

a. Pellets

b. Dragee

c. Forte tablets

d. Capsules

e. Caplets

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

a. Thermopsis tincture, purified water

b. Thermopsis grass, sodium bicarbonate, purified water

c. Thermopsis grass, hydrochloric acid solution 1:10, purified water

d. Thermopsis grass, sodium chloride, purified water

e. Thermopsis grass, purified water

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

a. Menthol should be dissolved in oil

b. Menthol should be comminuted in a mortar with ethanol

c. Menthol should be introduced as a suspension into the prepared emulsion

d. Menthol should be dissolved in the purified water

e. Menthol should be comminuted with the emulsifier

195. 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. Sulfur

b. Brilliant green

c. Riboflavin

d. Furacilin (Nitrofur)

e. Methylene blue

196. 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. Effervescent tablets

b. Soluble tablets

c. Dispersible tablets

d. Chewable tablets

e. Modified-release tablets

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

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

198. 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. Prednisone
- c. Prednisolone
- d. Cortisone acetate

e. Betamethasone dipropionate

199. 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. Current

e. Letter of credit

200. 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. SWOT analysis

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

201. The following substance is used as an extractant in production of liquid extracts:

a. Dichloroethane

b. Ethanol

- c. Glycerine
- d. Chloroform
- e. Acetone

202. 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. Maceration

b. Percolation

- c. Steeping
- d. Turbo extraction
- e. Remaceration

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

- a. Hydrophilic bases
- b. Silicone bases
- c. Diphylic (amphiphilic) emulsion bases
- d. Adsorption bases

e. Hydrophobic bases

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

- a. Anti-hydrolysis effect
- b. Pharmacological inertness

- c. Thermostability
- d. Cost

e. Selectivity toward active substances

205. What medicinal substance can be identified using hydroxamic test?

- a. Nicotinic acid
- b. Metronidazole
- c. Nitroxoline
- d. Bendazol

e. Aceclidine

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

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

207. Pharmacies use cash registers during the sales of medicines. Name the document for the accounting of Z-reports:

- a. Customers ledger
- b. Transactions ledger**
- c. Receipt book
- d. Prescription logbook
- e. Cash book

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

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

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

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

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

211. What type of loan does the pharmacy receive in the form of goods, and returns mainly in monetary form?

- a. Commercial loan**
- b. Bank loan
- c. Term loan
- d. Prolonged loan
- e. State loan

212. 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. Collargol (Colloidal silver)
- c. Tannin
- d. Osarsol
- e. Copper sulfate

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

214. 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. Confiscation
- c. Recording as received
- d. Writing off
- e. Conducting an official investigation

215. What five-membered heterocycle is the basis of the structural formula of antiprotozoal and antibacterial drug metronidazole?

- a. Thiazole
- b. Furan
- c. Pyrrole
- d. Imidazole
- e. Pyrazole

216. 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. Apricot
- b. Acacia
- c. Cherry
- d. Tragacanth
- e. Plum

217. Helichrysum arenarium herbal raw material has anti-inflammatory and choloretic effect. What parts of this plant are harvested?

- a. Roots
- b. Flowers
- c. Grass
- d. Rhizomes
- e. Fruits

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

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

219. A pharmaceutical company produces animal-derived biostimulants. Solcoseryl preparation is

obtained from the following raw material:

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

220. 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. *Urtica dioica*
- b. *Althaea officinalis*
- c. *Capsella bursa-pastoris*
- d. *Rosa canina*
- e. *Plantago major***

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

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

222. What is an effective way of preserving the stability of the medicinal substances that are thermolabile and have low stability?

- a. Boiling
- b. Lyophilization**
- c. Hydrolysis
- d. Ultraviolet radiation
- e. Filtration

223. 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. Preliminary
- c. Concluding**
- d. Concurrent
- e. Financial

224. 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 6:00**
- b. From 21:00 to 6:00
- c. From 00:00 to 8:00
- d. From 22:00 to 7:00
- e. From 22:00 to 10:00

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

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

226. 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 acidic medium

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

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

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

228. 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 ointments
- b. Eye lotions**
- c. Eye sprays
- d. Eye inserts
- e. Eye drops

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

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

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

231. A doctor has asked a dispensing chemist for consultation on free dispensation of medicines. What free drugs can the doctor prescribe to an epileptic patient for outpatient treatment?

- a. Only vital drugs
- b. Only imported drugs
- c. Only drugs produced domestically
- d. Only the drugs from the list of approved procurements for budget-financed healthcare facilities**
- e. Any drugs registered for distribution in Ukraine

232. 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. Barium chloride**
- b. Ammonium oxalate
- c. Magnesium sulfate
- d. Silver nitrate
- e. Sodium sulfide

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

- a. *Mentha piperita*
- b. *Capsella bursa-pastoris*
- c. *Origanum vulgare*
- d. *Atropa belladonna*
- e. *Urtica dioica***

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

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

235. 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. Microbiological purity
- b. Identification
- c. Sterility**
- d. pH
- e. Quantitative determination

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

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

238. 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. Clear distribution of tasks between the employees**
- b. -
- c. Meeting the cultural and social needs of employees
- d. Promotion
- e. Material reward (bonuses, increments, pay rise)

239. In the process of industrial production, certain adjuvants are included in the soft dosage forms as pH regulators. Name these adjuvants:

- a. Paraffin, spermaceti
- b. Sodium lauryl sulfate, tween emulsifiers
- c. Glycerine, dimethyl sulfoxide
- d. Benzalkonium chloride, benzyl alcohol
- e. Citric acid, sodium phosphate salts**

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

- a. Sulfuric acid

b. Tartaric acid

c. Chromotropic acid

d. Acetic acid

e. Benzoic acid

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

a. A certain discomfort, a feeling that something is lacking

b. Psychological characteristics of people that help them acquire certain types of knowledge

c. Something that is important for a person

d. A conscious incentive to act in a certain way

e. -

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

a. Glucocorticoids

b. Anticholinesterase drugs

c. Nonsteroidal antiinflammatory drugs

d. Antimicrobial agents

e. Antiarrhythmic drugs

243. 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. Decreases ofloxacin absorption

b. Increases ofloxacin absorption

c. Increases risk of dysbiosis

d. Increases antacid effectiveness

e. Decreases antacid effectiveness

244. 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. Socio-psychological

b. -

c. Economic

d. Administrative

e. Technological

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

a. 5.0

b. 0.025

c. 0.05

d. 0.5

e. 0.25

246. An analytical pharmacist quantifies the ascorbic acid substance using the iodometric method. What indicator must be used in the process?

a. Bromophenol blue

b. Phenolphthalein

c. Methyl orange

d. Murexide

e. Starch

247. 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. Branched and capitate hairs

b. T-shaped hairs along the leaf edge

- c. Retor-shaped hairs
- d. Branched, simple and ciliated hairs
- e. Simple and capitate hairs

248. What medicinal substance is a derivative of morphinan?

- a. Pachycarpine hydroiodide
- b. Cocaine hydrochloride
- c. Quinine sulfate
- d. Codeine**
- e. Caffeine

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

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

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

251. 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. Vapor condensation
- b. Syringe and vapor condensation
- c. Syringe and vacuum
- d. Syringe**
- e. Vacuum

252. 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. Melting point
- b. Specific gravity
- c. Refractive index
- d. Angle of rotation**
- e. Optical density

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

- a. 0.1 and 9.9
- b. 0.5 and 9.5
- c. 1.0 and 9.0**
- d. 0.01 and 9.99
- e. 0.05 and 9.95

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

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

255. 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. Phenolic hydroxyl
- b. Aldehyde group**
- c. Ester group
- d. Alcoholic hydroxyl
- e. Amide group

256. 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. Calcium chloride
- b. Activated carbon
- c. Barium chloride
- d. Alcoholic iodine solution
- e. Nitroglycerine solution**

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

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

258. When preparing compound powders, a pharmacist used the "three-layer" method. Which one of the listed substances is a dye?

- a. Streptocide (Sulfanilamide)
- b. Sulfur
- c. Protargol
- d. Camphor
- e. Ethacridine lactate**

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

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

260. 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. 25%
- c. 95%
- d. 20%
- e. 5%**

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

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

262. What factor enables the extraction of maximum amount of alkaloids from the herbal raw material?

- a. Certain value of the solution pH**
- b. Slight heating

- c. Herbal raw material should be fresh
- d. Intense heating
- e. Preliminary processing of raw materials for their saturation with 96% alcohol

263. 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. Paracetamol**
- b. Diclofenac sodium
- c. Nimesulide
- d. Indomethacin
- e. Acetylsalicylic acid

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

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

- a. Elixir pectoralis
- b. 1% citral alcohol solution
- c. Leonurus tincture
- d. Ammonia spirit-anise spirit drops
- e. 30% hydrogen peroxide (Perhydrol)**

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

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

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

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

268. 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. Financial
- b. Preliminary
- c. Current**
- d. -
- e. Final

269. Medicinal dyes should be stored in a special cabinet. Which of the listed medical products is a dye:

- a. Ethyl alcohol
- b. Glucose
- c. Hydrogen peroxide
- d. Ascorbic acid
- e. Brilliant green**

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

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

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

- a. Glycyrrhizae radices
- b. Taraxaci radices
- c. Tormentillae radices
- d. Calami radices
- e. Araliae mandshuricae radices**

272. A pharmaceutical company produces tablets. Tableting by means of direct compression requires:

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

273. 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. Experiment**
- c. -
- d. Observation
- e. Panel

274. Specify the control methods aimed at detecting mechanical impurities in parenteral solutions:

- a. Gravitational
- b. Visual optical**
- c. Limulus test
- d. Amperometric
- e. NMR and UV-visible spectroscopy

275. 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. Consulting services
- b. Leasing
- c. Insurance
- d. Finances
- e. Manufacture**

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

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

277. 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. Esther group

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

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

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

e. Tartaric acid

279. A pharmaceutical company produces liquid dosage forms. What principle is used in rotary pulsation apparatus to obtain an emulsion?

a. Maceration

b. Mechanical dispersion

- c. Solubilization
- d. Ultrasonic dispersion
- e. Coacervation

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

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

e. Strategy evaluation

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

a. To ensure business survival

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

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

a. Iridoids

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

283. A pharmacist prepares a suspension with a hydrophobic substance. What stabilizer is necessary for this dispersion system?

a. Methyl cellulose

- b. Nipagin (Methylparaben)
- c. Glucose
- d. Boric acid
- e. Sodium chloride

284. 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. Thymus serpyllum

b. *Melissa officinalis*

c. ***Rubia tinctorum***

d. *Sambucus nigra*

e. *Mentha piperita*

285. What stabilizer must the pharmacist add, when preparing an atropine sulfate solution for injections?

a. Ascorbic acid

b. **Hydrochloric acid**

c. Sodium bicarbonate

d. Sodium hydroxide

e. Sodium metabisulfite

286. Bromatometry allows quantitative analysis of the following drug:

a. **Sodium salicylate**

b. Potassium acetate

c. Glutamic acid

d. Benzoic acid

e. beta-Alanine

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

a. Solvent

b. Solubilizer

c. Preservative

d. **Plasticizer**

e. Emollient

288. 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. **Salt solutions based on iso- and hypotonic sodium chloride solutions**

b. Beclomethasone preparations

c. Xylometazoline preparations

d. Essential oil-based preparations

e. Cromoglicic acid preparations

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

a. Various vibrosieves

b. **Standard set of sieves**

c. Laboratory identifiers

d. Friabilators

e. Microscope

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

a. 25

b. 20

c. 5

d. **15**

e. 10

291. 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. Zero-level channel

b. One-level channel

c. Four-level channel

d. Three-level channel

e. Two-level channel

292. 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. Middle-level
- b. Institutional

c. Technical

- d. Administrative
- e. Top-level

293. *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. Immediate filtration
- c. The presence of ascorbic acid
- d. The presence of hydrochloric acid

e. Cold infusion

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

a. Circulation

- b. Mechanical
- c. Acoustic
- d. Ultrasonic
- e. Pneumatic

295. 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. 60 000 UAH

c. 32 000 UAH

- d. 2 000 UAH
- e. 62 000 UAH

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

- a. 2,4-Dinitrochlorobenzene

b. Ninhydrin

- c. Concentrated ammonia
- d. 2,4-Dinitrophenylhydrazine
- e. Cyanogen bromide

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

- a. Gentamicin
- b. Biseptol (Co-trimoxazole)
- c. Meropenem

d. Clarithromycin

- e. Ceftriaxone

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

- a. Invoice

b. Cash register fiscal receipt

- c. Sales receipt
- d. Receipt

e. Settlement receipt

299. Pharmacies can prepare medicines based on individual formulations. What makes up the retail price of such medicines?

- a. Cost of ingredients and package
- b. Cost of ingredients
- c. Cost of ingredients, package, and labor**
- d. Cost of labor and price markup
- e. Cost of the ingredients that make up this dosage form

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

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

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

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

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

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

303. 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. Complaint
- b. Statement
- c. Contract
- d. Request**
- e. Offer

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

- a. Aminoglycosides
- b. Cephalosprins
- c. Macrolides**
- d. Penicillins
- e. Carbapenems

305. 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. Panel
- c. Experiment
- d. Survey**
- e. Testing

306. Specify the indicator that measures the total contribution of various solutes to the osmotic

pressure of the solution:

- a. Isotonicity
- b. Osmolality**
- c. Isoviscosity
- d. Isohydricity
- e. Apyrogenicity

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

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

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

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

309. An analytical pharmacist is testing a thiamine hydrobromide substance. What solution would the pharmacist use to determine sulfate impurities?

