

1. 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. Copper sulfate
- b. Pepsin**
- c. Osarsol
- d. Collargol (Colloidal silver)
- e. Tannin

2. 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. Ribes nigrum
- b. Rhamnus cathartica
- c. Schisandra chinensis
- d. Vaccinium myrtillus
- e. Prunus padus**

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

- a. Demand-based pricing
- b. Breakeven pricing
- c. Competition-based pricing**
- d. Cost-based pricing
- e. Tender pricing

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

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

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

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

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

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

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

8. 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. Beclomethasone preparations
- b. Essential oil-based preparations
- c. Cromoglicic acid preparations
- d. Xylometazoline preparations

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

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

- a. Solidago canadensis grass
- b. Persicaria hydropiper grass
- c. Nettle leaves

**d. Cotinus coggygria leaves**

e. Rose hips

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

**a. Butyrol**

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

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

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

**e. Ammonium oxalate**

12. 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. Individual income tax
- b. Commercial patent
- c. Single tax
- d. Income tax

**e. Excise tax**

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

**e. Nitrites**

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

- a. Verapamil
- b. Nitroglycerin
- c. Amlodipine
- d. Fenoterol

**e. Propranolol**

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

- a. Iron ammonium alum
- b. Fehling's reagent
- c. Molisch's reagent

d. Alkali

e. Iron (II) sulfate

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

a. Solid hemispherical receptacle

b. Curved hemispherical receptacle with membranous bracts

c. Conical, glabrous, and hollow receptacle

d. Spherical receptacle with membranous bracts

e. Solid spherical receptacle

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

a. Disorder of protein binding

b. Changed volume of distribution

c. Inhibition of the prothrombin synthesis

d. Decreased absorption in the gastrointestinal tract

e. Increased absorption in the gastrointestinal tract

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

a. Chromotropic acid

b. Tartaric acid

c. Sulfuric acid

d. Acetic acid

e. Benzoic acid

19. The chief manager of a pharmacy designs its organizational structure and job descriptions for its employees. These arrangements belong to the following management method:

a. Psychosocial

b. Economic

c. Organizational

d. Legal

e. Simulation

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

a. Mannitol

b. Lactose

c. Corn starch

d. Rice starch

e. Refined sugar

21. What medicinal substance is a derivative of morphinan?

a. Quinine sulfate

b. Pachycarpine hydroiodide

c. Caffeine

d. Cocaine hydrochloride

e. Codeine

22. What pharmacotherapeutic characteristic of a medicine allows its classification as over-the-counter drug?

a. Medicine contains substances that require additional research into their activity and side-effects

b. Medicine is available only by prescription

c. Medicine can cause no direct or indirect harm to the patient's health

d. Medicine has entered the pharmaceutical market only recently and actual experience with its practical application is limited

e. Medicine is available only for in-patient treatment

23. 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. Negative
- b. Unsatisfied**
- c. Hidden
- d. Satisfied
- e. Irrational

24. As the result of reduction of alcoholic solutions of 5-nitrofurantoin derivatives by means of their reaction with zinc in the presence of diluted hydrochloric acid, the following occurs:

- a. Ammonia production
- b. Precipitation
- c. Precipitation and gassing
- d. Color change from yellow to black
- e. Solution decoloration**

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

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

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

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

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

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

28. A pharmacy prepares 10% sodium chloride injection solution. What sterilization would be optimal in this case?

- a. Irradiation sterilization
- b. Gas sterilization
- c. Autoclave chamber with high-pressure saturated steam**
- d. Dry-heat sterilization
- e. Sterile filtration through membrane

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

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

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

- a. 10.0 of vaseline (petroleum jelly) "for eye ointments"
- b. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (7:3)

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

31. 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. 3 000 000 UAH
- b. 500 000 UAH**
- c. 5 000 000 UAH
- d. 100 000 UAH
- e. 750 000 UAH

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

33. A certain drug can be quantitatively assessed by means of direct alkalimetry in glycerine, mannitol, or other polyhydric alcohol medium. This drug is:

- a. Boric acid**
- b. Glutaminic acid
- c. Salicylic acid
- d. Benzoic acid
- e. Acetylsalicylic acid

34. 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. Own address, license number and its date of issue**
- b. Medical facility seal
- c. License number
- d. Own address
- e. Surname and initials of the doctor

35. A doctor has prescribed pessaries of unspecified mass. What mass should be chosen when pessaries are being prepared in a pharmacy?

- a. 0,5
- b. 1,5
- c. 3,0
- d. 6,0
- e. 4,0**

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

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

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

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

39. 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. Business expansion
- b. Product diversification
- c. Organization profitability
- d. Staff leasing
- e. Organization culture**

40. 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. Anesthesin
- c. Benzoic acid
- d. Camphor**
- e. Streptocide

41. A pharmaceutical company, wanting to strengthen its market position in a competitive environment, decided to use trademarks during the implementation of its product policy. What is the purpose of a trademark?

- a. Marketing research
- b. Determining the need for medicines
- c. Study of quantitative characteristics of the market
- d. Differentiation and protection of the company-produced medicines on the market**
- e. Market segmentation

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

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

43. 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. alpha-adrenergic blockers
- d. beta-adrenergic blockers**
- e. Diuretics

44. 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 risk of dysbiosis
- c. Decreases antacid effectiveness

- d. Increases antacid effectiveness
- e. Increases ofloxacin absorption

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

- a. Potassium permanganate
- b. Iodine monochloride
- c. Silver nitrate
- d. Cerium sulfate**
- e. Hydrochloric acid

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

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

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

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

49. 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. Etacrynic acid
- b. Urea
- c. Metformin
- d. Insulin**
- e. Glibenclamide

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

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

51. 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. Carcinogenic
- b. Embryotoxic
- c. Mutagenic

**d. Teratogenic**

e. Fetotoxic

52. The phytochemical workshop of a factory produces extraction preparations. For what purpose are concentrated extracts used?

a. For preparation of dry extracts

b. For preparation of tinctures

c. To be used as ready-made medicines

**d. For quick preparation of infusions and decoctions in pharmacy practice**

e. For preparation of thick extracts

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

a. 5% glucose solution

**b. Collargol solution**

c. Sodium chloride solution

d. Nonaqueous solution

e. Burow's solution

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

a. Viscosity

b. Solution pH

**c. Optical density**

d. Refractive index

e. Angle of rotation

55. Pharmacological properties and bioavailability of drugs is determined by their chemical structure. What medicinal substance contains simultaneously a carboxyl group and an ester group?

a. Benzoic acid

b. Salicylic acid

c. Sodium benzoate

d. Phenyl salicylate

**e. Acetylsalicylic acid**

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

a. Coumarins

b. Polysaccharides

**c. Flavonoids**

d. Saponins

e. Alkaloids

57. 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. Vitamins

b. Tannins

c. Flavonoids

**d. Anthracene derivatives**

e. Alkaloids

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

a. Environment assessment and analysis

b. Analysis of organisation's internal strength and weaknesses

c. Setting goals and tasks

**d. Strategy assessment**

e. Choice of strategy



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

- a. Glycosides
- b. Tannins**
- c. Iridoids
- d. Lipids
- e. Carbohydrates

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

61. The pharmacological activity of medicines largely depends on their chemical structure. Which of the following drugs is a pyrazole derivative?

- a. Metamizole sodium**
- b. Thiamazole
- c. Bendazol
- d. Metronidazole
- e. Piracetam

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

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

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

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

- a.  $\text{FeCl}_3$**
- b.  $\text{K}_2[\text{HgI}_4]$
- c.  $[\text{NH}_4]_2\text{C}_2\text{O}_4$
- d.  $\text{K}_2\text{CrO}_4$
- e.  $\text{KMnO}_4$

65. What medicines cannot be advertised in pharmacies and their structural units?

- a. Disinfectants
- b. Over-the-counter medicines
- c. Dietary supplements
- d. Prescription medicines**
- e. Cosmetics

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

- a. Solution - emulsion - suspension
- b. Emulsion - solution - suspension

c. Suspension - solution - emulsion

d. Solution - suspension - emulsion

e. Emulsion - suspension - solution

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

a. Dynamic viscosity

b. Optical density

c. Angle of rotation

d. Refractive index

e. Melting point

68. 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. Disintegrator, electrical impulse plasmolyzer

c. Disintegrator, liquid whistle

d. Liquid whistle, magnetostrictive source

e. Centrifugal mixer with rotating housing

69. 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. Prednisolone

b. Betamethasone dipropionate

c. Prednisone

d. Hydrocortisone acetate

e. Cortisone acetate

70. 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. *Digitalis purpurea* folium

b. *Urtica dioica* folium

c. *Hyoscyamus niger* folium

d. *Althaea officinalis* herba

e. *Gnaphalium uliginosum* herba

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

a. 2.0-5.0

b. 4.0-7.0

c. 5.0-8.0

d. 3.0-6.0

e. 1.0-4.0

72. A patient with angina pectoris takes long-acting nitrates. Consult him what side-effect is the most common for these drugs:

a. Vomiting

b. Headache

c. Nausea

d. Constipation

e. Diarrhea

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

a. *Crataegi flores*

b. *Tanacetii flores*

c. *Meliloti herba*

d. *Violae herba*

e. *Helichrysi arenarii flores*

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

a. External

b. Residual

c. Osmotic

d. Equilibrium

e. Free

75. 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. Refractive index

c. Angle of rotation

d. Specific gravity

e. Optical density

76. A 42-year-old man with community-acquired pneumonia was prescribed a long-term antibiotic treatment. What drugs should be prescribed to this patient to prevent development of dysbiosis?

a. Antitussive drugs

b. Expectorants

c. Probiotics

d. Antispasmodics

e. Mucolytic agents

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

a. Compression value

b. Bulk volume

c. Porosity

d. Compaction (compression) coefficient

e. Flowability

78. 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. Argentometry

b. Polarimetry

c. Iodometry

d. Bromatometry

e. Cerimetry

79. 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. 30%

c. 20%

d. 3%

e. 10%

80. 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. Furanochromon kelin

b. Hydroxycoumarin esculin

c. Furocoumarin psoralen

d. Free coumarin

e. Pyranocoumarin visnadin

81. "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. Passiflora grass**
- e. Acorus calamus rhizomes

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

- a. Silver nitrate solution
- b. Hydrochloric acid solution
- c. Iodine dissolved in potassium iodide
- d. Alcoholic iodine solution
- e. Iron(III) chloride solution**

83. 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

84. Under the current legislation there is a certain list of controlled substances that require keeping of the special inventory log. Select the drug that belongs on this list:

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

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

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

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

87. What antibiotic has beta-lactam cycle in its structure?

- a. Doxycycline hyclate
- b. Chloramphenicol
- c. Benzylpenicillin potassium salt**
- d. Streptomycin sulfate
- e. Lincomycin hydrochloride

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

- a. Thioglycolic acid
- b. Sodium tetraphenylborate

- c. Barium chloride
- d. Hydroxyquinoline**
- e. Sodium hypophosphite

89. Accounting records are classified by the type of asset accounting or by their sources. Active accounts keep record of the following:

- a. Salaries payment
- b. Bank loans
- c. Monetary funds**
- d. Equity capital
- e. Debt settlement with the creditors

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

- a. Mercurimetry
- b. Argentometry
- c. Permanganatometry
- d. Complexonometry
- e. Bromatometry**

91. 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. Furfural
- b. Acridine
- c. Hydroxyquinoline
- d. Methyl isothiocyanate**
- e. Naphthoquinone

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

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

93. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

- a. 110°C - 15 minutes
- b. 140°C - 12 minutes
- c. 160°C - 15 minutes
- d. 180°C - 30 minutes
- e. 120°C - 8 minutes**

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

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

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

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

e. Regular hours

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

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

97. A patient came to a pharmacy to buy a herbal antidepressant containing condensed anthracene derivatives and flavonoids. What herbal raw material is used to make this drug?

- a. Filicis maris rhizomata
- b. Uvae ursi folia
- c. Rhodiola roseae rhizomata et radices
- d. Hyperici herba**
- e. Urticae folia

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

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

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

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

100. 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. Pelleting
- b. Coacervation
- c. Galvanization**
- d. Polymerization
- e. Slurrying of the nuclei

101. What substances are used as leaveners in <<effervescent>> tablets?

- a. Mixtures of sodium bicarbonate with tartaric or citric acid**
- b. Sodium bicarbonate, agar agar
- c. Agar agar, alginic acid
- d. Starch, alginic acid
- e. Aerosil (fumed silica), polysorbate 80

102. 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. Thioglycosides
- b. Fatty oils
- c. Alkaloids**
- d. Steroidal saponins
- e. Cardiac glycosides

103. 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. Social
- c. Technological
- d. Informational
- e. Economic

104. A pharmacist prepares a chamomile flowers infusion. Specify the proportion of raw material to infusion:

- a. 1:10**
- b. 1:400
- c. 1:30
- d. 1:50
- e. 1:20

105. A pharmacist makes powders by grinding one of the formulation components with ethyl alcohol. This technology is typically applied when working with the following substance:

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

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

107. Urethral suppositories are being made for a patient. What parameters should be specified by the doctor in the formulation for the pharmacist to be able to calculate the necessary amount of the vehicle correctly?

- a. Diameter and vehicle of the suppositories
- b. Diameter, length, and quantity of the suppositories**
- c. Diameter and quantity of the suppositories
- d. Quantity and vehicle of the suppositories
- e. Length and quantity of the suppositories

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

- a. Production cost**
- b. Margin
- c. Income
- d. Breakeven
- e. Markup

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

- a. Dichloroethane
- b. Glycerine
- c. Acetone
- d. Ethanol**
- e. Chloroform

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

- a. 30 minutes at room temperature**
- b. 30 minutes of water bath infusion and 10 minutes of cooling at room temperature
- c. 30 minutes of water bath infusion and immediate filtering without cooling
- d. 15 minutes of water bath infusion and 45 minutes of cooling at room temperature
- e. 60 minutes at room temperature

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

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

112. A pharmacist needs to prepare eyedrops with pilocarpine hydrochloride. Specify the optimal isotonic agent in this case:

- a. Glucose
- b. Sodium nitrite
- c. Sodium sulfate
- d. Boric acid
- e. Sodium chloride**

113. 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. 5 000 UAH**
- b. 30 000 UAH
- c. 15 000 UAH
- d. 40 000 UAH
- e. 35 000 UAH

114. 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. Income/turnover
- c. Turnover/production cost
- d. Liquidity/solvency
- e. Profit/turnover**

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

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

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

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

117. What fatty oil is nondrying due to its oleic acid glyceride content?

- a. Cucurbitae oleum
- b. Helianthi oleum
- c. Lini oleum
- d. Ricini oleum**
- e. Maydis oleum

118. 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. Urotropin
- b. Sodium iodide



- c. Sodium bromide
- d. Furacilin (Nitrofurazone)**
- e. Streptocide (Sulfanilamide)

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

120. 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. Penicillin
- b. Prednisolone**
- c. Haemodes
- d. Fresh frozen plasma
- e. Rheopolyglukin (Dextran)

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

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

- a. Indophenol
- b. Thiochrome
- c. Iodoform
- d. Azo dye**
- e. Murexide

123. 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. Sulfamethoxazole
- c. Nitrofural
- d. Resorcin
- e. Retinol acetate

124. 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. Balance sheet**
- c. Double entry
- d. Receipts and expenditures report
- e. Turnover balance sheet

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

- a. 300 mL
- b. 500 mL
- c. 100 mL**

- d. 50 mL
- e. 1000 mL

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

- a. Sodium thiosulfate
- b. Sodium bicarbonate with sodium sulfite**
- c. Weibel stabilizer
- d. 0.1 M sodium hydroxide solution
- e. 0.1 M hydrochloric acid solution

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

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

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

- a. beta-lactams
- b. Polyene antibiotics
- c. Aromatic antibiotics
- d. Macrolides**
- e. Polypeptides

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

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

130. 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. Precipitate excessive active substances
- b. This kind of deviation is not important
- c. The tincture is a non-recoverable reject material
- d. Filter the tincture through adsorbent
- e. Dilute the tincture with extractant to normal concentration**

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

- a. Ammonia solution
- b. Potassium permanganate solution
- c. Potassium thiocyanate solution**
- d. Sodium nitrite solution
- e. Ammonium chloride solution

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

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

133. Local anesthetics can fall into different chemical classes. Benzocaine is a drug that belongs to:

- a. Aromatic sulfo acid amides
- b. Aromatic amino acid amides

- c. Aromatic ketones
- d. Aromatic amino-aldehydes

**e. Aromatic amino acid esters**

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

**a. Physiological**

- b. Self-actualisation
- c. Safety and protection
- d. Esteem
- e. Social (involvement in the events)

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

- a. Magnesium sulfate
- b. Cynara dry extract
- c. Ademethionine
- d. Silybum dry extract

**e. Ursodeoxycholic acid**

136. 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. Cardiac glycosides
- d. Glucosinolates

**e. Toxic proteins**

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

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

138. 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. Visually
- b. Permanent quadrat method
- c. Geodesically

**d. Projective cover method**

e. Model sample method

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

140. A pharmaceutical company develops the manufacture of new products. What part of the production procedures contains the description of the end product and lists its physical and chemical properties?

