

1. 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. Fetotoxic
- c. Embryotoxic
- d. Mutagenic
- e. Teratogenic

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

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

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

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

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

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

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

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

6. 1,8-cineole is a bactericidal component of essential oil. Specify the medicinal herb that is grown in Ukraine and contains 1,8-cineole in its essential oil:

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

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

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

8. 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. 30 000 UAH
- b. 5 000 UAH**
- c. 15 000 UAH
- d. 35 000 UAH
- e. 40 000 UAH

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

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

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

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

11. 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. Violet
- c. Yellow
- d. Blue
- e. Pink**

12. 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. Preservative
- d. Emulsifier**
- e. Solvent

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

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

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

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

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

16. A decoction of Bidens grass has an anti-allergic effect and is often used in pediatrics. What species of this plant is pharmacopoeial?

- a. Bidens tripartita**
- b. Bidens cernua
- c. Bidens aurea
- d. Bidens radiata
- e. Bidens frondosa

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

- a. Hydroxycoumarin esculin
- b. Furanochromon kelin
- c. Free coumarin
- d. Furocoumarin psoralen**
- e. Pyranocoumarin visnadin

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

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

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

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

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

- a. Aromatic amino-aldehydes
- b. Aromatic sulfo acid amides
- c. Aromatic amino acid esters**
- d. Aromatic amino acid amides
- e. Aromatic ketones

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

22. 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. Percolation**
- b. Maceration
- c. Steeping

- d. Remaceration
- e. Turbo extraction

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

- a. Medicine has entered the pharmaceutical market only recently and actual experience with its practical application is limited
- b. Medicine contains substances that require additional research into their activity and side-effects
- c. Medicine is available only for in-patient treatment
- d. Medicine can cause no direct or indirect harm to the patient's health**
- e. Medicine is available only by prescription

24. 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 antacid effectiveness
- b. Increases ofloxacin absorption
- c. Increases risk of dysbiosis
- d. Increases antacid effectiveness
- e. Decreases ofloxacin absorption**

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

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

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

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

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

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

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

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

- a. Sanguisorba officinalis
- b. Valeriana officinalis
- c. Rubia tinctorum**
- d. Dryopteris filix-mas
- e. Rhodiola rosea

30. Based on the medical certificate, a patient can receive financial assistance due to temporary disability. Financial assistance for temporary disability **CANNOT** be provided:

- a. -
- b. If sick leave is taken for child care

c. In case of intentional self-harm

- d. If only sanatorium-and-spa treatment is required
- e. In case of disease (trauma)

31. 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. Chlorides
- b. Potassium
- c. Sulfates
- d. Ammonium salts

e. Iron

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

- a. Soluble streptocide
- b. Sulfadimezinum (Sulfadimine)

c. Norsulfazole

- d. Streptocide
- e. Sulfacil sodium

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

e. Nitrites

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

- a. Phenyl salicylate
- b. Benzoic acid

c. Acetylsalicylic acid

- d. Salicylic acid
- e. Sodium benzoate

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

- a. Propranolol
- b. Sodium nitroprusside

c. Alpha-methyldopa

- d. Captopril
- e. Furosemide

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

a. Azo dye

- b. Murexide
- c. Thiochrome
- d. Indophenol
- e. Iodoform

37. 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. Organizational

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

38. 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 -102° to -105°
- b. From -48° to -51°
- c. From $+50^{\circ}$ to $+56^{\circ}$
- d. From $+10^{\circ}$ to $+13^{\circ}$
- e. From $+0,2^{\circ}$ to $-0,2^{\circ}$**

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

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

40. 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. Cardiac glycosides
- c. Fatty oils
- d. Alkaloids**
- e. Steroidal saponins

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

42. 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. -
- b. Technological
- c. Administrative
- d. Socio-psychological**
- e. Economic

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

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

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

- a. Breakeven
- b. Income
- c. Markup

d. Production cost

e. Margin

45. A patient has been diagnosed with essential hypertension and prescribed an adequate treatment with antihypertensive drugs. However, two months later the patient began to notice a slight cough. What drug can cause this side effect?

a. Captopril

b. Furosemide

c. Hypothiazide (Hydrochlorothiazide)

d. -

e. Amlodipine

46. Microcapsules are made by coating solid particles of the substance being encapsulated with a shell consisting of metallic silver, zinc, etc. Name this method of making microcapsules:

a. Coacervation

b. Slurrying of the nuclei

c. Pelleting

d. Polymerization

e. Galvanization

47. 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. First

b. Last in the order of decreasing ethanol concentration

c. After poisonous and narcotic substances are dissolved (before concentrates)

d. Last in the order of increasing ethanol concentration

e. In the same order in which they are listed in the formulation

48. 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. Receipt

b. Invoice

c. Sales receipt

d. Settlement receipt

e. Cash register fiscal receipt

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

a. Murexide

b. Bromphenol blue

c. Starch

d. Phenolphthalein

e. Diphenylcarbazone

50. 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. Potassium chromate

c. Magnesium sulfate

d. Zinc oxide

e. Sodium chloride

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

a. Sodium hydroxide

b. Sodium metabisulfite

c. Sodium bicarbonate

d. Ascorbic acid

e. Hydrochloric acid

52. 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. 4,0**
- c. 6,0
- d. 3,0
- e. 1,5

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

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

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

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

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

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

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

57. 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. Permanent quadrat method
- b. Visually
- c. Projective cover method**
- d. Geodesically
- e. Model sample method

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

59. What type of marketing should be used by a pharmaceutical company in a situation, when the

demand for medicines declines?