- a. Barium chloride solution**
- b. Ammonium oxalate solution
- c. Sodium benzoate solution
- d. Sodium nitrite solution
- e. Calcium chloride solution

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

311. 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. Xanthones
- b. Flavonoids
- c. Iridoids
- d. Lignans**
- e. Coumarins

312. 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. Bismuth subcitrate**
- b. Omeprazole
- c. Tinidazole
- d. Tetracycline
- e. Metronidazole

313. Merchandising is a complex of communication techniques that aim to increase the sales in the pharmacies. The main goal of merchandising is:

- a. Quick sales of the whole range of goods on offer in the pharmacies and an overall increase of sales
- b. Decrease of the competition between the drug analogues
- c. Price-cutting for unpopular medicines
- d. Expanding the range of pharmaceutical goods
- e. -

314. 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. -
- b. Legitimate power
- c. Power based on fear
- d. Referent power
- e. Coercive power

315. Propellants are used in aerosols production. Specify the function of propellants:

- a. Emulsification
- b. Stabilization
- c. Create pressure in the package
- d. Dispersion
- e. Action prolongation

316. Aqueous lanolin consists of:

- a. 50 parts of anhydrous lanolin and 50 parts of water
- b. 5 parts of anhydrous lanolin and 95 parts of water
- c. 70 parts of anhydrous lanolin and 30 parts of water
- d. 90 parts of anhydrous lanolin and 10 parts of water
- e. 80 parts of anhydrous lanolin and 20 parts of water

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

318. 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. Notification is optional
- b. 3 months before the closure
- c. 20 working days before the closure
- d. 1 month before the closure
- e. 10 working days before the closure

319. 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. Recruitment
- b. Staff rotation
- c. -
- d. Promotion
- e. Staff turnover

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

- a. Potassium chromate
- b. Tropeolin 00

- c. Starch
- d. Methylene blue
- e. Bromophenol blue

321. 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. Tachyphylaxis
- c. Rebound effect
- d. Steal syndrome
- e. Idiosyncrasy

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

- a. Urolesan
- b. Solutan
- c. Herbogastrine
- d. Olimetinum

e. Bellasthesin

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

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

e. Osteoporosis

324. 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. Vomiting
- b. Increased blood pressure
- c. Red coloring of urine

d. Ototoxicity

e. Decreased blood pressure

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

- a. In autoclave chamber with high-pressure saturated steam
- b. Ultrasound
- c. Addition of buffer solutions

d. Filtration through membrane

e. High frequency current

326. 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. They form spontaneously
- c. The group leader receives authority from the group

d. They are created to implement the production process

e. They resist changes in the organization

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

a. *Althaea officinalis*

b. *Helianthus tuberosus*

- c. *Astragalus dasyanthus*
- d. *Brassica juncea*
- e. *Hypericum maculatum*

328. Infusions of herbal raw material rich in essential oils should be:

- a. Prepared in a tightly closed vessel
- b. Immediately filtered
- c. Infused cold
- d. Filtered without wringing of the solid residue
- e. Acidated with hydrochloric acid

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

- a. Receipt of the funds for salary payment
- b. Coverage of the shortages revealed during the stock-taking
- c. Payment for the goods purchased for the household needs
- d. Return of unused accountable funds
- e. Receipt of the proceeds from sales

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

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

331. 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. Alpha-adrenergic agonists
- c. Calcium channel blockers
- d. Antispasmodics
- e. Nitrates

332. 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. Accelerated clearance of iron preparations
- b. Accelerated absorption of iron preparations
- c. Increased activity of iron preparations
- d. Prolonged action of iron preparations
- e. Formation of chelate complexes that cannot be assimilated into the body

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

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

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

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

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

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

- a. Herba Echinaceae purpurea**
- b. Radices Rhei
- c. Radices Ginseng
- d. Rhizomata et radices Eleuterococci
- e. Radices Araliae elata

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

338. 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. Anhydrous, analytical grade pure
- b. Chemically pure, depyrogenated**
- c. No manganese salt admixtures
- d. Type <<for injections>>
- e. Analytical grade pure

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

340. 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. Specific optical rotation**
- b. Relative density
- c. Distribution coefficient
- d. Optical density
- e. Refractive index

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

- a. Ammonium oxalate**
- b. Magnesium sulfate
- c. Ammonium molybdate
- d. Potassium chloride
- e. Sodium nitrite

342. 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. Specialized**

b. Decentralized

c. Centralized

d. Mixed

e. Referent

343. *Passiflora incarnata* grass contains a complex of indole alkaloids. What pharmacological group do *Passiflora* preparations belong to?

a. Antibacterial agents

b. Sedatives

c. Laxatives

d. Wound healing agents

e. Diuretics

344. 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. Hydroxylation

b. Reduction

c. Hydrolysis

d. Oxidation

e. Phosphorylation

345. 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. Complexonometry

b. Acidimetry

c. Alkalimetry

d. Nitritometry

e. Argentometry

346. A powder with a hard to disintegrate substance has been made in a pharmacy. Specify this substance:

a. Sugar

b. Talcum

c. Camphor

d. Osarsolum (Acetarsol)

e. Sodium chlorides

347. A pharmacist prepares a compound powder. What medicinal substance must be comminuted without adding an adjuvant liquid (alcohol or ether)?

a. Zinc oxide

b. Thymol

c. Streptocide (Sulfanilamide)

d. Camphor

e. Menthol

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

a. Bolus alba

b. Basic bismuth nitrate

c. Sugar

d. Sodium bicarbonate

e. Talcum

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

a. Naloxone

b. Protamine sulfate

c. Thiosulfate

d. Methionine

e. Unithiol (Dimercaptopropansulfonate sodium)

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

- a. Sublimation
- b. Rectification
- c. Extraction
- d. Lyophilization
- e. Recuperation**

351. 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. Issuing a cash sum to be accounted for
- b. Salary payments
- c. Withdrawing sales proceeds for the transfer to the current account
- d. Receipt of funds for advance salary payments**
- e. Payment for the goods purchased for the business needs

352. The presence of a primary aromatic amino group in sulfanilamide structure can be confirmed with a reaction that produces:

- a. Diazonium salts
- b. Iodoform
- c. Murexide
- d. Fluorescein
- e. Azo dye**

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

354. 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 neutrophil aggregation
- c. Disturbed pain impulse conduction
- d. Inhibition of prostaglandin synthesis in the mucosa**
- e. Inhibition of lipid peroxidation

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

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

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

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

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

- a. Starch
- b. Methylcellulose
- c. Gelatin
- d. Pepsin**
- e. Pectin

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

- a. Neutral glass "HC-2"
- b. Light-resistant neutral glass "CHC-1"**
- c. Borosilicate neutral glass "УСП -1"
- d. Alkaline glass "АБ-1"
- e. Neutral glass "HC-2A"

359. 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. Tropane derivatives**
- b. Indole derivatives
- c. Purine derivatives
- d. Quinuclidine derivatives
- e. Isoquinoline derivatives

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

361. 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. Liquefied gases
- d. Rarefied gases
- e. Volatile gases

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

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

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

364. During quantitative determination of Vicisol (Menadione) by means of cerimetry, the following indicator is used:

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

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

366. 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. Roots and fruits
- b. Leaves and fruits
- c. Leaves and flowers
- d. Leaves and seeds
- e. Roots and leaves**

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

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

368. 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 hydroxide
- b. Sodium cobaltinitrite**
- c. Ammonium oxalate
- d. Barium chloride
- e. Magnesium sulfate

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

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

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

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

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

- a. Direct compression without additional substances**
- b. Moulding
- c. Direct compression with the addition of excipients
- d. Wet granulation prior to compression

e. Dry granulation prior to compression

372. At a pharmacy, the pharmacist makes vaginal suppositories. What is the permissible range of the average weight of such suppositories?

- a. 3.0-7.0 g
- b. 2.0-6.5 g
- c. 1.0-4.0 g
- d. 1.5-6.0 g**
- e. 4.0-7.5 g

373. 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. Horizontal**
- b. Vertical ascending
- c. Vertical descending
- d. External
- e. Interlevel

374. What substance can be synthesized as a result of the condensation of 5-nitrofurfural with semicarbazide?

- a. Norfloxacin
- b. Nitrofural (Nitrofurazone)**
- c. Metronidazole
- d. Phthalazole (Phthalylsulfathiazole)
- e. Nitroxoline

375. What antacid can cause constipations, osteoporosis, and encephalopathy when taken for a long period of time?

- a. Calcium carbonate
- b. Aluminium hydroxide**
- c. Sodium bicarbonate
- d. Sodium alginate
- e. Magnesium oxide

376. 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. Migraine attack
- c. Hypertensive crisis**
- d. Exertional angina pectoris attack
- e. Acute conjunctivitis

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

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

378. 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 3 years of age**
- c. Under 16 years of age
- d. Under 6 years of age
- e. Under 10 years of age

379. In what order must alcohol-containing solutions be added into aqueous solutions during the preparation of liquid dosage forms?

- a. In any order
- b. In the order of decreasing alcohol concentration
- c. In the order of increasing alcohol concentration**
- d. In the order of increasing volume of alcohol-containing solutions
- e. First into the vial for dispensing

380. A pharmacy has decided to obtain a license to make extemporaneous preparations. For this purpose it purchased a refrigerator, a cabinet dryer, and other industrial equipment. The purchased equipment belongs to the following type of assets:

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

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

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

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

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

383. The "Dr Ram" pharmaceutical company organizes scientific conferences and workshops for doctors and pharmaceutical workers. What element of marketing communications is used by this pharmaceutical company?

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

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

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

385. 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. 2%
- b. 3%**
- c. 10%
- d. 30%

e. 20%

386. 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. 500 000 UAH

c. 750 000 UAH

d. 100 000 UAH

e. 3 000 000 UAH

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

a. -

b. Etiquette

c. Integration

d. Diversification

e. Culture

388. 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. Hyoscyamine

b. Rutin

c. Arbutin

d. Vinblastine

e. Gallic acid

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

a. Geographical

b. Behavioral

c. Social and economic

d. Psychographic

e. Demographic

390. 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. Single tax

b. Income tax

c. Commercial patent

d. Individual income tax

e. Excise tax

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

a. Carbohydrates

b. Glycosides

c. Tannins

d. Iridoids

e. Lipids

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

a. Sodium hydroxide solution

b. Hydrochloric acid solution

c. Sodium thiosulfate solution

d. Potassium bromate solution

e. Potassium permanganate solution

393. 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. Organoleptic control

b. Physical control

c. Survey control

d. Written control

e. Chemical control

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

a. Flowers

b. Bark

c. Infructescences

d. Roots

e. Buds

395. 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. Herzberg's two-factor theory

b. Maslow's hierarchy of needs

c. Vroom's expectancy theory

d. McClelland's theory of needs

e. McGregor's Theory X and Theory Y

396. 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 to other organizations for commercial use

c. Sale of drugs to chronically ill patients

d. Sale of extemporal dosage forms

e. Sale of over-the-counter drugs

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

a. Hot air

b. Steam under pressure

c. Flowing steam

d. Not subject to sterilization

e. Ultraviolet radiation

398. A pharmacist needs to prepare a trituration of platyphylline hydrotartrate (1:10). What filler would be optimal for making this trituration?

a. Lactose

b. Refined sugar

c. Mannitol

d. Rice starch

e. Corn starch

399. One of the substances listed below is textbfNOT a vitamin:

a. Calcium gluconate

b. Calcium pantothenate

c. Calcium pangamate

d. Ergocalciferol

e. Nicotinic acid

400. A 60-year-old patient diagnosed with ischemic heart disease developed bradycardia of 50 min. What drug will be contraindicated in this case?

a. Propranolol

- b. Nitrosorbide (Isosorbide dinitrate)
- c. Nitroglycerin
- d. Heparin
- e. Nifedipine

401. 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 revenue and duties authority
- c. The National Bank of Ukraine
- d. A statistics authority
- e. The Ministry of Finance

402. 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. Diversification

- c. Insurance
- d. Indexation
- e. Bankruptcy

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

- a. By their Anatomical Therapeutic Chemical Classification
- b. Alongside medicines
- c. By their pharmacotherapy group
- d. By their application

e. On separate shelves and in separate shopwindows

404. A pharmaceutical company promotes a healthy lifestyle, provides sponsorship to an orphanage, and funds sporting events. Name this concept of the company activity:

- a. Commercial activity
- b. -
- c. Manufacturing activity

d. Social responsibility

e. Financial activity

405. 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. Seeds
- c. Roots
- d. Fruits

e. Leaves

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

a. n-Aminobenzoic acid

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

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

a. 25 minutes

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

408. 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. Monetary funds
- b. Packaging
- c. Herbal raw materials
- d. Buildings**
- e. Goods

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

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

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

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

411. Capsaicin is the main active substance of *Capsicum annum*. It belongs to the following class of bioactive substances:

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

412. 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. -
- b. Geographical
- c. Demographic**
- d. Behavioral
- e. Psychographic

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

- a. Tax concession**
- b. Tax
- c. Tax rate
- d. Tax system
- e. Subject to taxation