**a. Characteristics of the end product**

- b. Description of the manufacturing process
- c. Information materials
- d. Characteristics of the auxiliary raw stock and materials

e. Characteristics of the raw stock, materials, and intermediate products

141. One of the substances listed below is **NOT** a vitamin:

- a. Calcium pantothenate
- b. Calcium gluconate**
- c. Nicotinic acid
- d. Ergocalciferol
- e. Calcium pangamate

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

143. *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. The whole plant with a root is pulled out from the soil
- c. Only the tips of the inflorescences are cut
- d. The leaves are plucked with the stem
- e. The whole plant is dug up

144. A pharmaceutical company produces mint tincture. Technological process of making this tincture requires it to be made:

- a. With 70% alcohol in 1:10 proportion
- b. With 70% alcohol in 1:5 proportion
- c. With 90% alcohol in 1:20 proportion**
- d. With 48% alcohol in 1:2 proportion
- e. With 70% alcohol in 1:15 proportion

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

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

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

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

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

149. An analytical chemist analyses the substance of racemic menthol according to the State Pharmacopoeia of Ukraine. To identify the drug and determine its purity he uses optical rotation that should occur within the interval:

- a. From  $+10^{\circ}$  to  $+13^{\circ}$
- b. From  $-102^{\circ}$  to  $-105^{\circ}$
- c. From  $+0,2^{\circ}$  to  $-0,2^{\circ}$**
- d. From  $-48^{\circ}$  to  $-51^{\circ}$
- e. From  $+50^{\circ}$  to  $+56^{\circ}$

150. What type of marketing should be used if the demand for some medicines in the pharmaceutical market is negative?

- a. Synchromarketing
- b. Conversion marketing**
- c. Demarketing
- d. Remarketing
- e. Incentive marketing

151. What medicine is recommended to reduce the risk of gastrointestinal bleeding during a long-term treatment with an acetylsalicylic acid-based antiaggregant?

- a. Prednisolone
- b. Ceftriaxone
- c. Spironolactone
- d. Omeprazole**
- e. Metamizole sodium

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

- a. Uniformity of dosage
- b. Abrasion resistance**
- c. Impurities
- d. Disintegration
- e. Dissolution

153. 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. After poisonous and narcotic substances are dissolved (before concentrates)
- b. First
- c. Last in the order of increasing ethanol concentration**
- d. Last in the order of decreasing ethanol concentration
- e. In the same order in which they are listed in the formulation

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

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

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

- a. Financial aid

- b. Increment
- c. One-off payment
- d. Bonus

**e. Basic pay**

156. 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. Fructus Hippophaes
- c. Semina Hippocastani
- d. Folia Fragariae
- e. Folia Menthae piperitae

157. Tween-80 is being introduced into an emulsion system. What is the role of Tween-80 in emulsions?

- a. Antioxidant
- b. Taste correction agent

**c. Emulsifier**

- d. Solvent
- e. Preservative

158. What lubricants are used in tablet manufacturing?

a. Tween 80, Aerosil

**b. Calcium stearate, stearic acid**

- c. Water, ethanol
- d. Starch paste
- e. Solutions of high-molecular compounds

159. 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. Material stimuli that include salary rates, extra pay, increments, bonuses, etc.

**b. Plan for improvement of the working conditions at the pharmaceutical facility**

- c. The process of distribution of duties between the technical level managers
- d. The process of salary calculation for the sales department employees
- e. -

160. Prescriptions for psychotropic drugs remain in the pharmacy after the sale. How long must they be kept?

a. The prescription must be returned to the patient

**b. Five years**

- c. Three years
- d. One year
- e. One month

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

a. Murexide

**b. Starch**

- c. Bromphenol blue
- d. Diphenylcarbazone
- e. Phenolphthalein

162. 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. Political
- b. Economical
- c. Sociocultural**

- d. Legal
- e. Technological

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

- a. Technological
- b. Socio-psychological**
- c. Economic
- d. Administrative
- e. -

164. 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. Market share and market growth rate**
- b. Attractiveness of the industry
- c. Market segments
- d. Business opportunities
- e. Competitive Intensity

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

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

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

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

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

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

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

169. 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 Menthae piperitae
- b. Folia Melissa

c. Folia Eucalypti

d. Folia Absinthii

e. Folia Betulae

170. 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 radiata

b. Bidens cernua

c. Bidens aurea

d. Bidens tripartita

e. Bidens frondosa

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

a. Preservative

b. Emollient

c. Solubilizer

d. Solvent

e. Plasticizer

172. 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. Glibenclamid

b. Insulin

c. Glucose

d. Metformin

e. Butamide (Tolbutamide)

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

a. 1.0-4.0 g

b. 3.0-7.0 g

c. 1.5-6.0 g

d. 4.0-7.5 g

e. 2.0-6.5 g

174. 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. <<Silver mirror>> reaction

b. Lignin test

c. Azo dye formation

d. Hydroxamic reaction

e. Iodoform test

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

a. Invoices

b. Transactions log book

c. Payroll records

d. Payment orders

e. Cash deposit and cash withdrawal receipts

176. 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. On separate shelves and in separate shopwindows



e. By their application

177. 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. Panel
- b. Observation
- c. Experiment
- d. Testing

e. Survey

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

179. 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. Sales receipt

c. Cash register fiscal receipt

- d. Settlement receipt
- e. Receipt

180. 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. Valeriana officinalis

e. Rubia tinctorum

181. 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. Limited monopoly market
- c. -

d. Market with pure (free) competition

- e. Pure monopoly market

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

- a. Starch
- b. Novocaine hydrochloride
- c. Dermatol (bismuth subgallate)
- d. Sulfur

e. Menthol

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

- a. -
- b. If sick leave is taken for child care
- c. If only sanatorium-and-spa treatment is required

d. In case of disease (trauma)

**e. In case of intentional self-harm**

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

a. Folia Berberidis

b. Rhizomata Nupharis lutei

c. Herba Vincae minoris

**d. Folia Catharanthi rosei**

e. Herba Selaginis

185. 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. Sulfates

b. Ammonium salts

c. Potassium

d. Chlorides

**e. Iron**

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

a. 1.31

**b. 1.21**

c. 1.20

d. 1.11

e. 1.25

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

a. Colloidal solution

b. Emulsion

c. True solution

**d. Opalescent mixture**

e. High-molecular compound solution

188. 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. Lansoprazole

b. Famotidine

c. Ranitidine

**d. Bismuth subcitrate**

e. Omeprazole

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

a. 15.0

b. 2.0

**c. 6.0**

d. 10.0

e. 18.0

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

a. Starch

**b. Potassium chromate**

c. Tropaeolin 00

d. Methylene blue

e. Bromophenol blue

191. A pharmacist-analyst of a control-analytical laboratory performs identification of a drug substance in accordance with the State Pharmacopoeia of Ukraine regulations. What result is observed during the test for benzoates with a solution of iron(III) chloride?

- a. A black precipitate forms, which dissolves if a diluted sodium hydroxide solution is added
- b. An intense blue coloring appears
- c. The solution colors blue and becomes colorless after the addition of ammonia solution
- d. A pale yellow ether-soluble precipitate forms**
- e. A white precipitate forms, which is insoluble in a diluted hydrochloric acid

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

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

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

194. 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. -

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

- a. Revenue of the pharmacy**
- b. Salary payments
- c. Advance salary payments
- d. Transfer of the revenue to the bank account
- e. Issuing cash sums to be accounted for

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

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

197. 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. Volatilization of essential oils
- b. Oxidation of phenolic compounds
- c. Enzymatic hydrolysis of cardiac glycosides**
- d. Oxidation of resins
- e. Oxidation of terpenoids

198. 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. Hydrolysis
- c. Oxidation
- d. Neutralization
- e. Reduction

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

- a. Sodium hydroxide
- b. Sodium bicarbonate
- c. Sodium metabisulfite
- d. Ascorbic acid
- e. Hydrochloric acid

200. What is the purpose of bulking agents in production of tablets?

- a. To improve the taste
- b. To obtain tablets of a certain mass
- c. To improve adhesion of particles to each other
- d. To improve granulate flowability
- e. To improve tablet breakup

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

- a. Folia Vitis idaeae
- b. Herba Bursae pastoris
- c. Folia Urticae
- d. Folia Digitalis lanata
- e. Folia Cotini coggygiae

202. 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. Diversification
- b. Indexation
- c. Insurance
- d. Bankruptcy
- e. Liquidation

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

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

204. A pharmaceutical company produces deep-acting ointments. What is the mechanism of action of the active substances contained in resorptive ointments?

- a. Protect the skin from external factors
- b. Protect the skin from microbial infection
- c. Reach the systemic circulation and enhance the effect of drugs
- d. Prevent drying and contamination of the epidermis
- e. Absorbed by the outer layers of the skin

205. 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. Coriandrum sativum

b. *Foeniculum vulgare*

**c. *Carum carvi***

d. *Anisum vulgare*

e. *Anethum graveolens*

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

a. Bromthymol blue

b. Methyl orange

**c. Starch**

d. Potassium chromate

e. Eriochrome black

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

a. Roots

b. Infructescences

c. Buds

**d. Bark**

e. Flowers

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

**a. Remarketing**

b. Evolving marketing

c. Synchromarketing

d. Conversion marketing

e. Stimulational marketing

209. Ampoule workshop of a factory produces 5% oil solution of tocopherol acetate for injections. What method of filling the ampoules is optimal in this case?

a. Syringe and devaporation

b. Syringe and vacuum

c. Devaporation

d. Vacuum

**e. Syringe**

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

a. Essential oils

b. Flavonoids

c. Anthracene derivatives

d. Coumarins

**e. Tannins**

211. 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. 1% phloroglucinol solution

c. 1% ammonium iron(III) sulfate solution

d. Dragendorff reagent

**e. Alcoholic solution of methylene blue**

212. 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. Steeping

**c. Percolation**

- d. Turbo extraction
- e. Remaceration

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

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

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

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

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

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

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

- a. Manufacturing
- b. Formal
- c. Informal**
- d. Commercial
- e. Committee

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

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

218. 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. Final
- b. Preliminary
- c. Financial
- d. Ongoing**
- e. Social

219. One of the numerical parameters of herbal raw material quality is the amount of extractive substances that can be measured using:

- a. Titrimetry
- b. Spectrophotometry
- c. Chromatography
- d. Gravimetry**
- e. Biological standardization

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

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

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

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

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

- a. Alkalimetry
- b. Bromatometry**
- c. Photocolorimetry
- d. Nitritometry after alkaline hydrolysis
- e. Acidimetry in a non-aqueous medium

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

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

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

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

225. What medicine would be most advisable for symptomatic treatment of constipation in pregnant women?

- a. Senadexine (sennosides A and B)
- b. Macrogol
- c. Bisacodyl
- d. Lactulose**
- e. Ononis herbal medicine

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

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

227. A patient is prescribed a 3% alcohol solution of boric acid. What concentration of ethanol should be taken to prepare this solution according to the normative documents?

- a. 60%

b. 70%

c. 95%

d. 40%

e. 90%

228. 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. Polarography

c. Refractometry

d. Photocolorimetry

e. Polarimetry

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

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

b. Neutral glass "HC-2"

c. Borosilicate neutral glass "УСП -1"

d. Neutral glass "HC-2A"

e. Alkaline glass "АБ-1"

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

a. Visual optical

b. Amperometric

c. Gravitational

d. NMR and UV-visible spectroscopy

e. Limulus test

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

a. Are formed upon the request of the head of the organization

b. Have a clear formal structure

c. Resist changes in the organization

d. -

e. Are formed for the implementation of the manufacturing process

232. 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 bistorta

b. Polygonum persicaria

c. Polygonum alpinum

d. Polygonum hydropiper

e. Polygonum aviculare

233. 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. Cyanogen bromide

b. 2,4-Dinitrochlorobenzene

c. Ninhydrin

d. Concentrated ammonia

e. 2,4-Dinitrophenylhydrazine

234. 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. MTB (colorless glass for medical containers)

b. NS-2 (neutral glass 2)

c. USP-1



- d. NS-2 A (neutral glass 2A)
- e. AB-1 (non-boric glass)

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

- a. Decree
- b. Contract of delivery
- c. Job description
- d. Statement

**e. Collective agreement**

236. 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. Papaverine hydrochloride
- b. Dibazol (Bendazol)

**c. Amoxicillin trihydrate**

- d. Phenazone
- e. Metronidazole

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

238. 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. Roots
- b. Flowers
- c. Seeds**
- d. Leaves
- e. Grass

239. 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. 70 days
- b. 100 days
- c. 126 days**
- d. 115 days
- e. 50 days

240. According to the State Pharmacopoeia of Ukraine quantitative content of salicylic acid is to be determined by means of:

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

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

- a. Extraction
- b. Sublimation
- c. Rectification

d. Lyophilization

**e. Recuperation**

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

a. Methylcellulose

b. Pectin

**c. Pepsin**

d. Gelatin

e. Starch

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

**a. Nitroglycerine**

b. Enalapril

c. Captopril

d. Prazosin

e. Corglycon (convallatoxin)

244. How should the tablets of pancreatin enzyme preparation be taken?

**a. During eating**

b. 1 hour after a meal

c. Regardless of food intake

d. 1 hour before a meal

e. 2 hours before a meal

245. 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**

d. Caffeine and sodium benzoate

e. Theobromine

246. 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. Lignans**

b. Coumarins

c. Xanthones

d. Iridoids

e. Flavonoids

247. 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. Bisoprolol

c. Captopril

**d. Nitroglycerin**

e. Diclofenac sodium

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

a. Rhizomata et radices Eleuterococci

b. Radices Ginseng

**c. Herba Echinaceae purpurea**

d. Radices Araliae elata

e. Radices Rhei

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

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

250. A medical facility located in Kyiv buys its diagnostic tools from a domestic manufacturer. What level of distribution channel is it?

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

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

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

252. Microscopy of a root of a certain medicinal plant reveals the following features: parenchyma cells contain inulin, there are laticifers, cambium line is clearly visible. This root belongs to:

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

253. 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. Biomycin
- b. Sodium benzylpenicillin
- c. Streptomycin sulfate
- d. Erythromycin
- e. Levomycetin (Chloramphenicol)

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

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

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

- a. Laxatives
- b. Wound healing agents
- c. Diuretics
- d. Antibacterial agents
- e. Sedatives

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

a. Not subject to sterilization

- b. Hot air
- c. Flowing steam
- d. Steam under pressure
- e. Ultraviolet radiation

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

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

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

- a. Loratadine
- b. Euphyllin (Aminophylline)
- c. Fexofenadine
- d. Dibazol (Bendazol)

e. Prednisolone

259. 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. Authoritarian
- c. Liberal
- d. Direct
- e. Democratic

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

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

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

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

- a. 50%
- b. 60%
- c. 100%
- d. 80%
- e. 70%

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

- a. Glucose

- b. Sodium chloride
- c. Nipagin (Methylparaben)
- d. Methyl cellulose**
- e. Boric acid

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

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

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

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

- a. Aminoglycosides
- b. Nitrofurans
- c. Semisynthetic penicillins**
- d. Oxyquinolines
- e. Tetracyclines

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

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

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

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

269. Iridoids can be divided into four main groups. What is the common name for the iridoids obtained from the Valerianaceae family plants?