414. 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. Ascorbic acid
- c. Hydrochloric acid**
- d. Sodium hydroxide

e. Sodium metabisulfite

415. 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. Liquidity solvency

b. Turnover of goods cost price of products

c. Profit turnover of goods

d. Cost price of products liquidity

e. Turnover of goods wages

416. What is the name of the ability to restore the properties of a heterogenous system by perturbation?

a. Granulation

b. Emulsification

c. Resuspension

d. Extraction

e. Dispersion

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

a. Contract of delivery

b. Motor waybill

c. Financial statement of the supplier

d. Specifications to the contract of delivery

e. All of the listed

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

a. 1/10 of the percolator's volume per 20 minutes

b. 1/20 of the percolator's volume per hour

c. 1/30 of the percolator's volume per 30 minutes

d. 1/40 of the percolator's volume per hour

e. 1/24 or 1/48 part of the percolator's working volume per hour

419. 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 1:15 proportion

c. With 70% alcohol in 1:10 proportion

d. With 70% alcohol in 1:5 proportion

e. With 48% alcohol in 1:2 proportion

420. 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. Crataegus sanguinea

c. Calendula officinalis

d. Tanacetum vulgare

e. Foeniculum vulgare

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

a. Quality

b. Pharmacological action

c. Marking

d. Trade dress

e. Appearance

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

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

- a. Publicity
- b. Direct marketing
- c. Sponsorship**
- d. Lobbying
- e. Product promotion

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

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

425. 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. Commission agents
- b. Dealers**
- c. Brokers
- d. Agents
- e. Consignees

426. 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. Receptor sensitivity to low-density lipoproteins increases
- b. Absorption of the drug increases at night
- c. Catabolism rate of low-density lipoproteins increases
- d. Risk of myopathy decreases
- e. Cholesterol biosynthesis occurs mainly at night**

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

- a. Increased effectiveness of antacids
- b. Increased blood pressure
- c. Decreased blood pressure
- d. Increased risk of hepatotoxicity
- e. Reduced effectiveness of iron preparations**

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

429. 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. Spectrophotometry

b. Refractometry

c. Photocolorimetry

d. Polarography

e. Polarimetry

430. A pharmacist prepares suppositories by pouring. Name the coefficient for substitution of fatty vehicle with glycerinated gelatin vehicle:

a. 1.21

b. 1.11

c. 1.20

d. 1.31

e. 1.25

431. Name the optimal vehicle for soluble vaginal suppositories:

a. Polyethylene oxide

b. Cocoa butter

c. Glycerine

d. Fat

e. Hard fat

432. 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. Combined

b. Mixed

c. Mediated

d. Indirect

e. Direct

433. 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. Almagel

c. Famotidine

d. Omeprazole

e. Phosphalugel (Aluminum phosphate)

434. 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. Infusion therapeutic system

c. Transdermal therapeutic system

d. Liposome

e. Matrix tablet

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

a. Cerimetry

b. Potentiometry

c. Spectrophotometry

d. Acidimetry

e. Argentometry

436. 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. Labor productivity

- b. Turnover
- c. Profitability
- d. Price index
- e. Stock of goods

437. 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. Autocratic
- c. Personal
- d. Intuitive
- e. -

438. Pharmacy premises can be divided into service rooms and workrooms. Name the workroom for storage of medical products:

- a. Aseptic block
- b. Distillation room
- c. Washing room
- d. Shop floor

e. Material storage room

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

e. Nitrites

440. How long can vasoconstrictors for symptomatic treatment of rhinitis be used?

- a. 1 month
- b. 2 weeks

c. 5-7 days

- d. 3 weeks
- e. 5 weeks

441. 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. Oxidation of the hydrazine residue with potassium bromide
- d. Opening of the pyridine ring

e. Oxidation of the hydrazine group with bromine

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

e. Dissolution in the minimal amount of water

443. 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. Product development

- b. Consolidation
- c. Market penetration
- d. Diversification

e. Market development

444. 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. Goods report (Inventory change report)
- d. Financial operating report of the pharmacy
- e. Goods received record book by groups of goods

445. 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. Chlorides
- b. Redox substances
- c. Sulfates

d. Pyrogenic substances

- e. Moisture

446. 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. Sudan III solution
- b. Dragendorff reagent

c. Alcoholic solution of methylene blue

- d. 1% ammonium iron(III) sulfate solution
- e. 1% phloroglucinol solution

447. What pathological condition can develop during a long-term treatment with prednisolone?

a. Gastrointestinal bleeding

- b. Salivation
- c. Myocarditis
- d. Pneumonia
- e. Pyelonephritis

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

- a. Glaucine hydrochloride
- b. Securinine nitrate
- c. Ergotamine
- d. Vinblastine

e. Novopassit

449. During H. pylori eradication quadritherapy, a 25-year-old man developed black feces. What medicine provoked such a side effect in this case?

- a. Amoxicillin
- b. Tetracycline
- c. Omeprazole
- d. Metronidazole

e. Bismuth subcitrate

450. 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. Ergocalciferol
- b. Cholecalciferol

c. Retinol

- d. Phylloquinone (Phytomenadione)

e. Tocopherol

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

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

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

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

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

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

454. 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. Yellow
- b. Creamy
- c. White and amorphous**
- d. Green
- e. Red-brown

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

- a. Legal**
- b. Technological
- c. Social
- d. Economic
- e. Informational

456. 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. Merchandising**
- b. Advertising
- c. Lobbying
- d. Public relations
- e. Personal sale

457. What morphological feature is diagnostic for the *Matricaria chamomilla* herbal raw material?

- a. Conical, glabrous, and hollow receptacle**
- b. Solid spherical receptacle
- c. Spherical receptacle with membranous bracts
- d. Curved hemispherical receptacle with membranous bracts
- e. Solid hemispherical receptacle

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

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

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

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

460. 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. Cerimetry
- b. Argentometry**
- c. Bromatometry
- d. Iodometry
- e. Polarimetry

461. Advertising is the most popular and widely used part of marketing communications system. What cannot be included into the advertisements for medicines?

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

462. 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 65%**
- b. At least 50%
- c. At least 30%
- d. At least 40%
- e. At least 20%

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

464. 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

465. 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. Socio-ethical marketing

b. Production development

c. Intensification of commercial effort

d. Integrated marketing

e. Product development

466. 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. Ammonia

b. Pyridine

c. Benzaldehyde

d. Ethyl acetate

e. Sulfur dioxide

467. 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. Oligopolistic market

b. Pure monopoly market

c. Limited monopoly market

d. Market with pure (free) competition

e. -

468. 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. Nephrotoxicity

b. Allergic response

c. Chondrotoxicity

d. Dysbiosis

e. Photosensitization

469. 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. Filtration

c. Sedimentation

d. Adsorption

e. Crystallization

470. 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. Extraction from one liquid using another

b. Electrolyte action

c. Ultrasound exposure

d. Dialysis

e. Heating the extract

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

a. Value added tax

b. Real estate tax

c. Corporate income tax

d. Rent

e. Individual income tax

472. 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. Horizontal rotation

b. Diagonal rotation

c. Mixed rotation

d. Vertical rotation

e. Employee turnover

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

a. Membrane filtration

b. Ultraviolet irradiation

c. Flowing steam

d. Pasteurization

e. Dry heat

474. 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. Highest management bodies of pharmaceutical service at the regional level

b. The Ministry of Public Health of Ukraine

c. Commercial court

d. Trade union committee

e. Labour disputes committee (LDC)

475. 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. Pectin

b. Sucrose

c. Starch

d. Fructose

e. Glucose

476. What drug facilitates dissolution of cholesterol stones in the gallbladder?

a. Cynara dry extract

b. Silybum dry extract

c. Ademethionine

d. Magnesium sulfate

e. Ursodeoxycholic acid

477. 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. Length and quantity of the suppositories

b. Diameter and quantity of the suppositories

c. Diameter and vehicle of the suppositories

d. Quantity and vehicle of the suppositories

e. Diameter, length, and quantity of the suppositories

478. 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. Cerium sulfate

b. Potassium permanganate

c. Iodine monochloride

d. Hydrochloric acid

e. Silver nitrate

479. 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. 1 year after the current one
- c. 5 years**
- d. 3 years
- e. 7 years after the current one

480. 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. Saponins**
- b. Anthracene derivatives
- c. Tannins
- d. Coumarins
- e. Flavonoids

481. To treat iron-deficiency anemia the following drug is usually prescribed:

- a. Heparin
- b. Ferroplex**
- c. Vicasol (Menadione)
- d. Furagin (Furazidinum)
- e. Corticosteroids

482. 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. Isoniazid
- c. Benzylpenicillin (Penicillin G) sodium salt
- d. Rifampicin**
- e. Alcoholic iodine solution

483. 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. Multichannel**
- b. Contractual
- c. Horizontal
- d. Corporate
- e. Administered

484. 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. Counteractive**
- b. Conversion
- c. Remarketing
- d. Synchromarketing
- e. Stimulating

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

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

486. 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. Market segmentation**

- b. Marketing research
- c. Determining the need for medicines
- d. Study of quantitative characteristics of the market

e. Differentiation and protection of the company-produced medicines on the market

487. 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. Flavonoids
- b. Alkaloids
- c. Cardiac glycosides
- d. Polysaccharides

e. Essential oils

488. What substance is a component of the powders enclosed in gelatin capsules?

- a. Glucose
- b. Streptocide (Sulfanilamide)
- c. Ethacridine lactate
- d. Dimedrol (Diphenhydramine)
- e. Magnesium oxide

489. A patient was diagnosed with peptic ulcer disease of the stomach and prescribed a combined pharmacotherapy. Several days later, his feces turned black. What medicine is likely to cause this phenomenon?

a. Bismuth subcitrate

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

490. 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. Celecoxib

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

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

492. What preparation has an antacid effect?

- a. Famotidine
- b. Pirenzepine
- c. Omeprazole

d. Aluminum phosphate

- e. Ranitidine

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

- a. Circulation of goods
- b. Stock of goods
- c. Work productivity
- d. Profitability
- e. Inventory turnover

494. When pressed, tablets stick to the tablet press. Why such adhesion occurs?

- a. Heterogeneity of the granulated material
- b. Lamellar crystals in the tablet powder
- c. High specific density of the powders
- d. Inadequate flowability of the tablet substance
- e. Excessive moisture of the tablet substance and high pressure**

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

- a. Marketing goals of the company
- b. The stage of the product life cycle
- c. State regulation of price formation**
- d. Marketing strategy of the company
- e. Manufacturing costs

496. 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. Antibiotics
- b. Nonsteroidal anti-inflammatory drugs
- c. Inhaled glucocorticoids
- d. Mucolytics
- e. Cardiac glycosides**

497. 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 Urticae**
- b. Semina Hippocastani
- c. Fructus Hippophaes
- d. Folia Menthae piperitae
- e. Folia Fragariae

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

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

- a. Cash deposit slip
- b. Payment order
- c. Cashier's check
- d. Accompanying statement**
- e. Cash book

500. 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, buckthorn bark
- b. Mint leaves, Althaea roots
- c. Mint leaves, flax seeds
- d. Mint leaves, chamomile flowers**
- e. Mint leaves, Arctostaphylos leaves

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

- a. Piracetam**
- b. Bendazol
- c. Phencarol (Quifenadine)

- d. Furosemide
- e. Tolbutamide

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

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

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

504. 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. Purpurea glycosides
- b. Glucofrangulins**
- c. Lanatosides
- d. Ginkgosides
- e. Panaxosides

505. 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. Chelidonium majus
- b. Vinca minor
- c. Passiflora incarnata
- d. Macleaya cordata**
- e. Glaucium flavum

506. 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. Boric acid
- c. Resorcin**
- d. Sodium benzoate
- e. Barium sulfate

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

- a. Smell-correcting agents
- b. A sum of active substances**
- c. Taste-correcting agents
- d. Preservatives
- e. Only one active substance

508. 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. Abdominal pain
- b. Nausea
- c. Tinnitus

d. Cough

e. Vomiting

509. 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. Five years after the current one

c. One month after the current one

d. Three years after the current one

e. Two months after the current one

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

a. F-1 and F-3 forms

b. 2 copies of F-3 form

c. F-1 form

d. 2 copies of F-1 form

e. F-3 form

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

a. Sodium chloride

b. Sodium sulfate

c. Boric acid

d. Glucose

e. Sodium nitrate

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

a. Preparation of solutions for injections

b. Preparation of solutions for various pharmaceutical purposes

c. Sublingual administration

d. Rectal administration

e. Implantation

513. 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. Mineral admixtures

b. Moisture content

c. Acceptable admixtures

d. Ash values (Total ash)

e. Extractive values

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

a. Sublimation

b. Production of phenolates with alkali-ammonia solution

c. Salt precipitation

d. Oxidation of anthracene derivatives

e. Anthraquinone reduction

515. Specify the optimal method for industrial production of suppositories:

a. Pouring into moulds

b. Lyophilization

c. Stamping

d. Pressing

e. Hand-rolling

516. 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. 75% of salary
- b. 90% of salary
- c. 100% of salary**
- d. 50% of salary
- e. 60% of salary

517. 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. Cephalosporins
- b. Macrolides
- c. Penicillins
- d. Aminoglycosides**
- e. Fluoroquinolones

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

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

519. 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. Nitritometry
- b. Acidimetry**
- c. Complexometry
- d. Iodometry
- e. Bromatometry

520. 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. Manufacturing
- c. Sales**
- d. Procurement
- e. Human resources

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

- a. Hypokalemia**
- b. Hypermagnesemia
- c. Hyperkalemia
- d. Hypocalcemia
- e. Hybernatriemia

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

523. 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. Inelastic
- b. Unitary**
- c. Elastic
- d. Perfectly elastic
- e. Perfectly inelastic

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

525. Adonis-derived drugs are popular cardiogenic agents. The stock of adonis herbal raw material is assessed by the method of:

- a. Geodesic
- b. Model specimen
- c. Permanent quadrates**
- d. Projective cover
- e. By eye

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

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

527. 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 laciniatum**
- b. Atropa belladonna
- c. Datura Stramonium
- d. Hyoscyamus niger
- e. Solanum tuberosum

528. Menthol has an antispasmodic and analgesic effect. What herbal raw material is a source of menthol?

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

529. What concept can be described as "...an area of exchange with its characteristic system of economic relations between goods manufacturers and consumers"?