- a. Cyclopentane iridoids
- b. Common iridoids
- c. Complex iridoid alkaloids
- d. Valepotriates**
- e. Secoiridoids

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

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

271. Why are leavening agents introduced into the tablet mass?

- a. Ensuring rapid mechanical destruction of the tablets in a liquid medium
- b. Taste improvement
- c. Making it easier to push the tablets out of the matrix
- d. Improvement of the granulation process
- e. Obtaining tablets of the required weight

272. What property of the tablet mass determines the most how fast a matrix hole of the tablet press machine is filled?

- a. Humidity
- b. Fluidity (flowability)
- c. Porosity
- d. Bulk density
- e. Relative density

273. 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. Liberal
- c. Autocratic
- d. Democratic
- e. Authoritarian

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

275. 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, Arctostaphylos leaves
- d. Mint leaves, chamomile flowers
- e. Mint leaves, flax seeds

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

- a. Lyophilization
- b. Pressing
- c. Hand-rolling
- d. Stamping
- e. Pouring into moulds

277. What is the mandatory component of medical product advertising for end users, according to the law of Ukraine "On Advertising"?

- a. Reference to the drug as the most effective
- b. References to the cases of successful drug use
- c. Warning that self-medication can be harmful to health
- d. Naming and mentioning celebrities, movie and cartoon characters, competent authorities
- e. Comparison with other medical products

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

- a. Pharmacological action
- b. Appearance
- c. Trade dress
- d. Quality**
- e. Marking

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

- a. Azo dye**
- b. Azomethine dye
- c. Aurine dye
- d. Indophenol dye
- e. Iron(III) hydroxamate

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

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

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

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

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

- a. Altan
- b. Phytolyt
- c. Cholosas**
- d. Chophytol
- e. Allochol

283. When activated charcoal is included into the combined therapy, the sorption of other medicines:

- a. Remains unchanged
- b. Accelerates
- c. Activates
- d. Increases
- e. Decreases**

284. 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. Alkaloids
- b. Essential oils**
- c. Cardiac glycosides
- d. Flavonoids
- e. Polysaccharides

285. In the process of phytochemical examination of buckthorn bark, the reaction with alkaline solution resulted in red coloring, which indicates the presence of the following:

- a. Slime
- b. Anthracene derivatives**
- c. Saponins
- d. Alkaloids

e. Flavonoids

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

a. Pasteurization

**b. Dry heat**

c. Flowing steam

d. Ultraviolet irradiation

e. Membrane filtration

287. 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. Elecampane

**c. Purple passionflower**

d. Three-lobed beggarticks

e. Lesser periwinkle

288. 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*

289. 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. Thiourea solution

b. Lanthanum(III) nitrate solution

c. Chloramine solution

d. Glyoxal-hydroxanil solution

**e. Diphenylamine solution**

290. 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 after the holiday

b. To pay the salaries 10 days earlier

c. There are no regulations regarding payment of salaries in this case

**d. To pay the salaries one day earlier**

e. To pay the salaries on the holiday

291. Galenical preparations include:

a. Aerosols

**b. Tinctures**

c. Capsules

d. Granules

e. Spansules

292. 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. Codeine

b. Papaverine

c. Platyphyllin

**d. Scopolamine**

e. Morphine



293. Proper harvesting of *Frangula alnus* herbal raw material greatly influences the quality and quantity of its active substances. Therefore the optimal time for buckthorn bark harvesting is the period of:

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

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

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

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

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

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

297. 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. Phenolphthalein**
- b. Potassium chromate
- c. Mordant black
- d. Ammonium iron (III) sulfate
- e. Tropaeolin 00

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

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

299. 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. "Skim-the-cream" strategy
- b. Following the leader
- c. -

d. Tender pricing strategy

**e. Deep penetration into the market**

300. Prior to making a sodium chloride isotonic solution a pharmacist baked the powder in a dry heat box. What substances are removed by this operation?

a. Redox substances

b. Moisture

c. Sulfates

**d. Pyrogenic substances**

e. Chlorides

301. 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 mass media

b. Obtained from publications in scientific magazines

c. Published in statistical reference books

d. Published in the company's annual report

**e. Collected for the first time for a specific purpose**

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

a. Cost of labor and price markup

**b. Cost of ingredients, package, and labor**

c. Cost of the ingredients that make up this dosage form

d. Cost of ingredients

e. Cost of ingredients and package

303. 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. Acute conjunctivitis

**d. Hypertensive crisis**

e. Exertional angina pectoris attack

304. 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 non-poisonous plants

e. Contains other parts of the target plant

305. 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. Dysbacteriosis

**b. Hemorrhages**

c. Thrombus formation

d. Hypokalemia

e. Hyperkalemia

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

a. Constipation

b. Jaundice

c. Hypoglycemia

d. Hypotension

**e. Osteoporosis**

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

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

308. An analytical pharmacist uses cerimetry for quantification of nifedipine. What indicator is used in this method?

- a. Ferroin**
- b. Potassium chromate
- c. Phenolphthalein
- d. Methyl orange
- e. Tropeolin 00

309. 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. Codeine phosphate
- b. Pachycarpine hydroiodide**
- c. Quinine sulfate
- d. Scopolamine hydrobromide
- e. Caffeine monohydrate

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

- a. Ethyl alcohol
- b. Water for injections
- c. Mint water
- d. Freshly prepared purified water**
- e. Demineralized water

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

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

312. 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. Laboratory identifiers
- c. Friabilators
- d. Microscope
- e. Standard set of sieves**

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

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

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

- a. Marketing
- b. Management

c. Agreement

**d. Market**

e. Sales

315. 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. Promotion

b. -

c. Staff rotation

**d. Staff turnover**

e. Recruitment

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

a. All medicines are written in a random order

b. Medicines included in the Essential Medicines List

c. Solutions

d. Substances that are hard to comminute

**e. Narcotic substances**

317. A pharmacy sells various medicines. What medicine is a subject to strict accounting in a special inventory log?

a. Retabolil (Nandrolone)

b. Microfollin (Ethinylestradiol), tablets

**c. Tramadol, tablets**

d. Gentamicin sulfate

e. Hydrocortisone acetate

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

a. Wet granulation prior to compression

**b. Direct compression without additional substances**

c. Dry granulation prior to compression

d. Direct compression with the addition of excipients

e. Moulding

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

a. Spironolactone

b. Clopamide

**c. Furosemide**

d. Chlorthalidone

e. Indapamide

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

a. Lincomycin

b. Co-trimoxazole

c. Ceftriaxone

**d. Clarithromycin**

e. Levomycetin (Chloramphenicol)

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

a. Three-level channel

**b. Two-level channel**

c. Four-level channel

- d. One-level channel
- e. Zero-level channel

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

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

324. 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. Heating the extract
- b. Ultrasound exposure
- c. Electrolyte action
- d. Extraction from one liquid using another**
- e. Dialysis

325. 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

326. 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. Pyridine
- c. Dimethyl formamide
- d. Concentrated sulfuric acid
- e. Anhydrous acetic acid**

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

- a. Nitritometry
- b. Argentometry**
- c. Acidimetry
- d. Alkalimetry
- e. Complexonometry

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

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

d. 2 copies of F-1 form

**e. F-3 form**

329. 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. Type <<for injections>>

b. Anhydrous, analytical grade pure

c. Analytical grade pure

d. No manganese salt admixtures

**e. Chemically pure, depyrogenated**

330. A pharmaceutical company produces animal-derived biostimulants. Solcoseryl preparation is obtained from the following raw material:

a. Bovine trachea

b. Human blood

**c. Bovine blood**

d. Velvet antlers

e. Bovine spleen

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

a. Sterility

**b. Particle size**

c. Transparency

d. Color

e. Quantitative determination

332. 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. Antibiotics

b. Cholagogues

c. Hepatoprotectors

d. Antacids

**e. Antispasmodics**

333. What technology was used by a pharmacist to make a starch solution?

a. Dissolved it in a vial for dispensing in freshly-distilled filtered purified water

b. Dissolved it in cold water and heated

c. Mixed it with hot water and added cold water

d. Dissolved it in boiling water

**e. Mixed it with cold water, then poured the mixture into boiling water and boiled for 1-2 minutes**

334. 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. Reaction of sublimation

b. Mayer's test

c. Dragendorff's test

d. Stahl's reaction

**e. Legal's test**

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

a. Recommendation to always read the instructions for the medicines

**b. Claims that the effect of the medicines is guaranteed**

c. General warnings about the usage of medicines and medical products

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

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

a. Vaseline (petroleum jelly)

b. Glycerine-water solution

c. Glycerine

d. Purified water

e. Dimethylsulfoxide

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

a. Potassium permanganate

b. Barium hydroxide

c. Sodium citrate

d. Potassium pyroantimonate

e. Potassium carbonate

338. 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. Functional

b. Divisional

c. Matrix

d. Line and staff

e. Linear

339. 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 10 years

b. Every year

c. Once every 3 years

d. Once every 2 years

e. Once every 5 years

340. What amount of the standard pharmacopoeial fluid of aluminum acetate must be taken to prepare 100 mL of 10% Burov's solution?

a. 6.25 mL

b. 10 mL

c. 7.5 mL

d. 12.5 mL

e. 3 mL

341. To identify a substance, an analytical chemist performs a reaction with the cyanogen bromide reagent and aniline. What substance is being analyzed in this case?

a. Ascorbic acid

b. Salicylic acid

c. Nicotinic acid

d. Citric acid

e. Benzoic acid

342. 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. Quercetin and rutin

c. Arbutin and methyl arbutin

d. Apigenin and luteolin

e. Thymol and carvacrol

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

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

**e. Material storage room**

344. 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. Referent
- b. Decentralized
- c. -

**d. Mixed**

e. Centralized

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

- a. Specialty goods
- b. Unsought goods

**c. Service**

- d. Nondurable goods
- e. Convenience goods

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

- a. Sodium bicarbonate
- b. Calcium carbonate
- c. Sodium alginate
- d. Magnesium oxide

**e. Aluminium hydroxide**

347. There are six types of intra-pharmacy control. Which of them requires determination of total mass or volume of a dosage form, as well as the number of doses and the mass of each dose?

- a. Survey control
- b. Written control

**c. Physical control**

- d. Chemical control
- e. Organoleptic control

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

a. Offer

**b. Request**

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

349. 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. Preliminary processing of raw materials for their saturation with 96% alcohol
- e. Intense heating

350. 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. 1 ml
- b. 0,5 ml
- c. 10 ml
- d. 5 ml**
- e. 2 ml

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

- a. Marquis reagent
- b. Erdman reagent
- c. Froehde reagent
- d. Vitali-Morin reagent
- e. Dragendorff reagent**

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

353. 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. Indicative price
- b. Fixed price
- c. Free-of-control price
- d. Contract price
- e. Controlled price**

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

355. 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. 3 years**
- b. 6 months
- c. 5 years
- d. 2 years
- e. 3 months

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

- a. Anaferon
- b. Amizon (Enisamium iodide)
- c. Aflubin
- d. Acyclovir**
- e. Arbidol (Umifenovir)

357. 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. Consignees

**b. Dealers**

c. Brokers

d. Commission agents

e. Agents

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

a. Eriochrome black

b. Litmus paper

**c. Starch**

d. Phenol red

e. Phenolphthalein

359. 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. Extractive values

b. Moisture content

c. Ash values (Total ash)

d. Mineral admixtures

**e. Acceptable admixtures**

360. 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 sprays

b. Eye inserts

c. Eye drops

**d. Eye lotions**

e. Eye ointments

361. 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. Salesmen-oriented sales promotion

b. Public relations, sponsorship

**c. Consumer-oriented sales promotion**

d. Middlemen-oriented sales promotion

e. Personal sale

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

**a. Potassium ferrocyanide**

b. Sodium hydroxide

c. Iron(II) sulfate

d. Potassium bromide

e. Calcium chloride

363. A pharmaceutical company produces various medicines. Name the dosage form consisting of separate hard dry particles disintegrated to varying degree:

a. Emulsions

b. Tablets

**c. Powders**

d. Suspensions

e. Dried extract

364. 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 increase its thermal resistance

e. To lower its melting temperature

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

a. Sodium edetate

b. Hydrochloric acid

c. Sodium hydroxide

d. Potassium permanganate

e. Potassium bromate

366. 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. Atropa belladonna tincture

b. Dimexide (dimethyl sulfoxide)

c. Purified water

d. Glycerine

e. Ethyl alcohol

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

a. Litholytic

b. Detoxicant

c. Astringent

d. Expectorant

e. Cardiotonic

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

a. Morphine hydrochloride

b. Pilocarpine hydrochloride

c. Clonidine hydrochloride

d. Papaverine hydrochloride

e. Procaine hydrochloride

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

a. Ultrasonic dispersion

b. Solubilization

c. Maceration

d. Coacervation

e. Mechanical dispersion

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

a. Gastrically absorbed

b. Fat-soluble

c. -

d. Intestinally absorbed

e. Water-soluble

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

a. Exclusive

b. Selective

c. Sample

d. Bulk

e. Intensive

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

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

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

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

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

375. 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. Retinol**
- b. Tocopherol
- c. Cholecalciferol
- d. Ergocalciferol
- e. Phylloquinone (Phytomenadione)

376. A pharmaceutical company produces aromatic waters. Peppermint water should be prepared in the following proportion:

- a. 1:10
- b. 1:1000**
- c. 1:2000
- d. 1:4000
- e. 1:1

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

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

378. 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**

379. Solutions of protected forms of colloids are used in medical practice. What substance is a

protected colloid?

- a. Protargol
- b. Sodium chloride
- c. Camphor
- d. Potassium iodide
- e. Basic bismuth nitrate

380. 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. Downward
- c. High (stable)
- d. Low
- e. Subsiding

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

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

382. A thymol-containing herbal raw material is stored in the warehouse of a pharmaceutical company. What are its proper storage conditions?

- a. Separate from the others
- b. Under normal conditions
- c. Under the temperature of  $-5^{\circ}\text{C}$
- d. Under  $\text{CO}_2$ -free conditions
- e. In metal containers

383. 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. Direct investments
- c. Import
- d. Franchising
- e. Tender

384. 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 ethyl alcohol
- c. Dissolution in the minimal amount of alcohol-water-glycerin mixture
- d. Dissolution in the melted base
- e. Dissolution in the minimal amount of water

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

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

386. 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. Drug dependence
- d. Cumulation
- e. Constipations

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

a. Paracetamol

**b. Methionine**

- c. Ascorbic acid
- d. Cortisone acetate
- e. Streptocide

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

- a. Furacilin (Nitrofuril)
- b. Boric acid
- c. Calcium gluconate

**d. Copper sulfate**

e. Silver nitrate

389. 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. Mixing

**b. Dissolution**

- c. Dosing
- d. Packing
- e. Comminution

390. A drug quality control laboratory performs certification of antibiotics. What antibiotic has alpha-amino acid residue that can be determined using the ninhydrin reaction?

**a. Ampicillin**

- b. Chloramphenicol
- c. Lincomycin
- d. Oxacillin
- e. Cefazolin

391. What reagent is used to identify sodium sulfate?

- a. Cobalt chloride
- b. Iron(III) chloride

**c. Barium chloride**

- d. Silver nitrate
- e. Calcium chloride

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

- a. Oleum Ricini
- b. Oleum Cucurbitae
- c. Oleum Lini

**d. Oleum Amygdalarum**

e. Oleum Maydis

393. What structure is authorized to issue permits for individual or collective provision of audit services in Ukraine?

a. The State Service of Ukraine for Drug Control

**b. The Audit Chamber of Ukraine**

- c. The State Regulatory Service of Ukraine
- d. The Control and Revision Office

e. The State Service of Ukraine for Medicines

394. An analytical quality control laboratory performs analysis of an ascorbic acid substance. What device must be used to determine its specific optical rotation?