- a. Management
- b. Sales
- c. Marketing
- d. Market**
- e. Agreement

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

a. Control

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

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

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

d. Thermopsis grass

- e. Camomile grass

532. 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. Synchromarketing
- b. Conversion marketing
- c. Remarketing
- d. Stimulation marketing

e. Demarketing

533. 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. Cumulation
- b. Tolerance

c. Dependence

- d. Potentiation
- e. Summation

534. 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. Payment request and order
- d. Cheque payable

e. Payment summary

535. 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. Sodium chloride

c. Sodium bromide

- d. Potassium iodide
- e. Sodium fluoride

536. 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. Give the patient a copy of the prescription
- b. Affix the <<Invalid prescription>> stamp to the prescription and return it to the patient**
- c. Sell this medicine to the patient
- d. Notify the head manager of the pharmacy
- e. Register the prescription in the log book and sell this medicine to the patient

537. 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 head manager or replacement of over 50% of the initial personnel

b. Change of the chief accountant

c. Change of the janitor

d. Replacement of over 30% of the initial personnel

e. Change of the dispensing chemist

538. 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. Muscle pain

b. Cold

c. Headache

d. Diabetes mellitus

e. Cuts and abrasions

539. 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. Bisoprolol

b. Enalapril

c. Verapamil

d. Propranolol

e. Doxazosin

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

a. Setting goals and tasks

b. Analysis of organisation's internal strength and weaknesses

c. Environment assessment and analysis

d. Choice of strategy

e. Strategy assessment

541. 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. Berberis roots

b. Panax ginseng roots

c. Glycyrrhiza roots

d. Aralia mandshurica roots

e. Taraxacum roots

542. 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-1

b. Two copies of prescription form f-3

c. Prescription form f-3

d. Two prescription forms f-1 and f-3

e. Prescription form f-1

543. 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. License for production of medicines

b. -

c. Trade patent

d. Quality certificate

e. State registration certificate

544. What structure is authorized to issue permits for individual or collective provision of audit

services in Ukraine?

- a. The Control and Revision Office
- b. The State Service of Ukraine for Medicines
- c. The State Regulatory Service of Ukraine
- d. The Audit Chamber of Ukraine**
- e. The State Service of Ukraine for Drug Control

545. 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. Glibenclamid
- b. Arphasetin
- c. Insulin**
- d. Exenatide
- e. Metformin

546. Senna (cassia) foliage contains anthracene derivatives. Their presence can be confirmed by qualitative reaction with:

- a. Fehling's reagent
- b. Alkali**
- c. Molisch's reagent
- d. Iron (II) sulfate
- e. Iron ammonium alum

547. 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

548. A compound powder is being made of ingredients taken in relatively equal measure. What ingredients should be comminuted first?

- a. Microcrystalline
- b. Macrocrystalline**
- c. Volatile
- d. Coloring
- e. Colored

549. Dosage precision during tablet making mainly depends on the following technological property of tablet mass:

- a. Flowability**
- b. Relative density
- c. Lyophilic property
- d. Compression ratio
- e. Compressibility

550. 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. Public relations, sponsorship
- b. Consumer-oriented sales promotion**
- c. Middlemen-oriented sales promotion
- d. Salesmen-oriented sales promotion
- e. Personal sale

551. 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. 400 mg
- b. 300 mg
- c. 100 mg**
- d. 200 mg
- e. 500 mg

552. 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. Sodium bromide
- b. Sodium iodide
- c. Furacilin (Nitrofurazone)**
- d. Streptocide (Sulfanilamide)
- e. Urotropin

553. 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. Rifampicin
- b. Tetracycline
- c. Streptomycin
- d. Biseptol (Co-trimoxazole)
- e. Amoxicillin**

554. 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. Oxidation of the medicinal substance
- d. Precipitation of the formed salt
- e. Decarboxylation of the medicinal substance

555. 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. FeCl_3**
- b. NH_3
- c. AgNO_3
- d. Concentrated HNO_3
- e. $\text{K}_3[\text{Fe}(\text{CN})_6]$

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

557. 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 xanthenes is a component of this drug?

- a. Centaurium grass**
- b. Equisetum arvense grass
- c. Vaccinium vitis-idaea leaves
- d. Birch leaves

e. *Centaurea cyanus* flowers

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

a. pH value

b. Apyrogenicity

c. Absence of mechanical inclusions

d. Absence of heavy metals

e. The way in which it was obtained

559. 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. Furacilin (Nitrofurantoin)

b. Nitroxoline

c. Nalidixic acid

d. Furadonin (Nitrofurantoin)

e. Nifuroxazide

560. What medicine is used for anesthesia and cannot be prescribed to outpatients, according to Decree №360?

a. Metoprolol

b. Sodium thiopental

c. Suprastin (Chloropyramine)

d. Midecamycin

e. Anaesthesin (Benzocaine)

561. 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. Osteoporosis

b. Osteoarthritis

c. Cushing's syndrome

d. Oral candidiasis

e. Steroid diabetes

562. Standard stactometer divides 1 ml of water into:

a. 25 drops

b. 15 drops

c. 30 drops

d. 20 drops

e. 10 drops

563. 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. 0.5 mL

b. 1 mL

c. 10 mL

d. 5 mL

e. 2 mL

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

a. $K_2[HgI_4]$

b. $FeCl_3$

c. K_2CrO_4

d. $KMnO_4$

e. $[NH_4]_2C_2O_4$

565. The extemporaneous compounding department of a pharmacy prepares eye drops. Which one of

the listed substances is a preservative?

- a. Methyl cellulose
- b. Polyvinyl alcohol
- c. Sodium chloride
- d. Acetate buffer
- e. Benzalkonium chloride**

566. Hemodes and Neohemodes preparations are used as blood plasma substitutes. What is their active substance?

- a. Menthol
- b. Midantan (Amantadine)
- c. Piracetam
- d. Polyvinylpyrrolidone**
- e. Thiopental sodium

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

568. 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. Roots
- b. Seeds
- c. Grass
- d. Fruits
- e. Leaves and flower heads**

569. 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 thrice in a week
- d. No less than twice in a month
- e. No less than once in a shift**

570. What medicines should be listed at the beginning of an extemporaneous drug formulation according to the regulations?

- a. Narcotic substances**
- b. Solutions
- c. Substances that are hard to comminute
- d. All medicines are written in a random order
- e. Medicines included in the Essential Medicines List

571. 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. Codeine phosphate
- c. Pachycarpine hydroiodide**
- d. Caffeine monohydrate
- e. Quinine sulfate

572. 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 microbial infection

b. Absorbed by the outer layers of the skin

c. Reach the systemic circulation and enhance the effect of drugs

d. Prevent drying and contamination of the epidermis

e. Protect the skin from external factors

573. 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. Film advertising

c. Print advertising

d. Souvenir advertising

e. Out-of-home advertising

574. A 52-year-old patient, who takes heparin, developed signs of the drug overdose. What antidote should be used in this case?

a. Naloxone

b. Acetylcysteine

c. Protamine sulfate

d. Potassium chloride

e. Unithiol

575. 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. Alkaloids

b. Saponins

c. Anthracene derivatives

d. Slime

e. Flavonoids

576. What preservative did the pharmacist use to ensure the stability of eye drops?

a. Methyl cellulose

b. Polyvinyl alcohol

c. Boric acid

d. Sodium chloride

e. Hydrochloric acid

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

a. Viburnum bark

b. Taraxacum roots

c. Populus nigra buds

d. Acorus calamus rhizomes

e. Passiflora grass

578. What reagent is used to identify sodium sulfate?

a. Cobalt chloride

b. Calcium chloride

c. Barium chloride

d. Silver nitrate

e. Iron(III) chloride

579. What topical antiviral agent should be recommended to the patient with herpetic lesions on the lips?

a. Aflubin

b. Acyclovir

c. Arbidol (Umifenovir)

d. Amizon (Enisamium iodide)

e. Anaferon

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

581. A pharmaceutical factory produces antimicrobial agent nitrofurazone (Nitrofurazone, Furacilin). What initial substance is used in its synthesis?

- a. Resorcinol
- b. Hydroxyquinoline
- c. Aniline
- d. Furfural**
- e. Benzaldehyde

582. 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. Long-term liabilities
- b. Non-current assets
- c. Equity capital
- d. Assets**
- e. Current liabilities

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

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

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

- a. Sodium thiosulfate**
- b. Sodium bromide
- c. Hydrogen peroxide
- d. Sodium iodide
- e. Sodium chloride

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

586. 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. Clopidogrel
- b. Acetylsalicylic acid
- c. Vicasol (Menadione)
- d. Streptokinase
- e. Protamine sulfate**

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

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

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

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

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

- a. Oleum Lini**
- b. Oleum Cacao
- c. Oleum Persicorum
- d. Oleum Jecoris
- e. Oleum Cucurbitae

590. Infuser apparatus is used by a pharmacy to prepare:

- a. Infusion solutions
- b. Infusions and decoctions**
- c. Suspensions
- d. Emulsions
- e. Ointments

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

592. 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. Oligopoly
- b. Monopolistic competition
- c. Economic planning
- d. Pure monopoly
- e. Pure competition**

593. 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. Iodoform
- d. Fluorescein
- e. Murexide

594. 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. Levomycetin (Chloramphenicol)**
- b. Sodium benzylpenicillin
- c. Streptomycin sulfate
- d. Erythromycin

e. Biomycin

595. 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. Logbook of receipt of goods by group

b. Contract of sale

c. Act on established discrepancy in quantity and quality

d. Register of medicinal products received by the subject of economic activity

e. Product report

596. 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. Imidazole cycle

b. Steroid cycle

c. Xanthine cycle

d. Naphthalene cycle

e. Pyridine cycle

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

a. Fructus Viburni

b. Rhizomata et radix Sanguisorbae

c. Rhizomata Bistortae

d. Rhizomata Bergeniae

e. Folium Cotini coggygriae

598. A pharmacist has made a topical solution with lipophilic vehicle. Specify the substance that produces such a type of solution:

a. Novocaine hydrochloride

b. Sulfur

c. Menthol

d. Starch

e. Dermatol (bismuth subgallate)

599. When preparing a solution, the pharmacist used an additional technique - grinding in a mortar with water. What substance typically requires this technique?

a. Silver nitrate

b. Copper sulfate

c. Furacilin (Nitrofurazone)

d. Boric acid

e. Calcium gluconate

600. 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. 2.4 g

b. 2.9 g

c. 1.9 g

d. 1.4 g

e. 3.9 g

601. 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. Seeds

d. Roots

e. Leaves

602. 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. Three-lobed beggarticks
- c. Lesser periwinkle
- d. Elecampane

e. Purple passionflower

603. 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. Drotaverine
- b. Diclofenac sodium
- c. Captopril
- d. Bisoprolol

e. Nitroglycerin

604. 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 a part of fatty vehicle and dissolve the substances there
- b. Dissolve the substances in the water heated to 45°C
- c. Introduce the substances as an emulsion

d. Introduce the substances as a suspension

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

605. Presence of nitrate radical in metronidazole structure can be confirmed by reduction of nitrate radical to amino group with production of:

- a. Iodoform
- b. Thiochrome

c. Azo dye

- d. Indophenol
- e. Murexide

606. Hydrogen sulfide is being produced in the process of dry pyrolysis of a certain sulfanilamide drug. Name this drug:

- a. Streptocide
- b. Soluble streptocide
- c. Sulfadimezinum (Sulfadimine)
- d. Sulfacil sodium

e. Norsulfazole

607. 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. Joint venture
- b. Direct investments
- c. Franchise
- d. Licensing

e. Export

608. 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. Accounting form
- b. Cash register receipt
- c. Check payable in account
- d. Cash order

e. Payment order

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

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

610. 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. Hepatotoxic
- b. Neurotoxic
- c. Chondrotoxic**
- d. Nephrotoxic
- e. Hematotoxic

611. 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. Ester group
- b. Aldehyde group
- c. Phenolic hydroxyl**
- d. Keto group
- e. Alcoholic hydroxyl

612. 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. Aminomethyl alizarin acetic acid
- b. Sulfomolybdenum
- c. Hypophosphite
- d. Methoxyphenylacetic acid
- e. Thioacetamide**

613. 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. beta-lactam**
- c. Pyridine
- d. Furan
- e. Quinoline

614. 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 alcohol
- b. Dissolve in molten cocoa butter
- c. Dissolve in minimal quantity of purified water**
- d. Dissolve in Dimexid (Dimethylsulfoxide)
- e. Dissolve in vaseline oil

615. 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. Diluted hydrochloric acid
- d. Concentrated sulfuric acid**
- e. Perchloric acid 0.1 M

616. 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. Inula helenium
- b. Sanguisorba officinalis
- c. Taraxacum officinalis**
- d. Zingiber officinale
- e. Althaea officinalis

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

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

618. 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. Customer survey**
- b. Analysis of the scientific publications
- c. Analysis of the periodical publications
- d. Analysis of the company's statistical reports
- e. Analysis of the statistical reference books

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

- a. Bromphenol blue
- b. Murexide
- c. Diphenylcarbazone

d. Starch

- e. Phenolphthalein

620. 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. Dosing
- b. Mixing
- c. Packing
- d. Comminution

e. Dissolution

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

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

e. Tonic

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

- a. Sodium hypophosphite
- b. Hydroxyquinoline**
- c. Thioglycolic acid
- d. Barium chloride
- e. Sodium tetraphenylborate