- a. Polarimeter
- b. Viscometer
- c. Refractometer
- d. Spectrophotometer
- e. Hydrometer

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

- a. Wax paper
- b. Parchment
- c. Gelatin capsules
- d. Ordinary paper capsules
- e. Container with a lid that has holes in it

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

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

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

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

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

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

399. What adjuvants are added to a tablet mass to promote its breakup?

- a. Disintegrants
- b. Antioxidants
- c. Thickeners
- d. Lubricants
- e. Fillers

400. To check the identity of a herbal raw material, several drops of an alcoholic solution of alpha-naphthol and concentrated sulfuric acid were applied to the root section of Cichorium intybus L.. It resulted in pink-violet coloring that indicates the presence of the following in the herbal raw material:

- a. Slime
- b. Essential oils
- c. Inulin
- d. Pectin
- e. Fatty oils

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

**a. Manufacturing costs**

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

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

**a. Lily-of-the-valley grass**

- b. Wormwood grass
- c. Plantain foliage
- d. Dandelion roots
- e. Buckthorn bark

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

- a. Bisoprolol
- b. Diltiazem

**c. Triamterene**

- d. Furosemide
- e. Prazosin

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

- a. Calcium antagonists
- b. Tranquilizers
- c. Antipsychotics
- d. Antacids

**e. ACE inhibitors**

405. Incoming medicines inspection is performed by an authorized employee. What is textbfNOT a part of the responsibilities of this person?

- a. To keep a roster of incoming medicines
- b. -

**c. To draw up orders for medicines and medical products, to conclude sales contracts**

- d. To check the pharmacy stock for low-quality or fake medicines
- e. To draw up conclusions regarding inspection of incoming medicines

406. 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. Reducing the content of ballast substances
- b. Extending the shelf life of raw materials

**c. Formation of biostimulants**

- d. Acceleration of bioactive substances extraction
- e. Prevention of hydrolysis of bioactive substances

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

**a. Hydrophobic bases**

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

408. 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. Direct**



- c. Indirect
- d. Mixed
- e. Mediated

409. 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. Medical facility stamp, signature of the head manager of the medical facility, seal of the medical facility
- b. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility, seal of the medical facility**
- c. Doctor's personal seal and signature
- 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

410. 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. Delegation of authority**
- b. Dissolution of authority
- c. -
- d. Reduction of authority
- e. Withdrawal of authority

411. In what capacity is benzyl alcohol used as a component of solutions for parenteral administration?

- a. Isotonicity regulator
- b. pH regulator
- c. Antimicrobial preservative**
- d. Antioxidant
- e. Buffer solution

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

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

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

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

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

415. 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. Molisch's test
- e. Fehling's test

416. 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. *Styphnolobium japonicum*
- c. *Thermopsis alterniflora*
- d. *Bidens tripartita*
- e. *Glycyrrhiza glabra*

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

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

418. 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. Cocarboxylase hydrochloride
- b. Riboflavin
- c. Vicasol (Menadione)
- d. Ergocalciferol
- e. Rutin

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

- a. Sodium sulfite
- b. Boric acid
- c. Weibel stabilizer
- d. 0.1 M solution of sodium hydroxide
- e. 0.1 M solution of hydrochloric acid

420. What medicinal substance has benzimidazole in its structure?

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

421. What department of a pharmaceutical wholesaler analyzes the demand for medicines and implements measures to stimulate their sales?

- a. Storage
- b. Procurement
- c. Marketing
- d. Transport
- e. Automated accounting

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

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

- b. 1/20 of the percolator's volume per hour
- c. 1/30 of the percolator's volume per 30 minutes
- d. 1/10 of the percolator's volume per 20 minutes
- e. 1/40 of the percolator's volume per hour

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

**a. Act on the inventory results**

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

424. 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. Conversion

**b. Counteractive**

- c. Stimulating
- d. Synchromarketing
- e. Remarketing

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

- a. Glycoside
- b. Acyclic terpene
- c. Polypeptide
- d. Bicyclic terpene

**e. Monocyclic terpene**

426. What preparation has an antiemetic effect?

- a. Sodium bicarbonate
- b. Clarithromycin
- c. Loperamide
- d. Aluminum phosphate

**e. Metoclopramide**

427. Practically no microorganisms can develop in the sugar syrup, if its concentration is optimal. Why is it so?

- a. Because of decreased surface tension between the solution and the microbial cell
- b. Because of low pH
- c. Only because preservatives were added into the syrup
- d. Because of high pH

**e. Because osmotic pressure in the solution is higher than in the microbial cell**

428. 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. Integrated marketing
- b. Production development
- c. Socio-ethical marketing**
- d. Product development
- e. Intensification of commercial effort

429. A pharmacy pays considerable attention to the technique of medicine placement in the glass cabinets and on the shelves to create favorable conditions for sales and attracting the attention of consumers. Name this set of measures:

- a. Public relations
- b. Merchandising**
- c. Lobbying
- d. Advertising

e. Personal sale

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

a. Iridoids

b. Alkaloids

c. Essential oils

d. Polysaccharides

e. Saponins

431. A man with arterial hypertension has blood pressure of 160/100 mm Hg and heart rate of 64/min. and presents with signs of fluid retention (pastose shins, dyspnea, etc.). What hypotensive agent is the drug of choice in case of edema syndrome?

a. Metoprolol

b. Enalapril

c. Hydrochlorothiazide

d. Losartan

e. Amlodipine

432. 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. Cash flow register

c. Commodity report

d. Inventory

e. Accounts ledger

433. Throughout the year, three employees voluntarily resigned from a pharmaceutical company. What type of employee movement is it?

a. Horizontal job rotation

b. Recruiting

c. Vertical job rotation

d. Staff turnover

e. -

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

a. Orthosiphon stamineus

b. Glycyrrhiza glabra

c. Aralia mandshurica

d. Panax ginseng

e. Astragalus dasyanthus

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

a. Sodium eosinate

b. Iron (III) ammonium sulphate

c. Potassium chromate

d. Starch

e. Bromphenol blue

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

a. Folia Absinthii

b. Folia Eucalypti

c. Folia Menthae piperitae

d. Folia Salviae

e. Folia Uvae ursi

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

- a. Ninhydrin test
- b. Murexide test
- c. Iodoform test**
- d. Thalleioquin test
- e. Hydroxamate test

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

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

439. 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. 10 mL**
- b. 0.5 mL
- c. 5 mL
- d. 1 mL
- e. 2 mL

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

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

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

- a. -
- b. Accountant
- c. Pharmacist
- d. Head of a department
- e. Packer**

442. The tableting department of a pharmaceutival company begins to produce "fizzy" vitamin tablets. Name the groups of gas-producing leavening agents:

- a. Tartaric acid and sodium bicarbonate**
- b. Citric acid and aerosil (fumed silica)
- c. Ascorbic acid and aerosil (fumed silica)
- d. Tartaric acid and magnesium stearate
- e. Citric acid and magnesium stearate

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. Market development**
- b. Consolidation
- c. Diversification
- d. Market penetration
- e. Product development

444. 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. Business planning**

- c. Financial planning
- d. Operational planning**
- e. Strategic planning

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

446. 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. Maslow's hierarchy of needs
- b. McGregor's Theory X and Theory Y
- c. Herzberg's two-factor theory
- d. Vroom's expectancy theory**
- e. McClelland's theory of needs

447. 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. Panaxosides
- c. Ginkgosides
- d. Glucofrangulins**
- e. Lanatosides

448. A pharmacist uses Vitepsol to prepare rectal suppositories. What fluid should be used in this case to lubricate the suppository form?

- a. Purified water
- b. Spiritus saponatus**
- c. Vaseline oil (liquid paraffin)
- d. Ethyl alcohol
- e. Peach oil

449. 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. Centralized
- b. Bureaucratic
- c. Divisional**
- d. Decentralized
- e. Functional

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

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

451. 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. Ascorbic acid
- b. Acetylcysteine

c. Doxycycline

d. Codeine phosphate

e. Ambroxol

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

a. Bromhexine

b. Carbocysteine

c. Ambroxol

d. Trypsin

e. Acetylcysteine

453. 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. Anthraquinones

b. Glycosides

c. Iridoids

d. Alkaloids

e. Tannins

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

a. Differentiation

b. Modernization

c. Diversification

d. Product modification

e. Reduction

455. To ensure the quality of medicines the pharmacy devotes much attention to quality control. The following document is the quality assurance of a drug:

a. Sanitary-epidemiological certificate

b. Registration certificate

c. Certificate of compliance with hygiene regulations

d. Quality certificate

e. Sanitary passport

456. 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. Angiotensin-converting-enzyme inhibitors

b. Imidazoline receptor blockers

c. Calcium channel blockers

d. Diuretics

e. Ganglionic blockers

457. 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. Exacerbation of chronic bronchitis

b. Gastroesophageal reflux

c. Accumulation of residual bradykinin in the blood

d. Increased tone of the cough center

e. Inhibition of histamine synthesis

458. 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. Dysfunctional conflict

b. Conflict between individual and group

c. Intergroup conflict

d. Interpersonal conflict

e. Intrapersonal conflict

459. Profitability is one of the economic indicators of the pharmacy's trading activity. It is calculated as a:

a. Ratio of the sum of profits to the total cost of fixed assets x100%

b. Ratio of the sum of profits to the sum of turnover x100%

c. Ratio of the sum of profits to the sum of expenses x100%

d. -

e. Ratio of the sum of profits to the sum of cost price of the goods x100%

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

a. Hydrochloric acid

b. Methyl cellulose

c. Polyvinyl alcohol

d. Sodium chloride

e. Boric acid

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

a. Oleum Lini

b. Oleum Cucurbitae

c. Oleum Ricini

d. Oleum Sojae

e. Oleum Amygdalarum

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

a. Astragalus dasyanthus

b. Helianthus tuberosus

c. Hypericum maculatum

d. Brassica juncea

e. Althaea officinalis

463. The extraction process consists of several stages. What is the final stage of the extraction process?

a. Washing the herbal raw material with an extractant

b. Dissolution

c. Mass transfer

d. Extraction of primary juice

e. Maceration

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

a. Stabilization

b. Dispersion

c. Action prolongation

d. Emulsification

e. Create pressure in the package

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

a. Send the medicines to the Ministry of Health of Ukraine

b. Send the medicines to the nearest compounding pharmacy that employs a dispensing chemist

c. Send the medicines back to the supplier

d. Send the medicines back to the manufacturer

e. Send the medicines to a local laboratory of the State Drugs and Medications Control Service

466. Oblong tablets are called:



a. Pellets

**b. Caplets**

c. Capsules

d. Forte tablets

e. Dragee

467. What adjuvants improve the wettability and water permeability of the components during the tablet production?

a. Thickeners

b. Antifriction materials

c. Film formers

**d. Leaveners**

e. Solvents

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

a. Omeprazole

b. Tetracycline

**c. Bismuth subcitrate**

d. Amoxicillin

e. Metronidazole

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

**a. Imidazole**

b. Furan

c. Pyrazole

d. Pyrrole

e. Thiazole

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

**a. Cold infusion**

b. Immediate filtration

c. The presence of hydrochloric acid

d. The presence of sodium bicarbonate

e. The presence of ascorbic acid

471. Powder moisture content affects its:

a. Solubility

b. Particle size

**c. Flowability**

d. Homogeneity

e. Particle shape

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

a. Hydrochloric acid

b. Potassium bromate

c. Sodium edetate

**d. Sodium thiosulfate**

e. Sodium hydroxide

473. 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. Trade union committee

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

**c. Labour disputes committee (LDC)**

- d. Commercial court
- e. The Ministry of Public Health of Ukraine

474. 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 summary
- d. Payment request and order
- e. Cheque payable

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

476. Which of the plants listed below contain inulin?

- a. Rhamnus cathartica, Sorbus aucuparia
- b. Juniperus communis, Thymus serpyllum
- c. Salvia officinalis, Artemisia absinthium
- d. Inula helenium, Helianthus tuberosus
- e. Ledum palustre, Acorus calamus

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

- a. Methylcellulose
- b. Starch
- c. Pepsin
- d. Protargol
- e. Gelatine

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

479. An analytical chemist uses nitritometry for quantitative determination of procainamide hydrochloride. What indicator is used in this case to determine the titration endpoint?

- a. Phenolphthalein
- b. Xylenol orange
- c. Tropeolin 00
- d. Methyl red
- e. Methyl orange

480. Complex drug product Urolesan is a litholytic, antispasmodic, and diuretic agent. It contains ethanolic extract of:

- a. -
- b. Origanum vulgare
- c. Rhododendron tomentosum
- d. Thymus serpyllum
- e. Matricaria chamomilla

481. 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 Eucalypti
- c. Folia Farfarae**
- d. Folia Menthae
- e. Folia Uvae-ursi

482. 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. Product report
- b. Act on established discrepancy in quantity and quality**
- c. Logbook of receipt of goods by group
- d. Register of medicinal products received by the subject of economic activity
- e. Contract of sale

483. 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 in a slightly alkaline medium
- b. Decoction is made and filtered immediately without cooling
- c. Infusion is made and acidated with hydrochloric acid
- d. Infusion is made by means of cold maceration
- e. Decoction is made and filtered after complete cooling**

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

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

485. Identification of potassium iodide requires performing an oxidation reaction in acid medium, which produces free iodine that colors chloroform layer. What reagent is used for such a reaction?

- a. Silver nitrate
- b. Barium chloride
- c. Sodium carbonate
- d. Sodium nitrite**
- e. Ammonium oxalate

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

487. 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. Nitroglycerine**
- b. Nifedipine

- c. Digoxin
- d. Bisoprolol
- e. Isosorbide dinitrate

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

- a. Microcapsule
- b. Tubatine
- c. Spansule
- d. OROS tablet
- e. Pearl

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

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

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

- a. Concentrated sulfuric acid
- b. Perchloric acid 0.1 M
- c. Diluted hydrochloric acid
- d. Anhydrous acetic acid
- e. Diluted phosphoric acid

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

- a. Chondrotoxicity
- b. Photosensitization
- c. Nephrotoxicity
- d. Dysbiosis
- e. Allergic response

492. 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. Ammonium chloride solution
- c. Sodium acetate solution
- d. Potassium hydroxide solution
- e. Sodium bicarbonate solution

493. 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. Inhibitors of protein-degrading enzymes
- b. Alpha-blockers
- c. Glucocorticosteroids
- d. Proton pump inhibitors
- e. Beta-blockers

494. 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. Organization
- b. Planning

### c. Motivation

- d. Delegation
- e. Control

495. Name the list of effective and safe to use drugs and medical products for prevention, diagnosing, and treatment of the most common pathologies, based on their importance for healthcare in a specific country:

- a. Drugs subject to strict accounting in a special inventory log
- b. Substandard drugs
- c. Over-the-counter drugs
- d. Precursors

### e. Essential drugs

496. 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. Prescription form f-1
- b. Prescription form f-3
- c. Two copies of prescription form f-1
- d. Two copies of prescription form f-3

### e. Two prescription forms f-1 and f-3

497. 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. Effectiveness
- b. Efficiency
- c. Practical implementation of management decisions

### d. Survival

- e. Productivity

498. 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. Exenatide
- c. Metformin
- d. Arphasetin

### e. Insulin

499. 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. Anthracene derivatives
- b. Flavonoids
- c. Tannins

### d. Saponins

- e. Coumarins

500. 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. Submission of a resume
- c. Preliminary interview
- d. Filling in a questionnaire

### e. Targeted selection interview

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

- a. From 21.00 to 9.00

b. From 20.00 to 9.00

**c. From 22.00 to 6.00**

d. From 24.00 to 8.00

e. From 23.00 to 7.00

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

a. Novelty of the drugs

b. Quality of the drugs

c. Market stability

**d. Competitiveness of the drugs**

e. Life cycle stage of the drugs

503. 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. Economic planning

**b. Pure competition**

c. Oligopoly

d. Monopolistic competition

e. Pure monopoly

504. What hypotensive drug is an agent of choice for the patients suffering from arterial hypertension with concomitant type I diabetes mellitus?

a. Carvedilol

b. Hydrochlorothiazide

c. Labetalol

d. Atenolol

**e. Lisinopril**

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

a. Kanamycin monosulfate

b. Doxycycline hydrochloride

c. Lincomycin hydrochloride

**d. Streptomycin sulfate**

e. Amoxicillin

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

a. Give nitroglycerine sublingually

b. Make an intramuscular injection of caffeine

c. Make an insulin injection

**d. Give the patient a sugar lump to eat and a cup of warm sweetened tea**

e. Introduce 0.1% adrenaline solution subcutaneously

507. 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. 90 mL

**b. 120 mL**

c. 30 mL

d. 60 mL

e. 7.5 mL

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

a. Securinine nitrate

**b. Novopassit**

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

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

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

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

- a. Methionine
- b. Unithiol (Dimercaptopropansulfonate sodium)
- c. Protamine sulfate**
- d. Naloxone
- e. Thiosulfate

511. 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. Torpedo**
- d. Pessary
- e. Sphere

512. Herbal mixtures contain several types of comminuted or non-comminuted herbal raw material. What stage is textbfNOT a part of herbal mixture production?