623. 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. Intensive method
- b. Selective method**

- c. -
- d. Integrated method
- e. Mass sales method

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

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

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

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

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

- a. Monetary funds
- b. Fixed assets
- c. Authorized capital**
- d. Goods
- e. Accounts receivable

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

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

628. 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. Demographic approach**
- b. Geographical approach
- c. Behavioral approach
- d. -
- e. Psychographic approach

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

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

- a. Beta-naphthol solution
- b. Potassium permanganate solution
- c. Cobalt nitrate solution
- d. Thiourea solution**

e. Iron(III) sulfate solution

631. 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. 60 minutes at room temperature
- c. 15 minutes of water bath infusion and 45 minutes of cooling at room temperature
- d. 30 minutes at room temperature**
- e. 30 minutes of water bath infusion and immediate filtering without cooling

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

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

633. If potassium salts are put into the colorless flame of a gas burner, the flame colors:

- a. Yellow
- b. Red
- c. Violet**
- d. Green
- e. Brick-red

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

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

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

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

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

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

637. A pharmacist at the pharmacy has received a promotion. What type of job rotation is it?

- a. -
- b. Mixed
- c. Horizontal
- d. Vertical**
- e. Combined

638. 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. Blue
- b. Pink**
- c. Green
- d. Violet

e. Yellow

639. What substance forms a film coating of tablets and can be dissolved only in intestinal juice?

- a. Acetylphthalylcellulose
- b. Diethylaminomethylcellulose
- c. Sodium carboxymethyl cellulose
- d. Paraaminobenzoate of sugars
- e. Benzylaminocellulose

640. 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. Essential oils
- b. Iridoids
- c. Polysaccharides
- d. Alkaloids
- e. Saponins

641. 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. Demographic
- b. Psychographic
- c. Behavioral
- d. Socioeconomic
- e. Geographic

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

- a. Metformin
- b. Urea
- c. Glibenclamide
- d. Etacrynic acid

e. Insulin

643. 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. Cashier's check
- c. Profit invoice
- d. Receipt for issuing money

e. Disbursement cash order

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

- a. Bidens cernua
- b. Bidens frondosa
- c. Bidens radiata
- d. Bidens tripartita
- e. Bidens aurea

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

- a. Paraffin, spermaceti
- b. Ethanol, purified water
- c. Sodium lauryl sulfate
- d. Benzalkonium chloride
- e. Propylene glycol, gelatin

646. 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. Pink coloring
- b. Brown coloring
- c. Blue coloring
- d. White opalescence**
- e. Yellow coloring

647. 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. Unsatisfied**
- b. Satisfied
- c. Hidden
- d. Negative
- e. Irrational

648. 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. Statement of changes in equity
- c. Auditor's conclusion**
- d. Cash flow statement
- e. Income statement

649. 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

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

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

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

652. 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 Fiscal Service of Ukraine
- b. National Health Service of Ukraine**
- c. State Expert Center of the Ministry of Health of Ukraine
- d. State Service of Ukraine on Medicines and Drugs Control
- e. Ministry of Labor and Social Policy of Ukraine

653. 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 bristles. This herbal raw material can be identified as:

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

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

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

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

656. 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. Fresh frozen plasma
- b. Prednisolone**
- c. Penicillin
- d. Haemodes
- e. Rheopolyglukin (Dextran)

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

658. 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. 3 mL
- d. 7.5 mL
- e. 6.25 mL

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

- a. Preservatives**
- b. Thickeners

- c. Solubilizers
- d. Pectic materials
- e. Emulsifiers

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

661. Various admixtures are possible in the process of harvesting, drying, and primary processing of herbal raw material. Organic admixtures include:

- a. Soil particles
- b. Non-harvested parts of the same plant**
- c. Metallic objects
- d. Glass fragments
- e. Sand

662. 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. -
- b. Intrapersonal**
- c. Individual vs. group
- d. Intergroup
- e. Interorganizational

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

- a. Cardiotonic
- b. Detoxicant**
- c. Litholytic
- d. Astringent
- e. Expectorant

664. An analytical quality control laboratory analyzes a resorcinol substance. What method is used for its quantitative determination?

- a. Complexometric titration
- b. Bromometry**
- c. Argentometry
- d. Nitritometry
- e. Mercurimetry

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

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

666. 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. Intrapersonal conflict
- c. Conflict between individual and group
- d. Intergroup conflict

e. Dysfunctional conflict

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

a. Sodium nitroprusside solution

b. Copper-tartrate

c. Ammoniacal silver nitrate solution

d. Alkaline potassium tetraiodomercurate solution

e. Thiocyanogen bromide

668. 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. PEST analysis

b. ABC analysis

c. SWOT analysis

d. -

e. VEN analysis

669. What medicinal substance has an imidazole fragment in its structure?

a. Phenazone

b. Thiamine bromide

c. Nitrofural

d. Nicotinic acid

e. Pilocarpine hydrochloride

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

a. Vortex filling

b. Ultrasonic filling

c. Vacuum filling

d. Syringe filling

e. Chamber filling

671. 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 Pharmacopoeia Center

b. No

c. Yes, with permit from the State Inspectorate

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

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

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

a. Glutaminic acid

b. Salicylic acid

c. Boric acid

d. Acetylsalicylic acid

e. Benzoic acid

673. 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. Alkaloids

b. Vitamins

c. Flavonoids

d. Tannins

e. Anthracene derivatives

674. To identify a medicinal substance, an analytical chemist performed a reaction of azo dye formation. This reaction is characteristic of the following medicine:

a. Phenyl salicylate

b. Benzocaine

c. Acetylsalicylic acid

d. Chlorpropamide

e. Resorcinol

675. 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. Measure out the substance into a vial for dispensing, measure out ethyl alcohol, shake the vial

b. Commminute the substance in a mortar, add the solvent

c. Measure out the substance into a stand, measure out the solvent

d. Measure out ethyl alcohol into a vial for dispensing, measure out salicylic acid

e. Measure out the solvent into a stand, measure out the substance

676. 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. Saturation phase

e. Testing phase

677. Phytochemical workshop of a factory manufactures pancreatin. What is the source material for obtaining pancreatin?

a. Lungs of cattle

b. Egg white

c. Pancreas of pigs or cattle

d. Gastric mucosa of pigs

e. Heart of cattle

678. 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 10 days earlier

b. To pay the salaries after the holiday

c. To pay the salaries on the holiday

d. To pay the salaries one day earlier

e. There are no regulations regarding payment of salaries in this case

679. 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. Many-armed, two-armed, and simple hairs

b. Bast fibers, tracheids, starch, vessels

c. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate

d. T-shaped hairs along the leaf margin

e. Simple capitate hairs

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

a. Ointment concentrate production

b. Mixing components with the vehicle

c. Dispersion

d. Vehicle production

e. Homogenization

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

- a. Commercial
- b. Manufacturing
- c. Committee
- d. Formal
- e. Informal**

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

683. An analytical pharmacist uses cerimetry for quantification of nifedipine. What indicator is used in this method?

- a. Potassium chromate
- b. Methyl orange
- c. Phenolphthalein
- d. Tropeolin 00
- e. Ferroin**

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

685. 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. Flowability
- e. Compression value

686. 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. Competitive Intensity
- b. Business opportunities
- c. Market segments
- d. Market share and market growth rate**
- e. Attractiveness of the industry

687. What adjuvants improve the wettability and water permeability of the components during the tablet production?

- a. Leaveners**
- b. Solvents
- c. Antifriction materials
- d. Film formers
- e. Thickeners

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

- a. Sodium thiosulfate
- b. Sodium bicarbonate with sodium sulfite**

- c. 0.1 M sodium hydroxide solution
- d. Weibel stabilizer
- e. 0.1 M hydrochloric acid solution

689. Incoming medicines inspection is performed by an authorized employee. What is textbfNOT a part of the responsibilities of this person?

- a. -
- b. To draw up orders for medicines and medical products, to conclude sales contracts**
- c. To check the pharmacy stock for low-quality or fake medicines
- d. To keep a roster of incoming medicines
- e. To draw up conclusions regarding inspection of incoming medicines

690. The extraction process consists of several stages. What is the final stage of the extraction process?

- a. Maceration
- b. Dissolution
- c. Mass transfer**
- d. Extraction of primary juice
- e. Washing the herbal raw material with an extractant

691. 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. In the same order in which they are listed in the formulation
- c. Last in the order of increasing ethanol concentration**
- d. First
- e. After poisonous and narcotic substances are dissolved (before concentrates)

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

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

- a. Ratio of the sum of profits to the sum of expences x100%
- b. Ratio of the sum of profits to the sum of turnover x100%**
- c. Ratio of the sum of profits to the total cost of fixed assets x100%
- d. Ratio of the sum of profits to the sum of cost price of the goods x100%
- e. -

694. 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. Methyl isothiocyanate**
- b. Naphthoquinone
- c. Furfural
- d. Hydroxyquinoline
- e. Acridine

695. 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. Compression
- c. Enfleurage**
- d. Dynamic sorption

e. Extraction

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

697. 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. Inulin
- b. Schisandrin
- c. Capsaicin**
- d. Ephedrine
- e. Colchicine

698. 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. Oxidation of resins
- c. Enzymatic hydrolysis of cardiac glycosides**
- d. Volatilization of essential oils
- e. Oxidation of terpenoids

699. What medicinal substance has benzimidazole in its structure?

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

700. 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. Hydrochloric acid solution
- b. Acetic acid solution
- c. Nitric acid solution
- d. Benzoic acid solution
- e. Tartaric acid solution**

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

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

702. 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. Solvent replacement method
- c. Dispersion with stirring**
- d. Physical condensation
- e. Chemical condensation

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

704. What adjuvants are added to a tablet mass to promote its breakup?

- a. Lubricants
- b. Fillers
- c. Disintegrants**
- d. Thickeners
- e. Antioxidants

705. What type of marketing should be used if the demand for some medicines in the pharmaceutical market is negative?

- a. Remarketing
- b. Synchromarketing
- c. Demarketing
- d. Incentive marketing
- e. Conversion marketing**

706. 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. Antispasmodics
- b. Antitussive drugs
- c. Probiotics**
- d. Expectorants
- e. Mucolytic agents

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

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

- a. Coacervation
- b. Slurrying of the nuclei
- c. Polymerization
- d. Galvanization**
- e. Pelleting

709. A pharmaceutical company produces medicinal syrups. What substances ensure the microbial stability of this dosage form?

- a. Emulsifiers
- b. Thickeners
- c. Preservatives**
- d. Pectin substances
- e. Solubilizers

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

- a. Chelidonium grass
- b. Glaucium flavum grass**
- c. Vinca minor grass
- d. Belladonna grass
- e. Macleaya grass

711. 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. Tender pricing
- b. Competition-based pricing**
- c. Demand-based pricing
- d. Cost-based pricing
- e. Breakeven pricing

712. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds with the following drug:

- a. Quinocide
- b. Chingamin (Chloroquine)
- c. Ofloxacin
- d. Nitroxoline**
- e. Dibazol (Bendazol)

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

- a. Fixed assets, accounts receivable
- b. Authorized capital, fixed assets
- c. Accounts receivable, prepaid expenses
- d. Bank loan, accounts payable**
- e. Retained earnings, intangible assets

714. 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. An intense blue coloring appears
- b. A black precipitate forms, which dissolves if a diluted sodium hydroxide solution is added
- c. A white precipitate forms, which is insoluble in a diluted hydrochloric acid
- d. The solution colors blue and becomes colorless after the addition of ammonia solution
- e. A pale yellow ether-soluble precipitate forms**

715. Nitroxoline with sodium hydroxide solution produces:

- a. White precipitate
- b. Yellow precipitate
- c. Green-black coloration
- d. Orange-red coloration**
- e. Violet coloration

716. 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. Only because preservatives were added into the syrup
- c. Because of high pH
- d. Because osmotic pressure in the solution is higher than in the microbial cell**
- e. Because of low pH

717. 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. Acetylsalicylic acid**
- b. Paracetamol
- c. Ibuprofen

- d. Celecoxib
- e. Metamizole sodium

718. A pharmacy prepares 10% sodium chloride injection solution. What sterilization would be optimal in this case?

- a. Gas sterilization
- b. Dry-heat sterilization
- c. Sterile filtration through membrane
- d. Irradiation sterilization
- e. Autoclave chamber with high-pressure saturated steam**

719. 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. Ensuring the necessary quality of medicines
- b. Eligibility for registration in the List of medicines and medical products with state-controlled prices
- c. Justification of a higher price for the medicine
- 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**

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

- a. 45-55 °C
- b. 15-20 °C**
- c. 25-35 °C
- d. 80-100 °C
- e. 30-45 °C

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

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

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

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

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

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

724. Polyethylene oxide base belongs to the following group:

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

725. What is the fundamental difference of the Japanese management model?

- a. Collectivism
- b. Focus on individual results
- c. Individualism
- d. Strict control procedure
- e. Strictly formalized management system

726. 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 end tabular. 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)

727. Working hours for the pharmacy workers are reduced. What is the length of the work week for the pharmacist-analyst?

- a. 30 hours
- b. 32 hours
- c. 36 hours
- d. 45 hours
- e. 24 hours

728. 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. Tropeolin 00
- b. Mordant black
- c. Potassium chromate
- d. Ammonium iron (III) sulfate
- e. Phenolphthalein

729. 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. Starch
- c. Phenolphthalein
- d. Phenol red
- e. Litmus paper

730. Which of the plants listed below contain inulin?

- a. *Ledum palustre*, *Acorus calamus*
- b. *Salvia officinalis*, *Artemisia absinthium*
- c. *Inula helenium*, *Helianthus tuberosus*
- d. *Rhamnus cathartica*, *Sorbus aucuparia*
- e. *Juniperus communis*, *Thymus serpyllum*

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

732. 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. Prednisolone

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

733. 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. Register of requisitions
- b. Inventory**
- c. Accounts ledger
- d. Commodity report
- e. Cash flow register

734. 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. 10 parts of anhydrous lanolin - 90 parts of vaseline For Eye Ointments**
- d. Lanolin: vaseline - 1:1
- e. 30 parts of lanolin - 70 parts of vaseline

735. 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. Authorized person**
- b. Pharmacist on duty
- c. Supplier representative
- d. Accountant
- e. Lawyer

736. What amount of the standard pharmacopoeial formaldehyde solution must be taken to prepare 100 mL of a 20% formalin solution?