- a. Packing
- b. Sifting
- c. Marking
- d. Mixing
- e. Extraction**

513. 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. Green
- c. Red-brown
- d. Creamy
- e. White and amorphous**

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

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

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

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

- a. Fructus Viburni
- b. Folium Cotini coggygriae**
- c. Rhizomata Bistortae
- d. Rhizomata et radix Sanguisorbae
- e. Rhizomata Bergeniae

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

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

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

519. 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. Alcohol precipitation
- d. Amorphous state
- e. Solubility in fats

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

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

522. 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. Dry cough
- b. Headache**
- c. Urinary retention
- d. Increased blood pressure
- e. Drowsiness

523. 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. Goods turnover**



- b. Profit
- c. Profitability
- d. Breakeven point**
- e. Markup level

524. Nitroxoline with sodium hydroxide solution produces:

- a. Orange-red coloration**
- b. Green-black coloration
- c. Yellow precipitate
- d. White precipitate
- e. Violet coloration

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

526. Weibel's liquid is necessary to stabilize the solution of a certain substance. Name this substance:

- a. Magnesium sulfate
- b. Sodium chloride
- c. Potassium chloride
- d. Novocaine
- e. Glucose**

527. 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. Clonidine, ampoules, 1 ml of 0,01% solution №10
- b. Tramadol, capsules, 0,05 №10
- c. Ascorbic acid, 500 mg №30**
- d. Phenobarbital, tablets, 100 mg №6
- e. Ketamine, 5% infusion solution, 2 ml №10

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

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

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

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

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

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

e. Microcrystalline

531. 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. Enterosgel

**b. Diclofenac sodium**

c. Atropine sulfate

d. Drotaverine hydrochloride

e. Cyanocobalamin

532. 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. Refractometry

c. Thin-layer chromatography

**d. Polarimetry**

e. Nuclear magnetic resonance spectroscopy

533. Calendula Ointment is placed on the shelf next to Dr. Theiss Calendula Ointment. What approach to the shelf layout is used in this pharmacy?

a. Corporate block layout

b. Doubling product facings

c. By package size

d. Seasonality

**e. Among competitors**

534. 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. Hypophosphite

b. Aminomethyl alizarin acetic acid

**c. Thioacetamide**

d. Sulfomolybdenum

e. Methoxyphenylacetic acid

535. 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. Aldehyde group**

b. Alcoholic hydroxyl

c. Amide group

d. Phenolic hydroxyl

e. Ester group

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

a. Sodium benzoate

b. Hexamethylenetetramine

**c. Novocaine**

d. Calcium chloride

e. Potassium chloride

537. 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. Cardiac glycosides**

b. Nonsteroidal anti-inflammatory drugs

c. Inhaled glucocorticoids

d. Mucolytics

e. Antibiotics

538. 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 are created to implement the production process**
- c. They form spontaneously
- d. The group leader receives authority from the group
- e. They resist changes in the organization

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

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

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

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

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

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

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

543. 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. Tartaric acid solution**
- b. Nitric acid solution
- c. Hydrochloric acid solution
- d. Acetic acid solution
- e. Benzoic acid solution

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

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

545. 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. Behavioral

- b. Psychographic
- c. Geographic
- d. Demographic**
- e. Socioeconomic

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

- a. Bromophenol blue
- b. Methyl orange
- c. Murexide
- d. Starch**
- e. Phenolphthalein

547. What substance is most often used as a vehicle in triturations?

- a. Sucrose
- b. Lactose**
- c. Glucose
- d. Talcum
- e. Starch

548. 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. Anthracene derivatives and tannins**
- c. Essential and fatty oils
- d. Iridoids and vitamins
- e. Flavonoids and essential oils

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

- a. Resuspension
- b. Dissolution time**
- c. Mechanical strength
- d. Boiling point
- e. Dry residue

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

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

551. 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. Lanatosides A and B
- c. Purpurea glycosides A and B**
- d. Convallatoxin
- e. Atropine and hyoscyamine

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

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

e. Comminute it with glycerin

553. What preparation has an antacid effect?

- a. Famotidine
- b. Ranitidine
- c. Aluminum phosphate
- d. Omeprazole
- e. Pirenzepine

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

- a. Radices Althaeae
- b. Rhizomata et radices Inulae
- c. Radices Ononidis
- d. Radices Taraxaci
- e. Rhizomata et radices Rubiae

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

- a. Ampicillin
- b. Gentamicin
- c. Erythromycin
- d. Penicillin
- e. Tetracycline

556. Silibor is a herbal drug that is used as a hepatoprotector. This drug is made from:

- a. Flores Tanacetii
- b. Herba Equiseti arvensis
- c. Semina Sylvestris
- d. Flores Centaureae cyanus
- e. Flores Crataegi

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

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

558. 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. Metoclopramide
- b. Metoprolol
- c. Metronidazole
- d. Meloxicam
- e. Metformin

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

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

560. What should be the disintegration time for effervescent tablets according to the requirements of

the State Pharmacopoeia of Ukraine?

- a. 3 minutes
- b. 60 minutes
- c. 30 minutes
- d. 5 minutes**
- e. 15 minutes

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

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

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

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

- a. Preparation of solutions for various pharmaceutical purposes**
- b. Sublingual administration
- c. Rectal administration
- d. Implantation
- e. Preparation of solutions for injections

564. 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. Job rotation
- b. Personnel certification
- c. Staff turnover**
- d. Staff motivation
- e. Staff dynamics

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

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

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

- a. Intuitive**
- b. Adaptive
- c. Collective
- d. Collegial
- e. Rational

567. 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. Sales**

- c. Human resources
- d. Procurement
- e. Manufacturing

568. How long must a pharmacy keep its logbooks with the records about the balance of narcotic drugs, psychotropic substances, and precursors?

**a. 5 years**

- b. 1 year after the current one
- c. 3 years
- d. 2 years after the current one
- e. 7 years after the current one

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

- a. Sedative
- b. Antitumor

**c. Tonic**

- d. Reparative
- e. Hepatoprotective

570. 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. Calcium channel blockers
- b. Antispasmodics
- c. Beta-adrenergic antagonists

**d. Nitrates**

- e. Alpha-adrenergic agonists

571. 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. *Origanum vulgare*
- c. *Capsella bursa-pastoris*
- d. *Atropa belladonna*

**e. *Urtica dioica***

572. 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. Acyclovir

**b. Isoniazid**

- c. Metronidazole
- d. Benzylpenicillin (Penicillin G)
- e. Doxycycline hydrochloride

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

- a. Diversification
- b. Etiquette
- c. Integration

**d. Culture**

- e. -

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

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

576. In the course of its development a pharmaceutical company forms its culture. Culture of a pharmaceutical company is typically based on:

- a. License agreement
- b. Legislation in force
- c. Specifics of manufacturing process
- d. Values, traditions, and behavioral norms characteristic of company employees**
- e. Relevant pharmaceutical practices

577. A pharmacist at the pharmacy has received a promotion. What type of job rotation is it?

- a. Combined
- b. Mixed
- c. -
- d. Vertical**
- e. Horizontal

578. Phytochemical workshop of a factory manufactures pancreatin. What is the source material for obtaining pancreatin?

- a. Heart of cattle
- b. Gastric mucosa of pigs
- c. Lungs of cattle
- d. Pancreas of pigs or cattle**
- e. Egg white

579. What tincture is industrially manufactured at the ratio of 1:2?

- a. Styphnolobium japonicum**
- b. Atropa belladonna
- c. Hypericum
- d. Mentha
- e. Leonurus

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

- a. Patient**
- b. Physician
- c. Drug manufacturer
- d. Head manager of the retail pharmacy
- e. Pharmacist

581. 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 decrease, demarketing
- c. Demand making, conversion marketing**
- d. Demand stimulation, promotional marketing
- e. Demand leveling, synchromarketing



582. 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. Idiosyncrasy
- b. Drug dependence
- c. Allergic response
- d. Withdrawal syndrome
- e. Dysbiosis

583. During drug identification, a sample of the substance was moistened with concentrated sulfuric acid and the bottom of the test tube was carefully heated. A white plaque appeared that coated the test tube walls from the inside. What substance can be detected using this reaction?

- a. Morphine hydrochloride
- b. Benzocaine
- c. Theophylline monohydrate
- d. Nitrofurantoin (Nitrofurazone)

e. Sodium benzoate

584. 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. Iodometry
- c. Acidimetry
- d. Bromatometry
- e. Complexometry

585. What is the fundamental difference of the Japanese management model?

- a. Strictly formalized management system
- b. Collectivism
- c. Individualism
- d. Strict control procedure
- e. Focus on individual results

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

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

587. 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. Film advertising
- b. Print advertising
- c. Point-of-sale advertising
- d. Souvenir advertising
- e. Out-of-home advertising

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

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

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

- a. Grass of common periwinkle
- b. Grass of plume poppy
- c. Tea leaves

d. Pods of opium poppy

e. Celandine grass

590. Working hours for the pharmacy workers are reduced. What is the length of the work week for the pharmacist-analyst?

a. 45 hours

b. 30 hours

c. 36 hours

d. 32 hours

e. 24 hours

591. A pharmacy has been licensed for wholesale distribution of medicinal products. What sales operation belongs to a wholesale distribution?

a. Sale of drugs to chronically ill patients

b. Sale of ready-to-use drugs

c. Sale of extemporal dosage forms

d. Sale to other organizations for commercial use

e. Sale of over-the-counter drugs

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

a. Metronidazole

b. Levofloxacin

c. Acyclovir

d. Fluconazole

e. Amikacin

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

a. Sulfur

b. Ethacridine lactate

c. Protargol

d. Streptocide (Sulfanilamide)

e. Camphor

594. What is the medicine of choice for treatment of acute pyelonephritis in a woman, who is at the I trimester of her pregnancy?

a. Gentamicin

b. Co-trimoxazole

c. Ofloxacin

d. Amoxicillin

e. Norfloxacin

595. 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. 10

c. 30

d. 40

e. 20

596. 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. Sodium hydrochloride

b. Cysteine

c. Hydrochloric acid

d. Ascorbic acid

e. Sodium sulfate

597. An analytical pharmacist detects a primary aromatic amino group in the structure of benzocaine (anesthesine). What compound would the pharmacist use for identification?

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

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

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

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

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

601. 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. Atorvastatin**
- b. Nifedipine
- c. Nitroglycerine
- d. Hydrochlorothiazide
- e. Lisinopril

602. 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. Packing of herbal raw material
- b. Standardization of herbal raw material
- c. Harvesting of herbal raw material
- d. Marking of herbal raw material**
- e. Sorting of herbal raw material

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

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

604. 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. Disbursement cash order**

- b. Cashier's check
- c. Expense invoice
- d. Receipt for issuing money
- e. Profit invoice

605. 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. Naloxone
- b. Vicasol (Menadione)
- c. Methionine
- d. Protamine
- e. Unithiol (DMPS)**

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

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

607. Representatives of two pharmaceutical companies - partners from Ukraine and China - for some time had communication problems due to the use of words and verbal symbols with different meanings. What caused the deformation of the communication process and hindered the exchange of information in this case?

- a. Semantic barriers**
- b. Poor feedback
- c. Nonverbal barriers
- d. Lack of understanding of the information's importance
- e. Psychological distance

608. After mineralization of bromocamphor with zinc dust, bromide-ions can be detected in the filtrate in the presence of  $\text{CHCl}_3$  by performing a reaction with:

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

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

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

610. 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. Methylene blue
- c. Furacilin (Nitrofurazone)
- d. Brilliant green
- e. Riboflavin

611. 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. Titrated sodium edetate solution

- b. Iodized potassium iodide solution
- c. Titrated hydrochloric acid solution**
- d. Freshly prepared tannin solution
- e. Saturated sodium chloride solution

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

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

613. 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. Consolidation
- b. Diversification**
- c. Integration
- d. Intensification
- e. Insurance

614. What drug is used to treat hyperthyroidism?

- a. Insulin
- b. Mercazolil (Thiamazole)**
- c. Oxytocin
- d. Prednisolone
- e. Metformin

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

- a. Social responsibility**
- b. Commercial activity
- c. -
- d. Financial activity
- e. Manufacturing activity

616. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

- a. Vincaton
- b. Galantamine hydrobromide
- c. Digitoxin
- d. Vinblastine
- e. Ergotamine hydrotartrate**

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

618. Sodium and potassium oxides are introduced into the ampoule glass to:

- a. Increase its dimming ability
- b. Decrease its melting point**
- c. Increase its thermal stability
- d. Increase its mechanical stability
- e. Increase its chemical stability

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

- a. *Leucanthemum vulgare*
- b. *Chamomilla recutita***
- c. *Anthemis cotula*
- d. *Tripleurospermum inodorum*
- e. *Anthemis arvensis*

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

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

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

622. 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. Methylprednisolone
- c. Methotrexate**
- d. Nimesulide
- e. Diclofenac sodium

623. 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. 0.3 g
- b. 0.1 g
- c. 0.5 g
- d. 0.25 g**
- e. 0.2 g

624. 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. Administrative
- b. Institutional
- c. Technical**
- d. Middle-level
- e. Top-level

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

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

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

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

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

628. 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. Selective method**
- b. Intensive method
- c. Integrated method
- d. Mass sales method
- e. -

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

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

630. A pharmacy needs to prepare a furacilin (nitrofural) solution (1:5000). What are the specifics of furacilin dissolution?

- a. In the purified water, after grinding it down
- b. In the cold purified water
- c. In the minimal amount of ethanol
- d. In the purified water, filtered in advance
- e. In the boiling water in the presence of sodium chloride**

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

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

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

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

d. Medical certificate

**e. Employee time sheet**

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

a. Sodium fluoride

b. Potassium iodide

c. Potassium fluoride

**d. Sodium bromide**

e. Sodium chloride

635. Bromatometry allows quantitative analysis of the following drug:

a. beta-Alanine

b. Potassium acetate

c. Glutamic acid

**d. Sodium salicylate**

e. Benzoic acid

636. Bank is a financial mediator in pharmacy's payments. Payment of taxes withheld from the employees' salary into the budget requires the following document:

a. Check payable in account

**b. Payment order**

c. Cash register receipt

d. Cash order

e. Accounting form

637. In the process of packing and transporting, herbal raw material often becomes partially comminuted or even powdered. Excessive comminution has negative effect on the herbal raw material appearance and its quality. What tool is used to separate these excessively comminuted particles from the rest of the herbal raw material?

a. Scalpel

b. Filter

c. Tweezers

**d. Sieve**

e. Mortars

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

a. Decrease of the competition between the drug analogues

**b. Quick sales of the whole range of goods on offer in the pharmacies and an overall increase of sales**

c. Expanding the range of pharmaceutical goods

d. -

e. Price-cutting for unpopular medicines

639. 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. Mixed

b. Decentralized

c. Referent

d. Specialized

**e. Centralized**

640. Accounts receivable develop in the process of pharmaceutical company work. Specify where in the balance book they are recorded:

a. Account

b. Liabilities

c. Debit

**d. Assets**



e. Credit

641. The "Aromeline" phytodrug exhibits P-vitamin activity. What herbal raw material is used in production of this drug?

- a. Fructus Sorbi
- b. Fructus Crataegi
- c. Fructus Viburni
- d. Fructus Sambuci nigrae
- e. Fructus Aroniae melanocarpae**

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

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

643. 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. 10.0 g and 100 mL
- d. 0.25 g and 100 mL
- e. 20.0 g and 140 mL

644. 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. Diprazine (promethazine) solution
- b. Hexamethylenetetramine solution**
- c. Aminazine solution
- d. Glucose solution
- e. Novocaine (procaine) solution

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

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

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

647. Adrenergic drug adrenaline tartrate contains phenolic hydroxyls in its structure. What solution should be used to conduct a reaction for their detection?

- a. Magnesium sulfate solution
- b. Potassium bromide solution
- c. Copper (II) sulfate solution
- d. Iron (III) chloride solution**
- e. Sodium nitrate solution

648. The marketing department of a pharmaceutical company conducts a field research of the

pharmaceutical market. What method of information collection belongs to the field research?

a. Analysis of the periodical publications

**b. Customer survey**

c. Analysis of the company's statistical reports

d. Analysis of the statistical reference books

e. Analysis of the scientific publications

649. 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. Human resources

**b. Technologies**

c. Structure

d. Tasks

e. Mission

650. 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. Complexometric titration**

c. Alkalimetry

d. Acidimetry

e. Nitritometric titration

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

a. -

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

c. Coupons

**d. Bonuses**

e. In-store advertising

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

a. 0.03 g

b. 0.1 g

**c. 0.05 g**

d. 0.02 g

e. 0.04 g

653. 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. Potassium chromate

b. Methyl orange

**c. Ferroin**

d. Phenolphthalein

e. Bromphenol blue

654. 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. -

b. PEST analysis

**c. SWOT analysis**

d. VEN analysis

e. ABC analysis

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

a. 20% sodium bromide solution

b. Potassium bromide

**c. Tincture of valerian**

d. Purified water

e. Simple syrup

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

a. Analgesic

b. Anticonvulsant

**c. Antidepressant**

d. Antiasthmatic

e. Expectorant

657. 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.  $K_3[Fe(CN)_6]$

**b.  $FeCl_3$**

c. Concentrated  $HNO_3$

d.  $NH_3$

e.  $AgNO_3$

658. Name the optimal vehicle for soluble vaginal suppositories:

a. Hard fat

b. Cocoa butter

**c. Polyethylene oxide**

d. Glycerine

e. Fat

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

a. Multi-layered

b. Porous

**c. Lyophilized**

d. Dyed

e. Hollow

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

a. Dissolution in oil

**b. Introduction as a suspension into the prepared emulsion**

c. Comminution with the water intended for the dilution of the primary emulsion

d. Dissolution in the prepared emulsion

e. Dissolution in water to prepare the primary emulsion

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

a. Bolus alba (kaolin), bentonite

b. Sodium bicarbonate, sodium sulfate

**c. Camphor, menthol**

d. Zinc oxide, talcum

e. Boric acid, calcium carbonate

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

**a. Ergotamine hydrotartrate**

b. Papaverine hydrochloride

c. Morphine hydrochloride

d. Atropine sulfate

e. Codeine phosphate

663. 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. With 30% discount
- b. Free of charge**
- c. At full cost
- d. With 70% discount
- e. With 50% discount

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

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

665. 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 hydroxide
- b. Sodium bicarbonate
- c. Sodium metabisulfite
- d. Ascorbic acid
- e. Hydrochloric acid**

666. 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. Riboflavin
- b. Calcitonin
- c. Piperazine**
- d. Ribavirin
- e. Pyrazinamide

667. If potassium salts are put into the colorless flame of a gas burner, the flame colors:

- a. Violet**
- b. Green
- c. Red
- d. Brick-red
- e. Yellow

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

- a. 5 weeks
- b. 3 weeks
- c. 5-7 days**
- d. 2 weeks
- e. 1 month

669. 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. Request for a cash transfer
- b. Transactions ledger
- c. Fiscal cash receipt for the goods/services**
- d. Cash book
- e. Accompanying statement to the bag with cash

670. 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. Dependence**
- b. Tolerance

- c. Cumulation
- d. Potentiation
- e. Summation

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

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

**e. Antibiotic malabsorption**

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

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

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

- a. Olimetinum
- b. Bellasthesin**
- c. Herbogastrine
- d. Solutan
- e. Urolesan

674. 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. 100% of the average salary**
- b. 50% of the average salary
- c. 60% of the average salary
- d. 80% of the average salary
- e. 70% of the average salary

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

676. A man came to a pharmacist and asked to recommend him a herbal tonic and adaptogen. What herbal raw material has such a pharmacological effect?

- a. Fennel fruits
- b. Flax seeds
- c. Pumpkin seeds
- d. Silybum fruits
- e. Schisandra seeds**

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

- a. Reaction with an alkali**
- b. Reaction with Fehling's reagent
- c. Reaction with ammonium iron(III) sulfate
- d. Reaction with iron sulfate
- e. Reaction with Dragendorff's reagent

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

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

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

680. 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. Prior delivery
- b. Seasonal accumulation
- c. Single delivery
- d. Specific demand
- e. Current demand**

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

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

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

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

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

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

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

- a. Granulation in the fluidized bed**
- b. Granulation using briquetting

- c. Granulation in spray dryers
- d. Granulation in the dragee pan
- e. Wet granulation in vertical granulators

686. 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. Lobbying
- d. Advertising
- e. Sales promotion**

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

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

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

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

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

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

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

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

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

692. 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. Rosa canina
- b. Plantago major**

- c. *Capsella bursa-pastoris*
- d. *Urtica dioica*
- e. *Althaea officinalis*

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

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

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

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

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

696. 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. *Rubus idaeus*
- b. *Alnus incana*
- c. *Olea europaea*
- d. *Juniperus communis*
- e. *Humulus lupulus***

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

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

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

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

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

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



700. 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. Ascorbic acid
- c. Tocopherol acetate
- d. Ergocalciferol
- e. Retinol acetate**

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

702. 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. Hydrochlorothiazide
- b. Calcium chloride
- c. Calcium gluconate
- d. Potassium aspartate and magnesium aspartate**
- e. Euphyllin (Aminophylline)

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

- a. Purine
- b. Pteridine**
- c. Phenothiazine
- d. Corrin
- e. Isoalloxazine

704. 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. Streptokinase
- c. Vicasol (Menadione)
- d. Acetylsalicylic acid
- e. Protamine sulfate**

705. 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. Alkaloids
- c. Tannins
- d. Fatty oil
- e. Anthracene derivatives

706. What substance forms a film coating of tablets and can be dissolved only in intestinal juice?

- a. Acetylphthalylcellulose**
- b. Diethylaminomethylcellulose
- c. Paraaminobenzoate of sugars
- d. Sodium carboxymethyl cellulose
- e. Benzylaminocellulose

707. 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. Ministry of Labor and Social Policy of Ukraine
- e. State Service of Ukraine on Medicines and Drugs Control

708. 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. Purine
- c. Indole
- d. Phenothiazine
- e. Acridine

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

710. A pharmacist prepares 100 ml of glucose solution. Specify the amount of Weibel's stabilizer necessary in this case:

- a. 20 ml
- b. 5 ml**
- c. 10 ml
- d. 15 ml
- e. 2 ml

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

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

712. 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. Bronchospasm
- d. Withdrawal syndrome**
- e. Reduced sensitivity

713. 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. Fatty oil
- c. Polysaccharides
- d. Thioglycosides**
- e. Flavonoids

714. 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. Steal syndrome
- b. Tachyphylaxis
- c. Idiosyncrasy
- d. Rebound effect

**e. Withdrawal syndrome**

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

- a. Stock of goods
- b. Inventory turnover
- c. Circulation of goods

**d. Profitability**

- e. Work productivity

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

**a. Purified water**

- b. Peach-kernel oil
- c. Vaseline
- d. Chloroform
- e. Ethanol

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

- a. Extract from the State Register of Medicines
- b. Technical regulations for the drug

**c. Conclusion on the quality of the drug imported into Ukraine**

- d. Written Control Passport
- e. Drug Quality Standard

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

- a. Fabaceae
- b. Papaveraceae
- c. Asteraceae
- d. Apocynaceae

**e. Solanaceae**

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

**c. Introduce the substances as a suspension**

- d. Introduce the substances as an emulsion
- e. Dissolve the substances in the water heated to 45°C

720. 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. Atropine**

**b. Caffeine**

- c. Codeine
- d. Papaverine
- e. Morphine

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

**a. 45 minutes**

**b. 25 minutes**

- c. 10 minutes

- d. 15 minutes
- e. 30 minutes

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

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

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

724. 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. Benzylpenicillin sodium salt
- b. Clarithromycin
- c. Amoxicillin
- d. Levofloxacin**
- e. Cefuroxime

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

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

726. 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. 90% of salary
- b. 60% of salary
- c. 75% of salary
- d. 50% of salary
- e. 100% of salary**

727. A substance was received for analysis. The substance is a round seed 1-1,8 mm in diameter, yellow with bluish tint. When mashed with water, emits characteristic irritant odor; is sharp and acrid to taste. The raw material can be identified as:

- a. Mustard seeds**
- b. Nigella seeds
- c. Flax seeds
- d. Fenugreek seeds
- e. Plantago psyllium seeds

728. What imidazole derivative affects anaerobic microorganisms and protozoa and is effective against mixed infections?

- a. Metronidazole**
- b. Asparcam (Potassium aspartate and magnesium aspartate)
- c. Camphor

- d. Dibazol (Bendazol)
- e. Caffeine

729. The management plans to open a new pharmacy in one of the local villages. Such activity can be identified as:

- a. Horizontal integration
- b. Horizontal diversification
- c. Conglomerate diversification
- d. Vertical integration
- e. Growth strategy**

730. 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 10 days
- c. In 5 days
- d. In a month**
- e. In 3 days

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

- a. Once every three years
- b. At least once in a quarter
- c. At least thrice a year
- d. Once a year**
- e. At least twice a year

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

733. 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. 0.01 g
- b. 0.03 g
- c. 0.02 g**
- d. 0.04 g
- e. 0.05 g

734. 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. Benzene and pyridine
- d. Two 4-oxycoumarin residues
- e. Pyrimidine and imidazole

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

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

736. An analytical quality control laboratory analyzes a resorcinol substance. What method is used for its quantitative determination?

- a. Mercurimetry
- b. Nitritometry
- c. Complexometric titration
- d. Argentometry

**e. Bromometry**

737. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds with the following drug:

- a. Ofloxacin
- b. Nitroxoline**
- c. Dibazol (Bendazol)
- d. Chingamin (Chloroquine)
- e. Quinocide

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

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

739. 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. Hypocalcemia
- c. Hypermagnesemia
- d. Hybernatriemia
- e. Hyperkalemia

740. 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

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

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

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

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

743. 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. Poor solubility in water

- b. Volatility
- c. Low solubility in water
- d. Thermal stability

**e. Thermolability**

744. When analyzing the activity of the pharmacy, the pharmacy's head manager performed the following calculations: the manager subtracted the cost price of the sold goods from the proceeds from the sales of goods at retail prices. What indicator was calculated by the pharmacy's head manager?

a. Profitability

**b. Markups**

- c. Profit
- d. Commodity circulation
- e. Expenses

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

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

**e. Ferroin**

746. 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 withdrawal order
- b. Cashier's check
- c. Bank statement
- d. Payment order

**e. Cash receipt order**

747. 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 beta<sub>2</sub>-adrenomimetic. What medicine was prescribed by the doctor in this case?

- a. Budesonide
- b. Tiotropium bromide
- c. Fluticasone

**d. Salbutamol**

e. Ipratropium bromide

748. 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. White opalescence**

- d. Blue coloring
- e. Yellow coloring

749. 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. Precipitation of the formed salt
- b. Decarboxylation of the medicinal substance

**c. Hydrolysis of the ester group**

- d. Oxidation of the medicinal substance
- e. Reduction of the medicinal substance

750. 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. Lanolin
- c. Gelatin-glycerine gel
- d. Vaseline**
- e. Soap-glycerine base

751. 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. -
- b. Survival
- c. Modernization
- d. Stability
- e. Diversification**

752. 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. 30%
- b. 20%
- c. 10%
- d. 50%**
- e. 40%

753. Each medical product that a pharmacy receives should have its quality certificate. How long should these certificates be kept by a pharmacy?

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

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

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

755. 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. Alkaloids
- c. Polysaccharides
- d. Tannins**
- e. Flavonoids

756. Berberis vulgaris herbal raw material is a source of medicinal substances with cholagogic and hemostatic effect. What parts of this plant are harvested as a herbal raw material?

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

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



substance:

- a. Sugar
- b. Osarsolum (Acetarsol)
- c. Camphor**
- d. Sodium chlorides
- e. Talcum

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

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

759. 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. Angina pectoris attack
- b. Myocardial infarction
- c. Hemorrhagic stroke
- d. Meningococcal infection
- e. Hypertensive crisis**

760. 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. Taraxacum roots
- b. Aralia mandshurica roots
- c. Berberis roots
- d. Glycyrrhiza roots**
- e. Panax ginseng roots

761. A 46-year-old pharmacy customer suffers from chronic bronchitis and needs a medicine to facilitate expectoration of thick viscous sputum. What drug is indicated in this case?

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

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

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

763. Which one of the listed drugs is a glycoside antibiotic?

- a. Polymyxin
- b. Tetracycline
- c. Erythromycin**
- d. Levomycetin (Chloramphenicol)
- e. Cephalexin

764. A pharmacy has received goods from a warehouse, which were delivered by the warehouse

transport. Therefore, goods receipt requires the following accompanying document:

- a. All of the listed
- b. Contract of delivery
- c. Specifications to the contract of delivery
- d. Motor waybill**
- e. Financial statement of the supplier

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

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

767. 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. Doxazosin**
- b. Verapamil
- c. Enalapril
- d. Bisoprolol
- e. Propranolol

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

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

769. For better coverage of various markets the Lubnyfarm company sells a portion of its production through its chain of pharmacies, another portion is being sold through distributors, and the third - through pharmacies of another owners. What marketing system of distribution is used by this company?

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

770. 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. Synergism
- c. Tolerance

- d. Antagonism
- e. Withdrawal syndrome

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

**a. Zero-level channel**

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

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

- a. Work-in-process inventory
- b. Reserves and expenses

**c. Equity capital**

- d. Accounts receivable
- e. Circulating assets

773. 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. -

**b. Demographic approach**

- c. Geographical approach
- d. Behavioral approach
- e. Psychographic approach

774. A pharmacy has received a prescription for tincture. What herbal raw material can be used to make this dosage form?

a. Oak bark

**b. Valerian rootstock**

- c. Buckthorn bark
- d. Arrow-wood bark
- e. Rhubarb roots

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

**a. Payment for the goods purchased for the household needs**

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

776. 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. Identification
- b. Microbiological purity
- c. pH
- d. Quantitative determination

**e. Sterility**

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

a. Nitroxoline

**b. Nitrofural (Nitrofurazone)**

- c. Norfloxacin
- d. Metronidazole
- e. Phthalazole (Phthalylsulfathiazole)

778. 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. Vertical rotation
- b. Mixed rotation
- c. Horizontal rotation**
- d. Diagonal rotation
- e. Employee turnover

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

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

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

781. 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. Flavonoids
- b. Alkaloids
- c. Iridoids**
- d. Simple phenols
- e. Saponins

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

783. The chemical structure of Strophanthus cardiac glycosides can be characterized by the presence of the following in position 10 of the steroid ring:

- a. Phenolic hydroxyl
- b. Aldehyde group**
- c. Methoxy group
- d. Alcoholic hydroxyl
- e. Ethoxy group

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

- a. Physical dependence
- b. Sensitization
- c. Psychological dependence
- d. Cumulation
- e. Tolerance**

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

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

e. *Frangula alnus*

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

- a. Tablets covered in a fat-soluble coating
- b. A dispersion of medicinal substances in polyethylene
- c. Tablets covered in a film coating
- d. Tablets with a dragee coating

e. A reticular matrix that contains the medicinal substance

787. 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. 15-20<sup>°C</sup>

- b. 45-55<sup>°C</sup>
- c. 80-100<sup>°C</sup>
- d. 25-35<sup>°C</sup>
- e. 30-45<sup>°C</sup>

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

a. 15

- b. 5
- c. 20
- d. 10
- e. 25

789. 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. Thin layer chromatography

b. Ion-exchange chromatography

- c. Gas chromatography
- d. Adsorption chromatography
- e. Paper chromatography

790. A pharmaceutical company produces suppositories made from thermolabile medicinal substances. What method is used in their production?

a. Pressing

- b. Rolling
- c. Steeping
- d. Pouring
- e. Dispersion

791. 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. Chewable tablets
- c. Soluble tablets
- d. Dispersible tablets

e. Modified-release tablets

792. Optical rotation angle of substances is determined under the temperature of 20<sup>°C</sup>, in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ( $\lambda = 589,3 \text{ nm}$ ), and is

calculated with reference to a solution containing 1 g of the substance per ml. It is called:

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

793. What reagent can confirm that alanine is an alpha-amino acid?

- a. Sulfuric acid solution
- b. Sulfosalicylic acid solution
- c. Saturated sodium bicarbonate solution
- d. Ninhydrin solution**
- e. Barium hydroxide solution

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

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

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

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

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

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

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

798. 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. Steroid cycle**
- b. Pyridine cycle
- c. Xanthine cycle
- d. Naphthalene cycle
- e. Imidazole cycle

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

- a. No more than 3 days**

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

800. 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. Five years, not counting the current one**
- e. Three years, not counting the current one

801. 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, if approved by the head manager of the pharmacy
- b. Yes, with permit from the Pharmacopoeia Center
- c. Yes, with permit from the State Inspectorate
- d. No**
- e. Yes, it can sell all the batch that is already in its possession

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

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

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

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

804. A pharmaceutical company uses various methods of advertising. What method of advertising foresees its distribution to everyone, not just the target audience?