- a. 5 mL
- b. 10 mL
- c. 20 mL**
- d. 30 mL
- e. 54 mL

737. 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 Taraxaci
- b. Radices Ononidis
- c. Rhizomata et radices Inulae**
- d. Rhizomata et radices Rubiae
- e. Radices Althaeae

738. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

- a. 120°C - 8 minutes**
- b. 180°C - 30 minutes
- c. 110°C - 15 minutes
- d. 140°C - 12 minutes
- e. 160°C - 15 minutes

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

- a. Bolus alba (kaolin), bentonite
- b. Boric acid, calcium carbonate
- c. Camphor, menthol**

- d. Sodium bicarbonate, sodium sulfate
- e. Zinc oxide, talcum

740. What fatty oil is nondrying due to its oleic acid glyceride content?

- a. Cucurbitae oleum
- b. Ricini oleum**
- c. Maydis oleum
- d. Helianthi oleum
- e. Lini oleum

741. What pharmacotherapeutic characteristic of a medicine allows its classification as over-the-counter drug?

- a. Medicine has entered the pharmaceutical market only recently and actual experience with its practical application is limited
- b. Medicine is available only for in-patient treatment
- c. Medicine is available only by prescription
- d. Medicine contains substances that require additional research into their activity and side-effects
- e. Medicine can cause no direct or indirect harm to the patient's health**

742. 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. Packing of herbal raw material
- c. Harvesting of herbal raw material
- d. Standardization of herbal raw material
- e. Marking of herbal raw material**

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

- a. Emulsions
- b. Dosage forms for newborns**
- c. Infusions
- d. Suspensions
- e. Ophthalmic dosage forms

744. 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 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
- b. A company, the members of which bear additional solidary liability for the company's obligations with all their property
- c. A company, the members of which bear the liability for the company's debts within the amount of their contributions**
- 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

745. During storage, suspension instability manifests itself as:

- a. Dissolution of particles
- b. Sedimentation of particles**
- c. Caking of particles
- d. Change of particles shape
- e. Flocculation of particles

746. Throughout the year, three employees voluntarily resigned from a pharmaceutical company. What type of employee movement is it?

- a. Vertical job rotation

- b. -
- c. Horizontal job rotation
- d. Staff turnover**
- e. Recruiting

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

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

748. The pharmacological activity of medicines largely depends on their chemical structure. Which of the following drugs is a pyrazole derivative?

- a. Thiamazole
- b. Metamizole sodium**
- c. Metronidazole
- d. Piracetam
- e. Bendazol

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

750. 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. Dysbiosis
- b. Withdrawal syndrome
- c. Idiosyncrasy**
- d. Allergic response
- e. Drug dependence

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

- a. -
- b. Packer**
- c. Pharmacist
- d. Accountant
- e. Head of a department

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

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

- a. Pyrrole and benzene**
- b. Benzene and thiazole

- c. Pyrimidine and imidazole
- d. Two 4-oxycoumarin residues
- e. Benzene and pyridine

754. 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. Socio-ethical marketing**
- b. Intensification of commercial efforts
- c. Product improvement
- d. Production improvement
- e. Marketing

755. *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 iron(II) sulfate
- b. Reaction with ammonium iron(III) sulfate
- c. Reaction with Molisch reagent
- d. Reaction with an alkali**
- e. Reaction with Fehling reagent

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

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

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

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

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

759. The calculation of isotonic concentration using the cryoscopic method is based on the following law:

- a. Boyle-Mariotte law
- b. -
- c. Dalton's law
- d. Clapeyron-Mendeleev equation
- e. Raoult's law**

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

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

761. 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. Out-of-home advertising**
- c. Postal cards and pamphlets
- d. Professional-targeted advertising
- e. -

762. 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. Hydrometer
- c. Viscometer
- d. Polarimeter**
- e. Spectrophotometer

763. 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. Projective cover method**
- e. Model sample method

764. Prescriptions for psychotropic drugs remain in the pharmacy after the sale. How long must they be kept?

- a. One month
- b. One year
- c. The prescription must be returned to the patient
- d. Five years**
- e. Three years

765. 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. Economic**
- b. Medical
- c. Social
- d. Legal
- e. Technological

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

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

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

- a. Pepsin**
- b. Starch
- c. Protargol
- d. Methylcellulose
- e. Gelatine

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

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

769. What preparation has an antiemetic effect?

- a. Metoclopramide**
- b. Sodium bicarbonate
- c. Clarithromycin
- d. Loperamide
- e. Aluminum phosphate

770. Thymol and carvacrol are the main active substances of *Thymus vulgaris*. They belong to the following class of bioactive substances:

- a. Essential oils**
- b. Alkaloids
- c. Flavonoids
- d. Anthracene derivatives
- e. Iridoids

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

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

773. 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. 90%
- b. 60%
- c. 40%
- d. 70%**
- e. 95%

774. 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. K-Strophanthin
- b. Purpurea glycosides A and B**
- c. Lanatosides A and B
- d. Atropine and hyoscyamine
- e. Convallatoxin

775. 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. Euphyllin (Aminophylline)
- e. Calcium chloride

776. 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. Bronchospasm**
- b. Blood pressure rise
- c. Cumulation
- d. Constipations
- e. Drug dependence

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

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

778. 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

779. 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. 30 mL
- b. 7.5 mL
- c. 60 mL
- d. 120 mL**
- e. 90 mL

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

- a. Codeine
- b. Euphylline (Theophylline)
- c. Glaucine
- d. Ambroxol**
- e. Dextromethorphan

781. 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. Benzocaine
- b. Sodium benzoate**
- c. Morphine hydrochloride
- d. Theophylline monohydrate
- e. Nitrofurazone (Nitrofurazone)

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

- a. 0.05 g**
- b. 0.1 g
- c. 0.04 g

- d. 0.02 g
- e. 0.03 g

783. 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. Anticoagulants
- b. beta-adrenergic blockers
- c. Nitrates**
- d. Calcium antagonists
- e. Statins

784. 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. Delegation of authority**
- d. Withdrawal of authority
- e. -

785. A patient with angina pectoris takes long-acting nitrates. Consult him what side-effect is the most common for these drugs:

- a. Headache**
- b. Nausea
- c. Constipation
- d. Vomiting
- e. Diarrhea

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

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

787. 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. Silybum fruits
- b. Flax seeds
- c. Fennel fruits
- d. Schisandra seeds**
- e. Pumpkin seeds

788. 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. Plantago psyllium seeds
- b. Mustard seeds**
- c. Fenugreek seeds
- d. Nigella seeds
- e. Flax seeds

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

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

790. Adrenergic drug adrenaline tartrate contains phenolic hydroxyls in its structure. What solution should be used to conduct a reaction for their detection?

- a. Iron (III) chloride solution
- b. Sodium nitrate solution
- c. Magnesium sulfate solution
- d. Potassium bromide solution
- e. Copper (II) sulfate solution

791. 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. Piperazine
- b. Pyrazinamide
- c. Ribavirin
- d. Riboflavin
- e. Calcitonin

792. What hypotensive drug is an agent of choice for the patients suffering from arterial hypertension with concomitant type I diabetes mellitus?

- a. Labetalol
- b. Atenolol
- c. Hydrochlorothiazide
- d. Carvedilol
- e. Lisinopril

793. 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. Vaseline and lanolin
- b. Vaseline
- c. Lanolin
- d. Soap-glycerine base
- e. Gelatin-glycerine gel

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

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

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

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

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

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

797. 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. Toxic substances
- b. Narcotic substances

c. Precursors

- d. Psychotropic substances
- e. Potent substances

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

- a. Samples of questionable drugs should be sent to the local inspectorate department; the rest of the drug shipment should be quarantined with marking "Do not sell until further notice"
- b. Return the shipment to the manufacturer
- c. Dispose of the shipment that contains questionable drugs
- d. Allow sale of the drug shipment
- e. Draw up a Quality Assessment Report with the defects listed and allow sale of the drug shipment

799. 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. Meningococcal infection
- b. Angina pectoris attack
- c. Myocardial infarction

d. Hypertensive crisis

- e. Hemorrhagic stroke

800. 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. Modernization
- b. Integration
- c. Intensification
- d. Conglomeration

e. Diversification

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

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

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

- a. Chloroform
- b. Purified water
- c. Vaseline
- d. Ethanol
- e. Peach-kernel oil

803. 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

804. 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. Cortisone acetate
- b. Streptocide
- c. Methionine
- d. Paracetamol

e. Ascorbic acid

805. 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. Metamizole sodium

c. Prednisolone

d. Ceftriaxone

e. Spironolactone

806. 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. 5 years

b. Indefinitely

c. 3 years

d. 2 years

e. 1 years

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

a. Glucose

b. Sodium sulfate

c. Sodium nitrite

d. Boric acid

e. Sodium chloride

808. What lubricants are used in tablet manufacturing?

a. Water, ethanol

b. Solutions of high-molecular compounds

c. Starch paste

d. Tween 80, Aerosil

e. Calcium stearate, stearic acid

809. 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. Receipt

b. Remains unregistered documentarily

c. Invoice

d. Cash expense order

e. Cash income order

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

a. Dichloroethane

b. Chloroform

c. Ammonia solution

d. Water

e. Aqueous-alcoholic solutions

811. 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 $+0,2^\circ$ to $-0,2^\circ$

b. From $+50^\circ$ to $+56^\circ$

c. From -102° to -105°

d. From -48° to -51°

e. From $+10^\circ$ to $+13^\circ$

812. What tincture is industrially manufactured at the ratio of 1:2?

- a. *Atropa belladonna*
- b. *Styphnolobium japonicum*
- c. *Hypericum*
- d. *Leonurus*
- e. *Mentha*

813. 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. *Foeniculum vulgare*
- b. *Coriandrum sativum*
- c. *Anisum vulgare*
- d. *Carum carvi*
- e. *Anethum graveolens*

814. A medical facility located in Kyiv buys its diagnostic tools from a domestic manufacturer. What level of distribution channel is it?

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

815. 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. Cash receipt order
- b. Cashier's check
- c. Cash withdrawal order
- d. Bank statement
- e. Payment order

816. 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. Infrared spectroscopy
- b. Polarimetry
- c. Nuclear magnetic resonance spectroscopy
- d. Thin-layer chromatography
- e. Refractometry

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

818. Local anesthetics can fall into different chemical classes. Benzocaine is a drug that belongs to:

- a. Aromatic sulfo acid amides
- b. Aromatic ketones
- c. Aromatic amino acid amides
- d. Aromatic amino acid esters
- e. Aromatic amino-aldehydes

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

- a. Spermaceti

b. Butyrol

- c. Vaseline (petroleum jelly)
- d. Cocoa butter
- e. Wax

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

a. Caffeine

- b. Norfloxacin
- c. Chloramphenicol
- d. Phenazone
- e. Ampicillin

821. 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. Essential drugs

- b. Drugs subject to strict accounting in a special inventory log
- c. Over-the-counter drugs
- d. Substandard drugs
- e. Precursors

822. 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. Pyranocoumarin visnadin
- b. Free coumarin

c. Furocoumarin psoralen

- d. Furanochromon kelin
- e. Hydroxycoumarin esculin

823. What medicine would be most advisable for symptomatic treatment of constipation in pregnant women?

- a. Ononis herbal medicine
- b. Bisacodyl
- c. Senadexine (sennosides A and B)

d. Lactulose

- e. Macrogol

824. 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. Legal's test

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

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

a. Ninhydrin solution

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

826. How should the rectal ointments be applied?

- a. Apply to the conjunctival mucosa

b. Apply to the affected area of the anus

- c. Apply to the skin

- d. Apply to the nasal mucosa
- e. Applied to the external genitalia

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

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

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

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

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

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

830. A pharmacist uses Vitepsol to prepare rectal suppositories. What fluid should be used in this case to lubricate the suppository form?