- a. Professional-targeted advertising
- b. Postal cards and pamphlets
- c. Out-of-home advertising**
- d. -
- e. Advertising souvenirs

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

- a. Rectal capsules
- b. Spansules
- c. Tubatines**
- d. Microcapsules
- e. Medules

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

807. A 3-year-old child is intolerant to paracetamol. What antipyretic drug can be taken instead?

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

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

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

810. Standard stactometer divides 1 ml of water into:

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

811. 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. Leaves and flower heads**
- d. Fruits
- e. Grass

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

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

813. What is the purpose of injectable tablets?

- a. Sublingual use
- b. Obtaining solutions for various pharmaceutical purposes
- c. Obtaining injectable solutions**
- d. Oral use
- e. Implantation

814. 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. Auditor's conclusion



e. License

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

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

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

817. 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. 1 years
- b. 3 years
- c. Indefinitely
- d. 5 years**
- e. 2 years

818. 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. 500 mg
- b. 300 mg
- c. 100 mg**
- d. 400 mg
- e. 200 mg

819. A tincture of Fructus Capsici is used as a distracting agent and an irritant in cases of neuralgia, radiculitis, and myositis. What bioactive substance of Fructus Capsici has such an effect?

- a. Capsaicin**
- b. Ephedrine
- c. Schisandrin
- d. Colchicine
- e. Inulin

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

- a. Last, because of its essential oil content
- b. Before ethanol-containing liquids are added
- c. After concentrated solutions
- d. After solid medicinal substances are dissolved
- e. First**

821. If a pharmacy plans to temporarily close for repairs or re-equipment, the State Service of Ukraine on Medicines and Drugs Control must be notified in advance no later than:

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

822. A patient from the oncology department came to a pharmacy with a prescription for a drug that

is needed for the treatment of his main disease. How will the pharmacist provide this medicine?

- a. For 50% of the cost
- b. With a 25% discount
- c. For the full cost
- d. With a 10% discount
- e. 100% free**

823. During stock-taking at a pharmacy, a surplus of material goods was discovered. What should the inventory committee do with the discovered surplus?

- a. Recording as received**
- b. Elimination
- c. Conducting an official investigation
- d. Confiscation
- e. Writing off

824. 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. Preservatives
- c. Thickeners
- d. Plasticizers**
- e. Stabilizers

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

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

826. 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. Productive
- b. Linear**
- c. Adaptive
- d. Matrix
- e. Functional

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

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

828. 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. Maturity
- b. Decline
- c. Introduction**
- d. Growth
- e. Saturation

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

- a. Idiosyncrasy**
- b. Steal syndrome

- c. Rebound effect
- d. Dysbiosis
- e. Withdrawal syndrome

830. A man with gastric ulcer is prescribed anti-Helicobacter pylori therapy. On the 3rd day the patient developed black coloring of feces. What had caused such changes?

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

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

- a. Benzalkonium chloride
- b. Propylene glycol, gelatin
- c. Sodium lauryl sulfate
- d. Ethanol, purified water
- e. Paraffin, spermaceti**

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

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

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

834. 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. Probiotics**
- b. Immunosuppressants
- c. Antacids
- d. Sorbents
- e. Enzymatic agents

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

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

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

- a. Euphylline (Theophylline)
- b. Dextromethorphan
- c. Ambroxol**
- d. Glaucine
- e. Codeine

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

838. Commercial and financial activity of the pharmacies can be measured using a system of parameters. What parameter can be described as the sum of sold goods per employee (taking the average number of employees during the analyzed period)?

- a. Stock of goods
- b. Labor productivity**
- c. Price index
- d. Profitability
- e. Turnover

839. 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. Roots
- b. Seeds
- c. Fruits
- d. Leaves**
- e. Rhizomes

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

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

841. 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 40%
- c. At least 20%
- d. At least 30%
- e. At least 50%

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

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

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

- a. Myocarditis
- b. Pneumonia
- c. Pyelonephritis
- d. Gastrointestinal bleeding**
- e. Salivation

844. What is the minimum permissible total area of a pharmaceutical sales point, according to the current Licensing Requirements?

- a. No less than 30 m<sup>2</sup>
- b. No less than 18 m<sup>2</sup>**

- c. No less than 250 m<sup>2</sup>
- d. No less than 50 m<sup>2</sup>
- e. No less than 40 m<sup>2</sup>

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

- a. Stock of goods
- b. Ready-made dosage forms
- c. Medical cosmetics
- d. Over-the-counter sales

**e. Prescription and production**

846. The management of a pharmaceutical company uses F. Herzberg's two-factor theory of motivation. What is this theory based on?

- a. Hygienic and motivational factors**
- b. The need for protection
- c. The need for existence, connection, growth
- d. The need for safety
- e. The need for power, success, and affiliation

847. What is the duration of the leave due to pregnancy and childbirth?

- a. 70 working days
- b. 56 calendar days
- c. 90 calendar days
- d. 59 working days

**e. 126 calendar days**

848. 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. Primary aromatic amino group
- b. Aliphatic amino group
- c. Carboxyl group

**d. Phenolic hydroxyl**

e. Ester group

849. 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. 32 000 UAH**

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

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

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

**e. Once in a shift**

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

e. Sodium nitrate solution

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

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

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

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

854. 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 stand, measure out the solvent
- b. Measure out the solvent into a stand, measure out the substance
- c. Measure out the substance into a vial for dispensing, measure out ethyl alcohol, shake the vial**
- d. Measure out ethyl alcohol into a vial for dispensing, measure out salicylic acid
- e. Commminute the substance in a mortar, add the solvent

855. 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. -
- b. Collegial**
- c. Intuitive
- d. Autocratic
- e. Personal

856. 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. Control
- c. Motivation
- d. Organization
- e. Planning

857. 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. Market entry**
- b. Testing phase
- c. Decline phase
- d. Maturity phase
- e. Saturation phase

858. A woman came to a doctor with complaints of heartburn. She has been taking diclofenac sodium for a long time due to diagnosed rheumatoid arthritis. What medicine can the doctor prescribe for the prevention of gastropathy?

- a. Clarithromycin

- b. Metoclopramide
- c. Papaverine hydrochloride
- d. Acetylsalicylic acid

**e. Omeprazole**

859. 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. Sulfamide group
- b. Aldehyde group

**c. Esther group**

- d. Carboxylic group
- e. Ketone group

860. 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. 5%
- b. 20%

**c. 10%**

- d. 15%
- e. 1%

861. 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 prostaglandin synthesis in the mucosa**

- b. Inhibition of neutrophil aggregation
- c. Disturbed pain impulse conduction
- d. Inhibition of lipid peroxidation
- e. Inhibition of platelet adhesion and aggregation

862. 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. Calcium carbonate
- b. Simethicone
- c. Magnesium-containing drugs
- d. Ranitidine

**e. Aluminium-containing drugs**

863. 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 to the quality assurance department of the manufacturing company

**b. Withdraw the medicines and send them for laboratory testing**

- c. Withdraw the medicines and send them back to the supplier
- d. Withdraw the medicines and send them for disposal
- e. Withdraw the medicines and send them back to the manufacturing factory

864. To identify a medicinal substance, an analytical chemist performed a reaction of azo dye formation. This reaction is characteristic of the following medicine:

**a. Benzocaine**

- b. Resorcinol
- c. Acetylsalicylic acid
- d. Chlorpropamide
- e. Phenyl salicylate

865. 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 10:00
- b. From 00:00 to 8:00

c. From 22:00 to 6:00

d. From 22:00 to 7:00

e. From 21:00 to 6:00

866. Powders made with a certain medicinal substance need to be prepared at a separate workplace, using separate scales and mortar. Name this substance:

a. Xeroform (bismuth tribromphenolate and bismuth oxide complex)

b. Zinc oxide

c. Glucose

d. Magnesium oxide

e. Ascorbic acid

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

a. Demographic

b. Behavioral

c. Social and economic

d. Geographical

e. Psychographic

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

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

d. Dry substance was dissolved in the infusion apparatus

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

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

a. Propranolol

b. Hypothiazid (Hydrochlorothiazide)

c. Verapamil

d. Amlodipine

e. Captopril

870. A 62-year-old woman has been diagnosed with acute pyelonephritis. She was prescribed gentamicin. Additionally, she takes furosemide. What are the possible complications of such treatment?

a. Increased ototoxicity of aminoglycosides

b. Increased hepatotoxic action of aminoglycosides

c. Increased hematotoxicity of gentamicin

d. High risk of allergic reactions

e. High risk of seizures

871. 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. Finances

b. Consulting services

c. Leasing

d. Insurance

e. Manufacture

872. 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 an alkali



- c. Reaction with Molisch reagent
- d. Reaction with ammonium iron(III) sulfate
- e. Reaction with Fehling reagent

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

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

874. 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. Cocoa butter
- b. Olive oil
- c. Flaxseed oil
- d. Castor oil**
- e. Sunflower oil

875. 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. Atropine sulfate
- b. Tramadol**
- c. Prednisolone
- d. Ethyl alcohol
- e. Zopiclone

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

877. 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. Combined
- c. -
- d. Organic**
- e. Mechanistic

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

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

879. During a practical session in pharmaceutical chemistry, a pharmaceutical student performs quantitative determination of caffeine substance. What method according to the State Pharmacopoeia of Ukraine should be used for this purpose?

- a. Acid-base titration in nonaqueous medium**

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

880. 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. Return the shipment to the manufacturer
- b. 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"**
- c. Draw up a Quality Assessment Report with the defects listed and allow sale of the drug shipment
- d. Dispose of the shipment that contains questionable drugs
- e. Allow sale of the drug shipment

881. Who determines the amount of cash that may remain in the cash register at the end of a workday?

- a. The Ministry of Finance
- b. A statistics authority
- c. The National Bank of Ukraine
- d. A revenue and duties authority
- e. The company itself**

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

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

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

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

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

- a. Belladonna grass
- b. Chelidonium grass
- c. Vinca minor grass
- d. Glaucium flavum grass**
- e. Macleaya grass

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

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

886. 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. Referent power**
- b. -
- c. Coercive power

- d. Power based on fear
- e. Legitimate power

887. During storage, suspension instability manifests itself as:

- a. Dissolution of particles
- b. Flocculation of particles
- c. Sedimentation of particles**
- d. Change of particles shape
- e. Caking of particles

888. What medicinal substance has an imidazole fragment in its structure?

- a. Thiamine bromide
- b. Pilocarpine hydrochloride**
- c. Nitrofurantoin
- d. Nicotinic acid
- e. Phenazone

889. 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

890. 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. Conversion marketing
- b. Synchromarketing
- c. Remarketing**
- d. -
- e. Countermarketing

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

- a. Oil solutions
- b. Glycerine solutions**
- c. Alcohol solutions
- d. Chloroform solutions
- e. Water solutions

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

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

- a. Lanolin: vaseline - 1:1
- b. Vaseline For Eye Ointments
- c. 30 parts of lanolin - 70 parts of vaseline
- d. 10 parts of anhydrous lanolin - 90 parts of vaseline For Eye Ointments**
- e. 40 parts of anhydrous lanolin - 60 parts of vaseline For Eye Ointments

894. A patient with atrophic hypoacid gastritis type A has been diagnosed with a complication in the blood system - the development of B<sub>12</sub>-deficiency anemia. What medicine is pathogenetically

justified in this case?

a. Cyanocobalamin

b. Riboflavin

c. Thiamine

d. Nicotinic acid

e. Pyridoxine

895. 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. Quinoline

b. Pyridine

c. Phenothiazine

d. beta-lactam

e. Furan

896. 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. Tanacetum vulgare

c. Crataegus sanguinea

d. Calendula officinalis

e. Foeniculum vulgare

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

a. Metronidazole

b. Bendazol

c. Aceclidine

d. Nicotinic acid

e. Nitroxoline

898. A pharmaceutical factory produces soft dosage forms. What soft dosage form melts at the body temperature?

a. Gel

b. Ointment

c. Paste

d. Liniment

e. Cream

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

a. Spectrophotometry

b. Permanganatometry

c. Chromatography

d. Nephelometry

e. Photoelectrocolorimetry

900. 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. Ceftriaxone

b. Azithromycin

c. Gentamicin

d. Penicillin

e. Ampicillin

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

a. Distribution coefficient

b. Correction factor

c. Coefficient of viscosity

- d. Stoichiometric coefficient
- e. Coefficient of surface tension

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

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

903. 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. Accountant
- c. Supplier representative
- d. Pharmacist on duty
- e. Lawyer

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

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

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

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

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

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

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

908. 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. Final
- c. Current**
- d. Preliminary
- e. -

909. 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. Oxeladin
- b. Fenoterol
- c. Budesonide
- d. Ipratropium bromide

**e. Acetylcysteine**

910. 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. Oxidation of the hydrazine group with bromine**

- e. Opening of the pyridine ring

911. 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. 95%
- c. 20%

**d. 5%**

- e. 25%

912. 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. Commercial manufacturing
- d. Generation of the ideas
- e. Filtration of the ideas

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

- a. Nimesulide
- b. Indomethacin
- c. Ibuprofen
- d. Acetylsalicylic acid

**e. Metamizole sodium**

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

**a. 40 minutes**

- b. 45 minutes
- c. 15 minutes
- d. 25 minutes
- e. 30 minutes

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

- a. Alkaline potassium tetraiodomercurate solution

**b. Copper-tartrate**

- c. Sodium nitroprusside solution
- d. Ammoniacal silver nitrate solution
- e. Thiocyanogen bromide

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

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

- a. Midecamycin
- b. Sodium thiopental**
- c. Metoprolol
- d. Suprastin (Chloropyramine)
- e. Anaesthesin (Benzocaine)

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

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

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

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

921. A pharmacist has prepared a suspension that contains basic bismuth nitrate. What method was used in the process of its preparation?

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

922. A 63-year-old man suffering from ischemic heart disease was diagnosed with angle closure glaucoma. What group of drugs is CONTRAINDICATED in this case?

- a. beta-adrenergic blockers
- b. Calcium antagonists
- c. Anticoagulants
- d. Statins
- e. Nitrates**

923. 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. Auditor's conclusion**

- c. Statement of changes in equity
- d. Cash flow statement
- e. Income statement

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

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

925. During the two years of working in his position, the pharmacist proved to be a responsible and efficient specialist. The pharmacy's head manager appointed him to the position of the head of the Extemporaneous Compounding Department. What is this type of personnel movement called?