- a. Spiritus saponatus
- b. Ethyl alcohol
- c. Purified water
- d. Peach oil
- e. Vaseline oil (liquid paraffin)

831. 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. 3,0
- c. 0,5
- d. 1,5
- e. 4,0

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

- a. Porous
- b. Hollow
- c. Multi-layered
- d. Dyed
- e. Lyophilized

833. 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. Omeprazole
- b. Metoclopramide
- c. Clarithromycin
- d. Papaverine hydrochloride
- e. Acetylsalicylic acid

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

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

- a. Macrolides**
- b. beta-lactams
- c. Aromatic antibiotics
- d. Polyene antibiotics
- e. Polypeptides

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

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

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

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

- a. Azo dye**
- b. Aurine dye
- c. Azomethine dye
- d. Iron(III) hydroxamate
- e. Indophenol dye

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

- a. Calcium chloride
- b. Sodium benzoate
- c. Potassium chloride
- d. Novocaine**
- e. Hexamethylenetetramine

840. 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. Contract price
- b. Fixed price
- c. Controlled price**
- d. Free-of-control price
- e. Indicative price

841. 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 week

- b. In 5 days
- c. In 3 days
- d. In 10 days

e. In a month

842. 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. Glycosides

b. Anthraquinones

c. Alkaloids

d. Tannins

e. Iridoids

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

a. Prednisolone

b. Dexamethasone

c. Hydrocortisone acetate

d. Triamcinolone acetonide

e. Fluocinolone acetonide

844. What property of the tablet mass determines the most how fast a matrix hole of the tablet press machine is filled?

a. Bulk density

b. Humidity

c. Porosity

d. Fluidity (flowability)

e. Relative density

845. 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. Zinc sulfate solution

b. Potassium bromate solution

c. Sodium nitrite solution

d. Sodium edetate solution

e. Perchloric acid solution

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

a. *Astragalus dasyanthus*

b. *Panax ginseng*

c. *Aralia mandshurica*

d. *Glycyrrhiza glabra*

e. *Orthosiphon stamineus*

847. 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. Commodity circulation

b. Profitability

c. Markups

d. Profit

e. Expenses

848. What is the mandatory component of medical product advertising for end users, according to the law of Ukraine "On Advertising"?

a. Warning that self-medication can be harmful to health

- b. Reference to the drug as the most effective
- c. Naming and mentioning celebrities, movie and cartoon characters, competent authorities
- d. Comparison with other medical products
- e. References to the cases of successful drug use

849. Weibel's liquid is necessary to stabilize the solution of a certain substance. Name this substance:

- a. Magnesium sulfate
- b. Potassium chloride
- c. Sodium chloride
- d. Glucose**
- e. Novocaine

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

- a. Zinc oxide
- b. Magnesium oxide
- c. Ascorbic acid
- d. Glucose
- e. Xeroform (bismuth tribromphenolate and bismuth oxide complex)**

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

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

852. What is the purpose of injectable tablets?

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

853. Silibor is a herbal drug that is used as a hepatoprotector. This drug is made from:

- a. Flores Tanacetii
- b. Flores Crataegi
- c. Flores Centaureae cyani
- d. Semina Sylibi**
- e. Herba Equiseti arvensis

854. 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

855. 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. Medical facility seal
- b. Own address
- c. Own address, license number and its date of issue**
- d. Surname and initials of the doctor
- e. License number

856. 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. Economic analysis

b. Test marketing

c. Generation of the ideas

d. Commercial manufacturing

e. Filtration of the ideas

857. What antibiotic has beta-lactam cycle in its structure?

a. Streptomycin sulfate

b. Doxycycline hyclate

c. Lincomycin hydrochloride

d. Chloramphenicol

e. Benzylpenicillin potassium salt

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

a. After concentrated solutions

b. After solid medicinal substances are dissolved

c. Before ethanol-containing liquids are added

d. First

e. Last, because of its essential oil content

859. 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 turnover

b. Job rotation

c. Staff dynamics

d. Personnel certification

e. Staff motivation

860. 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. Lobbying

b. Personal selling

c. Public relations

d. Advertising

e. Sales promotion, sampling

861. Identification of organic medicinal substances requires the analysis of their functional groups. To identify medicinal substances that are benzoates, an analytical chemist should use:

a. Iron(III) chloride solution

b. Sodium bicarbonate solution

c. Potassium hydroxide solution

d. Ammonium chloride solution

e. Sodium acetate solution

862. 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. Potassium

c. Calcium

d. Magnesium

e. Sodium

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

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

865. Which one of the listed drugs is a glycoside antibiotic?

- a. Polymyxin
- b. Cephalexin
- c. Tetracycline
- d. Erythromycin**
- e. Levomycetin (Chloramphenicol)

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

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

868. 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. Methionine
- b. Naloxone
- c. Protamine
- d. Vicasol (Menadione)
- e. Unithiol (DMPS)**

869. A pharmaceutical company produces suppositories made from thermolabile medicinal substances. What method is used in their production?

- a. Pouring
- b. Steeping
- c. Dispersion
- d. Rolling
- e. Pressing**

870. 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. Sulfanilic acid
- b. Dimethyl formamide
- c. Pyridine
- d. Concentrated sulfuric acid
- e. Anhydrous acetic acid**

871. 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. Hydrochlorothiazide
- b. Atorvastatin**
- c. Nitroglycerine
- d. Nifedipine
- e. Lisinopril

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

873. 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. Clarithromycin
- b. Levofloxacin**
- c. Benzylpenicillin sodium salt
- d. Amoxicillin
- e. Cefuroxime

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

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

875. 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. Unrealized
- b. Incorrect
- c. Inadequate
- d. Irregular**
- e. Irrational

876. 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. *Rhodiola rosea* rhizomata et radices
- b. *Filix maris* rhizomata
- c. *Urtica* folia
- d. *Hypericum* herba**
- e. *Uva ursi* folia

877. Each medical product that a pharmacy receives should have its quality certificate. How long should these certificates be kept by a pharmacy?

- a. 2 years

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

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

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

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

880. 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. Equity capital
- c. Bank loans
- d. Monetary funds**
- e. Salaries payment

881. 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. 70%
- b. 100%
- c. 60%
- d. 50%
- e. 80%**

882. When activated charcoal is included into the combined therapy, the sorption of other medicines:

- a. Accelerates
- b. Activates
- c. Decreases**
- d. Remains unchanged
- e. Increases

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

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

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

e. Acetylsalicylic acid tablets

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

- a. 0%
- b. 15%
- c. 20%
- d. 5%

e. 18%

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

a. Powders

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

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

a. Magnesium oxide

b. Streptomycin sulfate

- c. Ephedrine hydrochloride
- d. Streptocide (Sulfanilamide)
- e. Osarsolum

888. 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. Adaptive
- b. Matrix
- c. Productive

d. Linear

e. Functional

889. 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. Vinblastine
- b. Atropine

c. Reserpine

- d. Adonitoxin
- e. Hyoscyamine

890. 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 increase, remarketing
- b. Demand leveling, synchromarketing
- c. Demand making, conversion marketing
- d. Demand stimulation, promotional marketing
- e. Demand decrease, demarketing

891. 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. Collective
- b. Adaptive
- c. Rational
- d. Collegial

e. Intuitive

892. Snake venom-based drugs are widely applied in treatment of locomotor apparatus diseases.

Main components of these venoms are:

- a. Alkaloids
- b. Phenol-alcohols
- c. Toxic proteins**
- d. Cardiac glycosides
- e. Glucosinolates

893. 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. Transactions ledger
- b. Request for a cash transfer
- c. Cash book
- d. Fiscal cash receipt for the goods/services**
- e. Accompanying statement to the bag with cash

894. 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
- c. Medical facility stamp, signature of the head manager of the medical facility, seal of the medical facility
- d. Signature of the head manager of the medical facility or signature of the deputy head manager for medical work
- e. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility, seal of the medical facility**

895. 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 change color depending on the pH of the medium**
- b. Ability to sublime
- c. Amorphous state
- d. Solubility in fats
- e. Alcohol precipitation

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

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

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

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

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

e. Phenolic compounds

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

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

900. 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. If sick leave is taken for child care
- c. -

d. In case of intentional self-harm

- e. If only sanatorium-and-spa treatment is required

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

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

902. 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. Freshly prepared tannin solution
- b. Saturated sodium chloride solution
- c. Iodized potassium iodide solution
- d. Titrated hydrochloric acid solution
- e. Titrated sodium edetate solution

903. What substance is most often used as a vehicle in triturations?

- a. Talcum
- b. Glucose
- c. Lactose
- d. Sucrose
- e. Starch

904. 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. Codeine
- b. Morphine
- c. Caffeine
- d. Papaverine
- e. Atropine

905. 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. Organization
- c. Control
- d. Delegation
- e. Motivation

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

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

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

- a. Isoniazid**
- b. Acyclovir
- c. Doxycycline hydrochloride
- d. Benzylpenicillin (Penicillin G)
- e. Metronidazole

908. What medicines cannot be advertised in pharmacies and their structural units?

- a. Prescription medicines**
- b. Over-the-counter medicines
- c. Disinfectants
- d. Cosmetics
- e. Dietary supplements

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

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

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

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

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

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

913. 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. *Juniperus communis*

- b. *Olea europaea*
- c. *Rubus idaeus*
- d. *Humulus lupulus***
- e. *Alnus incana*

914. A pharmaceutical factory uses maceration technique to produce tinctures. How long must herbal raw materials be steeped according to this technique?

- a. 12 hours
- b. 5 days
- c. 24 hours
- d. 2 days
- e. 7 days**

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

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

- a. *Folia Digitalis lanata*
- b. *Herba Bursae pastoris*
- c. *Folia Vitis idaeae***
- d. *Folia Cotini coggygiae*
- e. *Folia Urticae*

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

918. 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. -
- b. Strategic planning
- c. Business planning
- d. Operational planning**
- e. Financial planning

919. The chemical structure of *Strophanthus* cardiac glycosides can be characterized by the presence of the following in position 10 of the steroid ring:

- a. Alcoholic hydroxyl
- b. Methoxy group
- c. Ethoxy group
- d. Aldehyde group**
- e. Phenolic hydroxyl

920. 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. Cocarboxylase hydrochloride
- c. Rutin

d. Vicasol (Menadione)

e. Riboflavin

921. 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. An inventory list needs to be drawn up

d. No accounting documentation needs to be kept

e. It should be assigned an inventory number and registered in the inventory cards

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

a. Microcapsules

b. Tubatines

c. Medules

d. Spansules

e. Rectal capsules

923. 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. Saponins

b. Anthracene derivatives

c. Tannins

d. Fatty oil

e. Alkaloids

924. 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. Informal

b. -

c. Mechanistic

d. Combined

e. Organic

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

a. When 30% of employees from the original team leave the team

b. When 50% of employees from the original team leave the team

c. Whenever an employee leaves the team

d. When 25% of employees from the original team leave the team

e. Whenever a new employee joins the team

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

a. Extract from the State Register of Medicines

b. Written Control Passport

c. Drug Quality Standard

d. Technical regulations for the drug

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

927. 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

928. 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. Vacuum
- b. Syringe and vacuum
- c. Devaporation
- d. Syringe and devaporation
- e. Syringe**

929. What substances are used as leaveners in <<effervescent>> tablets?

- a. Aerosil (fumed silica), polysorbate 80
- b. Agar agar, alginic acid
- c. Starch, alginic acid
- d. Mixtures of sodium bicarbonate with tartaric or citric acid**
- e. Sodium bicarbonate, agar agar

930. 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. 20%
- b. 40%
- c. 30%
- d. 10%
- e. 50%**

931. 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. Norfloxacin
- c. Amoxicillin**
- d. Tetracycline
- e. Gentamicin

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

933. The "Aromeline" phytodrug exhibits P-vitamin activity. What herbal raw material is used in production of this drug?

- a. Fructus Crataegi
- b. Fructus Sambuci nigrae
- c. Fructus Viburni
- d. Fructus Aroniae melanocarpae**
- e. Fructus Sorbi

934. 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. Current demand**
- c. Seasonal accumulation
- d. Prior delivery
- e. Specific demand

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

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

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

937. When examining a substance with an ester group, you can conduct a reaction that produces:

- a. Iron(III) hydroxamate**
- b. Berlin blue
- c. Azo dye
- d. Diazonium salt
- e. Indophenol

938. 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. Ascorbic acid and aerosil (fumed silica)
- c. Citric acid and magnesium stearate
- d. Tartaric acid and sodium bicarbonate**
- e. Tartaric acid and magnesium stearate

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

940. A thymol-containing herbal raw material is stored in the warehouse of a pharmaceutical company. What are its proper storage conditions?

- a. Under normal conditions
- b. In metal containers
- c. Under CO₂-free conditions
- d. Separate from the others**
- e. Under the temperature of -5°C

941. 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 23.00 to 7.00
- b. From 20.00 to 9.00
- c. From 22.00 to 6.00**
- d. From 21.00 to 9.00
- e. From 24.00 to 8.00

942. 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 40 m²
- c. No less than 50 m²
- d. No less than 18 m²**

e. No less than 30 m²

943. A pharmacy sells various medicines. What medicine is a subject to strict accounting in a special inventory log?

- a. Gentamicin sulfate
- b. Retabolil (Nandrolone)
- c. Hydrocortisone acetate

d. Tramadol, tablets

e. Microfollin (Ethinylestradiol), tablets

944. In the process of packing and transporting, herbal raw material often becomes partially comminuted or even powdered. Excessive comminution has negative effect on the herbal raw material appearance and its quality. What tool is used to separate these excessively comminuted particles from the rest of the herbal raw material?

- a. Filter
- b. Scalpel
- c. Tweezers

d. Sieve

e. Mortars

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

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

e. Assets

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

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

- a. Metformin
- b. Glibenclamid

c. Glucose

- d. Insulin
- e. Butamide (Tolbutamide)

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

- a. The need for protection
- b. The need for existence, connection, growth
- c. The need for power, success, and affiliation
- d. The need for safety

e. Hygienic and motivational factors

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

- a. Antacids
- b. Prokinetics

c. Probiotics

- d. Choleretics
- e. Uroseptics

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

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

- a. Norfloxacin
- b. Ofloxacin
- c. Co-trimoxazole
- d. Gentamicin

e. Amoxicillin

952. 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. Physiological**
- c. Safety and protection
- d. Self-actualisation
- e. Social (involvement in the events)

953. What drug is used to treat hyperthyroidism?

- a. Oxytocin
- b. Mercaptoimidazole (Thiamazole)**
- c. Metformin
- d. Insulin
- e. Prednisolone

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

955. 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. Peptic ulcer disease
- c. Pulmonary fibrosis
- d. Heart failure
- e. Kidney failure

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

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

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

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

e. Abrasion resistance

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

- a. -
- b. Material
- c. Special
- d. Labor

e. Financial

959. 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. Business transactions log book
- b. Turnover balance sheet
- c. Double entry

d. Balance sheet

e. Receipts and expenditures report

960. What technology was used by a pharmacist to make a starch solution?

a. Mixed it with cold water, then poured the mixture into boiling water and boiled for 1-2 minutes

- b. Mixed it with hot water and added cold water
- c. Dissolved it in cold water and heated
- d. Dissolved it in boiling water
- e. Dissolved it in a vial for dispensing in freshly-distilled filtered purified water

961. 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. 70% of the average salary
- b. 60% of the average salary
- c. 80% of the average salary

d. 100% of the average salary

e. 50% of the average salary

962. 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. Tax officer
- b. Officer of a local division of the state inspectorate for drug quality control
- c. Pharmacist

d. Employee appointed to this task by the head manager

e. Head manager

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

- a. Vinilin (polyvinyl butyl ether)
- b. Streptocide

c. Camphor

- d. Benzoic acid
- e. Anesthesin

964. Powder moisture content affects its:

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

e. Flowability

965. 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. Three-level distribution channel
- c. One-level distribution channel
- d. Four-level distribution channel
- e. Two-level distribution channel

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

a. Semina Hippocastani

- b. Fructus Pastinacae sativae
- c. Fructus Ammi majoris
- d. Fructus Dauci carotae
- e. Herba Meliloti

967. A pharmaceutical factory produces soft dosage forms. What soft dosage form melts at the body temperature?

- a. Ointment
- b. Cream
- c. Gel
- d. Paste

e. Liniment

968. Tween-80 is being introduced into an emulsion system. What is the role of Tween-80 in emulsions?

- a. Solvent
- b. Antioxidant

c. Emulsifier

- d. Preservative
- e. Taste correction agent

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

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

e. Densifier

970. 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. High-molecular compound solution

b. Opalescent mixture

- c. True solution
- d. Emulsion
- e. Colloidal solution

971. 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. Steroidal saponins
- b. Thioglycosides

c. Alkaloids

- d. Fatty oils
- e. Cardiac glycosides

972. 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
- b. Theophylline ethylenediamine
- c. Caffeine and sodium benzoate
- d. Caffeine**
- e. Theobromine

973. A pharmacist prepares a chamomile flowers infusion. Specify the proportion of raw material to infusion:

- a. 1:50
- b. 1:30
- c. 1:10**
- d. 1:400
- e. 1:20

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

- a. Thalleioquin test
- b. Ninhydrin test
- c. Murexide test
- d. Iodoform test**
- e. Hydroxamate test

975. A pharmacy needs to prepare a furacilin (nitrofur) solution (1:5000). What are the specifics of furacilin dissolution?

- a. In the minimal amount of ethanol
- b. In the purified water, filtered in advance
- c. In the boiling water in the presence of sodium chloride**
- d. In the cold purified water
- e. In the purified water, after grinding it down

976. A pharmacist prepares 100 ml of glucose solution. Specify the amount of Weibel's stabilizer necessary in this case:

- a. 15 ml
- b. 20 ml
- c. 10 ml
- d. 5 ml**
- e. 2 ml

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

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

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

979. "Avicenna", a newly founded pharmaceutical company, operates round-the-clock. What employees cannot be assigned to night shifts?

- a. Employees of retirement age
- b. -

c. Employees under 18 (underage)

d. Employees under 30

e. Employees under 25

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

a. Thioacetamide reagent

b. Copper-tartrate solution

c. Thioglycolic acid solution

d. Cyanogen bromide reagent

e. Grade reagent

981. 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. Novocaine (procaine) solution

b. Glucose solution

c. Hexamethylenetetramine solution

d. Diprazine (promethazine) solution

e. Aminazine solution

982. 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 red

b. Tropaeolin OO

c. Methyl orange

d. Xylenol orange

e. Phenolphthalein

983. 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. Budesonide

c. Salbutamol

d. Ipratropium bromide

e. Tiotropium bromide

984. What imidazole derivative affects anaerobic microorganisms and protozoa and is effective against mixed infections?

a. Camphor

b. Caffeine

c. Metronidazole

d. Asparcam (Potassium aspartate and magnesium aspartate)

e. Dibazol (Bendazol)

985. 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. Delegation

b. Organization

c. Control

d. Motivation

e. Planning

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

a. 96%

b. 70%

c. 60%

- d. 40%
- e. 90%

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

- a. Presence of a film membrane
- b. Brownian motion of the particles
- c. High temperature of the extractant
- d. Different concentration of the active substance in the raw material and extractant**
- e. High polarity of the extractant

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

- a. Loratadine
- b. Euphyllin (Aminophylline)
- c. Dibazol (Bendazol)
- d. Fexofenadine
- e. Prednisolone**

989. 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. Development of nitrate tolerance**
- b. Myocardial infarction
- c. Impairment of coronary circulation
- d. Progressing ischemic heart disease
- e. Progressing coronary atherosclerosis

990. What is the duration of the leave due to pregnancy and childbirth?

- a. 126 calendar days**
- b. 70 working days
- c. 59 working days
- d. 90 calendar days
- e. 56 calendar days

991. 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. Social
- c. Ongoing**
- d. Preliminary
- e. Final

992. A 3-year-old child is intolerant to paracetamol. What antipyretic drug can be taken instead?

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

993. 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. Packing
- c. Extraction**
- d. Mixing
- e. Marking

994. Complex drug product Urolesan is a litholytic, antispasmodic, and diuretic agent. It contains ethanolic extract of:

- a. Rhododendron tomentosum

- b. *Matricaria chamomilla*
- c. -
- d. *Thymus serpyllum*

e. *Origanum vulgare*

995. What should be the disintegration time for effervescent tablets according to the requirements of the State Pharmacopoeia of Ukraine?

- a. 60 minutes
- b. 30 minutes

c. 5 minutes

- d. 15 minutes
- e. 3 minutes

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

a. Sulfanilamide

b. Epinephrine tartrate

- c. Phenazepam
- d. Promedol (Trimeperidine)
- e. Papaverine hydrochloride

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

a. Special

b. Nationwide, direct

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

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

- a. To be used as ready-made medicines
- b. For preparation of dry extracts
- c. For preparation of tinctures
- d. For preparation of thick extracts

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

999. 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. Bromometry
- b. Complexometric titration

c. Acid-base titration in nonaqueous medium

- d. Cerimetry
- e. Permanganatometry

1000. 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. Rotor-pulsation apparatus, dismembrator
- b. Dismembrator, electrical impulse plasmolyzer

c. Liquid whistle, magnetostrictive source

- d. Disintegrator, liquid whistle
- e. Centrifugal mixer with rotating housing

1001. 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. Annually
- c. Daily

d. -

e. Monthly

1002. Iridoids can be divided into four main groups. What is the common name for the iridoids obtained from the Valerianaceae family plants?

a. Complex iridoid alkaloids

b. Valepotriates

c. Cyclopentane iridoids

d. Secoiridoids

e. Common iridoids

1003. Commercial and financial activity of a pharmacy involves using returnable tare. Which of the following containers are returned to the supplier?

a. Glassware

b. Paper boxes

c. Packaging materials

d. Glass-stoppered bottles

e. Metal cylinders

1004. 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. Cefazolin

b. Oxacillin

c. Ampicillin

d. Chloramphenicol

e. Lincomycin

1005. 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. -

b. Remarketing

c. Synchromarketing

d. Conversion marketing

e. Countermarketing

1006. 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. Suppositories

b. Capsules

c. Spray

d. Tablets

e. Lozenges

1007. 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. Phenobarbital, tablets, 100 mg №6

b. Ascorbic acid, 500 mg №30

c. Clonidine, ampoules, 1 ml of 0,01% solution №10

d. Tramadol, capsules, 0,05 №10

e. Ketamine, 5% infusion solution, 2 ml №10

1008. 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. 115 days

b. 100 days

c. 126 days

d. 70 days

e. 50 days

1009. 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. Diversification
- d. Consolidation
- e. Insurance

1010. 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. Mutagenic
- b. Fetotoxic
- c. Carcinogenic
- d. Embryotoxic
- e. Teratogenic

1011. 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. Volatility
- b. Poor solubility in water
- c. Low solubility in water
- d. Thermal stability
- e. Thermolability

1012. What herbal raw material is used for the industrial production of Quercetin medicine?

- a. Herba *Violae tricoloris*
- b. Flores *Helichrysi arenarii*
- c. Herba *Polygonii avicularis*
- d. Fructus *Sophorae japonicae*
- e. Fructus *Hippophaes rhamnoides*

1013. How long should the pharmacy keep a receipt for Morphin-ZN tablets, package №50?

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

1014. 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. Dealer
- b. Commission agent
- c. Consignee
- d. Broker
- e. Agent

1015. 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 dry heat at 180-200°C for a lengthy period of time
- b. Autoclaving at 119-121°C with pressure at 1,0-1,1 atm
- c. Triple heating of solution to 40-60°C with 24-hour-long intervals in between for thermostating
- d. Sterilization with flowing steam at 100°C
- e. Sterilization with high-frequency and microwave frequency current

1016. 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. Hypoglycemia
- b. Hypernatremia
- c. Hypocalcemia
- d. Hyponatremia
- e. Hyperkalemia**

1017. A pharmacy supplies the surgical ward of a hospital. What document enables the dispensing chemist to supply the goods:

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

1018. 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. Drowsiness
- b. Headache**
- c. Dry cough
- d. Urinary retention
- e. Increased blood pressure

1019. 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)

1020. What final document is used for the preparation of the report on the discrepancies revealed in the course of inventory at the pharmacy?

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

1021. 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. Organization profitability
- b. Staff leasing
- c. Business expansion
- d. Organization culture**
- e. Product diversification

1022. 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. Joint venture**
- b. Franchising
- c. Direct investments
- d. Tender
- e. Import

1023. 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. 10%**
- c. 5%
- d. 15%
- e. 20%

1024. 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. Diphenylamine
- b. Aniline
- c. Cyanogen bromide
- d. Ninhydrin**
- e. Pyridine

1025. 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. Authoritarian
- d. Liberal**
- e. Democratic

1026. 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. Coumarins and phenol glycosides
- b. Essential and fatty oils
- c. Flavonoids and essential oils
- d. Anthracene derivatives and tannins**
- e. Iridoids and vitamins

1027. In what capacity is benzyl alcohol used as a component of solutions for parenteral administration?

- a. pH regulator
- b. Buffer solution
- c. Antioxidant
- d. Antimicrobial preservative**
- e. Isotonicity regulator

1028. 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. Hydroxamic reaction
- c. Lignin test**
- d. <<Silver mirror>> reaction
- e. Azo dye formation

1029. The process of rectification is used to make ethyl alcohol. This process is based on the following principle:

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

1030. 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. *Dryopteris filix-mas*
- b. *Rhodiola rosea*
- c. *Sanguisorba officinalis*
- d. *Rubia tinctorum***
- e. *Valeriana officinalis*

1031. Name the ready-to-use dosage form that is a gelatin capsule, filled with microcapsules that have an oil shell:

- a. Spansule**
- b. Microcapsule
- c. OROS tablet
- d. Tubatine
- e. Pearl

1032. 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. Chloromethane
- b. Chloral hydrate
- c. Sodium chloride
- d. Chloramine**
- e. Acetyl chloride

1033. 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. Complexometric titration**
- d. Nitritometric titration
- e. Alkalimetry

1034. 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. Accumulation of residual bradykinin in the blood**
- b. Gastroesophageal reflux
- c. Increased tone of the cough center
- d. Inhibition of histamine synthesis
- e. Exacerbation of chronic bronchitis

1035. What is the purpose of bulking agents in production of tablets?

- a. To improve granulate flowability
- b. To obtain tablets of a certain mass**
- c. To improve the taste
- d. To improve adhesion of particles to each other
- e. To improve tablet breakup

1036. 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. Ampicillin
- b. Gentamicin**
- c. Penicillin
- d. Azithromycin
- e. Ceftriaxone

1037. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

- a. Galantamine hydrobromide

b. Vincaton

c. Ergotamine hydrotartrate

d. Digitoxin

e. Vinblastine

1038. According to the law regulating labour remuneration, the businesses must establish their compensation plan in the following document:

a. Collective agreement

b. Contract of delivery

c. Job description

d. Decree

e. Statement

1039. 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. Dimexide (dimethyl sulfoxide)

b. Purified water

c. Atropa belladonna tincture

d. Glycerine

e. Ethyl alcohol

1040. A pharmaceutical company produces aromatic waters. Peppermint water should be prepared in the following proportion:

a. 1:10

b. 1:4000

c. 1:1

d. 1:2000

e. 1:1000

1041. 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. Alkaloids

b. Tannins

c. Vitamins

d. Flavonoids

e. Polysaccharides

1042. As the result of reduction of alcoholic solutions of 5-nitrofur derivatives by means of their reaction with zinc in the presence of diluted hydrochloric acid, the following occurs:

a. Ammonia production

b. Color change from yellow to black

c. Solution decoloration

d. Precipitation and gassing

e. Precipitation

1043. 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. Morphine

b. Codeine

c. Papaverine

d. Platyphyllin

e. Scopolamine

1044. 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. 0.02 g

b. 0.03 g

c. 0.04 g

d. 0.05 g

e. 0.01 g