- a. Recruitment
- b. Spiral (horizontal) rotation
- c. Employee turnover
- d. Helical (vertical) rotation**
- e. Mixed rotation

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

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

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

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

928. 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. Trade patent**
- b. Quality certificate
- c. State registration certificate
- d. -
- e. License for production of medicines

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

930. 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. 100 mg**
- c. 200 mg
- d. 300 mg
- e. 500 mg

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

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

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

- a. Packaging materials
- b. Glass-stoppered bottles
- c. Glassware
- d. Metal cylinders**
- e. Paper boxes

933. Specify the formula of extractant calculation in the process of creating a tincture:

- a.  $m_{\text{raw material}} = m_{\text{end product}} + m_{\text{losses}}$
- b.  $V = V_{\text{tincture}} \cdot n + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$
- c.  $E = \frac{m_{\text{losses}}}{m_{\text{raw material}}} \cdot 100\%$
- d.  $\mu = \frac{m_{\text{end product}}}{m_{\text{raw material}}} \cdot 100\%$
- e.  $V = V_{\text{tincture}} + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$**

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

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

935. An analytical pharmacist analyzes a cefazolin sodium substance. What solution is used for identification of sodium ions?

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

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

- a. Unithiol
- b. Acetylcysteine
- c. Protamine sulfate**
- d. Potassium chloride
- e. Naloxone

937. 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. Perfectly elastic
- c. Unitary**
- d. Elastic

e. Perfectly inelastic

938. The extemporaneous compounding department of a pharmacy prepares eye drops. Which one of the listed substances is a preservative?

a. Benzalkonium chloride

b. Methyl cellulose

c. Acetate buffer

d. Sodium chloride

e. Polyvinyl alcohol

939. A certain drug explodes when heated to  $180^{\circ}\text{C}$  or upon impact and, therefore, must be handled carefully during receipt and storage. This drug is:

a. Nitroglycerine solution

b. Activated carbon

c. Calcium chloride

d. Alcoholic iodine solution

e. Barium chloride

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

a. Oxeladin

b. Bromhexine

c. Acetylcysteine

d. Sodium bicarbonate

e. Tripsin

941. 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. Marketing

b. Production improvement

c. Socio-ethical marketing

d. Intensification of commercial efforts

e. Product improvement

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

a. Zinc

b. Calcium

c. Sodium

d. Potassium

e. Magnesium

943. A pharmacy supplies with medicines various groups of patients. Children of what age group receive drugs for free during their outpatient treatment?

a. Under 10 years of age

b. Under 3 years of age

c. Under 16 years of age

d. From 3 to 6 years of age

e. Under 6 years of age

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

a. Hydrogen peroxide

b. Sodium bromide

c. Sodium chloride

d. Sodium thiosulfate

e. Sodium iodide

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

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

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

947. 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. Cost price of products liquidity
- b. Turnover of goods cost price of products
- c. Profit turnover of goods**
- d. Turnover of goods wages
- e. Liquidity solvency

948. When examining a substance with an ester group, you can conduct a reaction that produces:

- a. Berlin blue
- b. Iron(III) hydroxamate**
- c. Azo dye
- d. Diazonium salt
- e. Indophenol

949. Polyethylene oxide base belongs to the following group:

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

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

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

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

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

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

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

954. 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. Hydrolysis
- c. Oxidation
- d. Phosphorylation**
- e. Reduction

955. In his management policy, the head manager of the <<Health Formula>> pharmacy actively uses planning, material incentives and sanctions, pricing, and distribution of profits and capital investments. These means and approaches belong to the following group of management methods:

- a. Psychosocial management methods
- b. Organizational management methods
- c. Legal management methods
- d. Indirect control methods
- e. Economic management methods**

956. How should the rectal ointments be applied?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- a. Biseptol (Co-trimoxazole)
- b. Clarithromycin**
- c. Meropenem
- d. Ceftriaxone
- e. Gentamicin

965. 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. Goods received record book by item and supplier
- b. Cash receipt order**
- c. Goods received record book by groups of goods
- d. Financial operating report of the pharmacy
- e. Goods report (Inventory change report)

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

- a. Personal selling

- b. Public relations
- c. Advertising
- d. Sales promotion, sampling**
- e. Lobbying

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

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

968. 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. Functional**
- c. Segment-oriented
- d. Regional
- e. Product-oriented

969. To check the authenticity of *Helichrysum arenarium* flowers, magnesium powder and concentrated HCl were added to the extract obtained from the herbal raw material. What class of compounds is indicated in this case, if this reaction produces a red coloring?

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

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

971. Tyndallization is used at a pharmaceutical factory as one of sterilization methods for thermolabile substances. What is the essence of this method?

- a. Sterilization with flowing steam at  $100^{\circ}\text{C}$
- b. Sterilization with high-frequency and microwave frequency current
- c. Autoclaving at  $119-121^{\circ}\text{C}$  with pressure at 1,0-1,1 atm
- d. Sterilization with dry heat at  $180-200^{\circ}\text{C}$  for a lengthy period of time
- e. Triple heating of solution to  $40-60^{\circ}\text{C}$  with 24-hour-long intervals in between for thermostating**

972. 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. Preliminary
- b. -
- c. Concurrent
- d. Concluding**
- e. Financial

973. Various admixtures are possible in the process of harvesting, drying, and primary processing of herbal raw material. Organic admixtures include:

- a. Sand
- b. Non-harvested parts of the same plant**

- c. Soil particles
- d. Metallic objects
- e. Glass fragments

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

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

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

976. The calculation of isotonic concentration using the cryoscopic method is based on the following law:

- a. Clapeyron-Mendeleev equation
- b. -
- c. Dalton's law
- d. Boyle-Mariotte law
- e. Raoult's law**

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

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

978. What herbal raw material is used for the industrial production of Quercetin medicine?

- a. Fructus Sophorae japonicae**
- b. Herba Polygoni avicularis
- c. Fructus Hippophaes rhamnoides
- d. Herba Violae tricoloris
- e. Flores Helichrysi arenarii

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

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

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

- a. The way in which it was obtained
- b. pH value
- c. Apyrogenicity**
- d. Absence of mechanical inclusions
- e. Absence of heavy metals

981. A pharmaceutical company wants to strengthen its position in the competitive market environment. It decides to use brand names as a part of its trade policy. What is the purpose of a

brand name?

- a. Justification of a higher price for the medicine
- b. Ensuring the necessary quality of medicines
- c. Eligibility for registration in the List of medicines and medical products with state-controlled prices
- d. Differentiation between the competing medicines on the market**
- e. It is a mandatory condition to be able to sell medicines at a reduced price to certain population groups

982. What medicinal substance must fill only 2/3 of the vial before sterilization?

- a. Sodium bicarbonate**
- b. Sodium chloride
- c. Euphyllin (Aminophylline)
- d. Calcium chloride
- e. Hexamethylenetetramine

983. 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. Hypocalcemia
- b. Hyperkalemia**
- c. Hyponatremia
- d. Hypernatremia
- e. Hypoglycemia

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

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

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

- a. Oak bark
- b. Thermopsis grass**
- c. Motherwort grass
- d. Althaea roots
- e. Camomile grass

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

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

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

- a. Dissolved in warm water
- b. Dissolved during comminution
- c. Added the powder onto the water surface and waited until complete dissolution**



- d. Dissolved in cold water
- e. Dissolved in purified water in a vial for dispensing

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

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

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

- a. Acidimetry
- b. Spectrophotometry**
- c. Argentometry
- d. Cerimetry
- e. Potentiometry

990. 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. Hyoscyamine
- b. Atropine
- c. Adonitoxin
- d. Vinblastine
- e. Reserpine**

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

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

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

993. Aqueous lanolin consists of:

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

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

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

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

996. 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. Silver nitrate**
- c. Sodium carbonate
- d. Calcium chloride
- e. Ammonium hydroxide

997. During an asphyxiating attack the patient with bronchial asthma was given intravenously a drug that caused nausea, headache, excitation, and palpitations as side effects. What drug can cause such reaction?

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

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

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

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

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

1000. To identify acetylsalicylic acid, the substance is subjected to alkaline hydrolysis. After acidification of the reaction mixture, acetic acid is formed, which can be detected using the reaction with ethanol in the presence of concentrated sulfuric acid. What reaction product causes the characteristic odor in this case?

- a. Ethyl acetate**
- b. Benzaldehyde
- c. Sulfur dioxide
- d. Ammonia
- e. Pyridine

1001. An alkaloid drug has the chemical name of 1,3,7-Trimethyl-3,7-dihydro-1H-purine-2,6-dione. Name this substance:

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

1002. What document must be prepared by a pharmacy's cashier for the cash collection?

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

1003. Several cholesterol gallstones are detected in the gallbladder of a woman. Choose the drug to dissolve and excrete the stones:

- a. Ursodeoxycholic acid**
- b. Domperidone
- c. Papaverine
- d. Loperamide
- e. Platyphyllin

1004. 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. Infusion therapeutic system
- b. Liposome**
- c. Matrix tablet
- d. OROS tablet
- e. Transdermal therapeutic system

1005. "Balance" accounting form consists of two parts - assets and liabilities. Select from the list only the liabilities.

- a. Accounts receivable, prepaid expenses
- b. Fixed assets, accounts receivable
- c. Authorized capital, fixed assets
- d. Retained earnings, intangible assets
- e. Bank loan, accounts payable**

1006. 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. Not accounted as assets
- b. Goods
- c. Non-negotiable tangible assets
- d. Fixed assets**
- e. Package

1007. In the process of industrial production, certain adjuvants are included in the soft dosage forms as pH regulators. Name these adjuvants:

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

1008. 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. Alkaloids
- b. Phenolic compounds
- c. Anthracene derivatives
- d. Flavonoids
- e. Cardiac glycosides**

1009. An accountable person has received a sum of money from the pharmacy cash desk to buy a calculator. What document records the cash flow in such a transaction?

a. Cash expense order

b. Invoice

c. Cash income order

d. Remains unregistered documentarily

e. Receipt

1010. Various groups of propellants are used in production of aerosols. What group does carbon dioxide CO<sub>2</sub> belong to?

a. Rarefied gases

b. Compressed gases

c. Liquefied gases

d. Volatile gases

e. Non-volatile gases

1011. An analytical chemist can quantitatively determine the thiamine bromide content in powders by means of:

a. Nitritometric titration

b. Complexometric titration

c. Bromometry

d. Alkalimetry

e. Permanganatometry

1012. A pharmaceutical factory uses maceration technique to produce tinctures. How long must herbal raw materials be steeped according to this technique?

a. 5 days

b. 12 hours

c. 7 days

d. 24 hours

e. 2 days

1013. 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. A financially accountable person

c. A representative of the laboratory

d. The head manager of the pharmacy

e. An authorized person

1014. 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. Precursors

b. Narcotic substances

c. Toxic substances

d. Potent substances

e. Psychotropic substances

1015. What type of tax is the Individual Income Tax?

a. Local, indirect

b. Special

c. Nationwide, direct

d. Local, direct

e. Nationwide, indirect

1016. "Avicenna", a newly founded pharmaceutical company, operates round-the-clock. What employees cannot be assigned to night shifts?

a. -

b. Employees under 30

c. Employees under 25

d. Employees under 18 (underage)

e. Employees of retirement age

1017. Dosage precision during tablet making mainly depends on the following technological property of tablet mass:

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

1018. 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
- b. A company, the members of which bear the liability for the company's debts within the amount of their contributions**
- c. 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
- d. 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
- e. A company, the members of which bear full liability

1019. 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. Riboxin (Inosine)
- b. Nitroglycerine**
- c. Panangin
- d. Naphthyzin (Naphazoline)
- e. Metacycline

1020. 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. Dexamethasone
- c. Xylometazoline**
- d. Lactulose
- e. Acyclovir

1021. 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. 40
- b. 38
- c. 36
- d. 17**
- e. 41

1022. 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 glucocorticosteroids**
- b. Herbal antiseptics
- c. Inhaled beta<sub>2</sub>-adrenergic agonists
- d. Inhaled muscarinic antagonists
- e. Mucolytics

1023. Mandatory payroll deductions are withheld from the salary of pharmacy workers. Specify the tax rate on income of natural persons:

- a. 20%
- b. 18%**
- c. 0%
- d. 5%
- e. 15%

1024. Specify the indicator that measures the total contribution of various solutes to the osmotic pressure of the solution:

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

1025. 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. Iodometry**
- b. Permanganatometry
- c. Complexonometry
- d. Nitritometry
- e. Iodochlorometry

1026. What is the driving force of the diffusion process during the extraction of a herbal raw material?

- a. Different concentration of the active substance in the raw material and extractant**
- b. High temperature of the extractant
- c. Presence of a film membrane
- d. Brownian motion of the particles
- e. High polarity of the extractant

1027. 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. Functional
- e. Line and staff

1028. 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. Omeprazole**
- b. Famotidine
- c. Ranitidine
- d. Phosphalugel (Aluminum phosphate)
- e. Almagel

1029. The addition of preservatives and stabilizers is prohibited, when making the following dosage forms:

- a. Ophthalmic dosage forms
- b. Infusions
- c. Dosage forms for newborns**
- d. Emulsions
- e. Suspensions

1030. A 45-year-old man has been taking long-acting nitrates twice a day for a year. Currently the decrease in effectiveness of the pharmacotherapy is being observed. What side-effect can be suspected in the first place?

- a. Progressing ischemic heart disease

- b. Progressing coronary atherosclerosis
- c. Myocardial infarction
- d. Impairment of coronary circulation

**e. Development of nitrate tolerance**

1031. A pharmacist prepares a compound powder. What medicinal substance must be comminuted without adding an adjuvant liquid (alcohol or ether)?

a. Streptocide (Sulfanilamide)

**b. Zinc oxide**

- c. Thymol
- d. Menthol
- e. Camphor

1032. A pharmaceutical factory produces ointments. Name the stage of the manufacturing process that allows to obtain a uniform ointment:

a. Mixing components with the vehicle

**b. Homogenization**

- c. Vehicle production
- d. Ointment concentrate production
- e. Dispersion

1033. A pharmaceutical company produces medicinal syrups. What substances ensure the microbial stability of this dosage form?

**a. Preservatives**

- b. Solubilizers
- c. Thickeners
- d. Pectin substances
- e. Emulsifiers

1034. Thymus serpyllum grass is harvested in Ukraine. At what stage of plant growth is this herbal raw material harvested?

- a. Before the flowering
- b. Before the formation of green fruits

**c. During the flowering stage**

- d. After harvesting the fruits
- e. When the fruits are ripe

1035. What is the name of the ability to restore the properties of a heterogenous system by perturbation?

a. Dispersion

**b. Resuspension**

- c. Granulation
- d. Extraction
- e. Emulsification

1036. The method of stirring-up (dispersion) is used to make suspensions with a certain substance. Name this substance:

- a. Sulfur
- b. Camphor
- c. Streptocide (Sulfanilamide)

**d. Basic bismuth nitrate**

e. Ethazole

1037. 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. Irregular**

- b. Inadequate
- c. Incorrect

- d. Unrealized
- e. Irrational

1038. 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. Material reward (bonuses, increments, pay rise)
- d. Meeting the cultural and social needs of employees
- e. Promotion

1039. 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 sulfate
- b. Sodium nitrate
- c. Boric acid
- d. Glucose

e. Sodium chloride

1040. What amount of the standard pharmacopoeial formaldehyde solution must be taken to prepare 100 mL of a 20% formalin solution?

- a. 30 mL
- b. 54 mL
- c. 20 mL
- d. 5 mL
- e. 10 mL

1041. 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. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate
- b. T-shaped hairs along the leaf margin
- c. Many-armed, two-armed, and simple hairs
- d. Bast fibers, tracheids, starch, vessels
- e. Simple capitate hairs

1042. The phytochemical workshop of a factory produces liquid extracts. What extractants are used in this manufacturing process?

- a. Water
- b. Chloroform
- c. Aqueous-alcoholic solutions
- d. Ammonia solution
- e. Dichloroethane

1043. 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. Consignee
- b. Agent
- c. Broker
- d. Dealer
- e. Commission agent

1044. Phenyl salicylate can be identified by the smell of phenol that is produced when the following is added into the preparation:

- a. NaCl
- b. AgNO<sub>3</sub>
- c. CoCl<sub>2</sub>
- d. H<sub>2</sub>SO<sub>4</sub>



e.  $\text{CuSO}_4$