- a. Stimulational marketing
- b. Evolving marketing
- c. Synchromarketing
- d. Remarketing**
- e. Conversion marketing

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

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

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

- a. Trypsin
- b. Acetylcysteine**
- c. Bromhexine
- d. Ambroxol
- e. Carbocysteine

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

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

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

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

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

65. 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. Methylene blue
- b. Furacilin (Nitrofurazone)
- c. Sulfur**
- d. Brilliant green
- e. Riboflavin

66. 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. Capsella bursa-pastoris
- b. Urtica dioica

- c. *Althaea officinalis*
- d. *Rosa canina*

e. *Plantago major*

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

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

69. 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. Market**
- c. Sales
- d. Management
- e. Agreement

70. 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. 80-100 °C
- b. 15-20 °C**
- c. 45-55 °C
- d. 25-35 °C
- e. 30-45 °C

71. 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

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

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

73. *Aesculus hippocastanum* seeds as a herbal raw material can be standardized by their quantitative content of aescin that belongs to the following group of bioactive substances:

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

74. If potassium salts are put into the colorless flame of a gas burner, the flame colors:

- a. Red
- b. Yellow
- c. Violet
- d. Green
- e. Brick-red

75. 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 3 years
- b. Every year
- c. Once every 10 years
- d. Once every 2 years
- e. Once every 5 years

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

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

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

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

78. 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. Hydrometer
- c. Spectrophotometer
- d. Viscometer
- e. Refractometer

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

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

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

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

81. 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. Polarography
- b. Polarimetry

- c. Photocolorimetry
- d. Spectrophotometry**
- e. Refractometry

82. 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. Collargol (Colloidal silver)
- c. Tannin
- d. Pepsin**
- e. Osarsol

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

- a. Cynara dry extract
- b. Ademethionine
- c. Ursodeoxycholic acid**
- d. Magnesium sulfate
- e. Silybum dry extract

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

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

85. An analytical pharmacist conducts a quantitative analysis of sodium benzoate and uses a hydrochloric acid solution as a titrant. What method of quantification is being used in this case?

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

86. 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. Nuclear magnetic resonance spectroscopy
- b. Thin-layer chromatography
- c. Refractometry
- d. Polarimetry**
- e. Infrared spectroscopy

87. 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. Nigella seeds
- b. Flax seeds
- c. Fenugreek seeds
- d. Plantago psyllium seeds
- e. Mustard seeds**

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

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

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

- a. Tax Inspectorate
- b. Chief physician
- c. -

d. Pharmacy management

- e. Local authorities

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

- a. Steroid diabetes
- b. Osteoarthritis

c. Oral candidiasis

- d. Cushing's syndrome
- e. Osteoporosis

91. 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. Chewable tablets

b. Modified-release tablets

- c. Soluble tablets
- d. Effervescent tablets
- e. Dispersible tablets

92. 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. During the period of vegetation
- c. Before the bloom

d. In early spring or autumn

- e. At the end of the bloom

93. 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. Iodometry
- b. Bromatometry
- c. Polarimetry
- d. Cerimetry

e. Argentometry

94. What imidazole derivative affects anaerobic microorganisms and protozoa and is effective against mixed infections?

- a. Caffeine
- b. Asparcam (Potassium aspartate and magnesium aspartate)
- c. Dibazol (Bendazol)

d. Metronidazole

- e. Camphor

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

- a. -
- b. Vertical job rotation
- c. Horizontal job rotation

d. Staff turnover

- e. Recruiting

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

- a. Methyl orange

b. Xylenol orange

c. Tropeolin 00

d. Methyl red

e. Phenolphthalein

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

a. Hypericum

b. Leonurus

c. Atropa belladonna

d. Mentha

e. Styphnolobium japonicum

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

a. Glauicine hydrochloride

b. Securinine nitrate

c. Ergotamine

d. Vinblastine

e. Novopassit

99. 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. Flavonoids and essential oils

b. Anthracene derivatives and tannins

c. Iridoids and vitamins

d. Coumarins and phenol glycosides

e. Essential and fatty oils

100. 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 Eucalypti

c. Folia Melissa

d. Folia Betulae

e. Folia Absinthii

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

a. NS-2 (neutral glass 2)

b. AB-1 (non-boric glass)

c. USP-1

d. NS-2 A (neutral glass 2A)

e. MTB (colorless glass for medical containers)

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

a. Impurities

b. Uniformity of dosage

c. Disintegration

d. Abrasion resistance

e. Dissolution

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

a. Gas sterilization

b. Autoclave chamber with high-pressure saturated steam

c. Irradiation sterilization

d. Sterile filtration through membrane

e. Dry-heat sterilization

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

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

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

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

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

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

- a. 3.0-6.0
- b. 1.0-4.0**
- c. 5.0-8.0
- d. 4.0-7.0
- e. 2.0-5.0

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

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

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

- a. *Anthemis arvensis*
- b. *Chamomilla recutita***
- c. *Anthemis cotula*
- d. *Tripleurospermum inodorum*
- e. *Leucanthemum vulgare*

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

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

111. 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. Gas chromatography

c. Ion-exchange chromatography

d. Adsorption chromatography

e. Paper chromatography

112. 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 bromide

c. Streptocide (Sulfanilamide)

d. Furacilin (Nitrofurazone)

e. Sodium iodide

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

a. To change its color

b. To lower its melting temperature

c. To improve its chemical resistance

d. To increase its thermal resistance

e. To increase its mechanical strength

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

a. Menthol should be comminuted in a mortar with ethanol

b. Menthol should be dissolved in the purified water

c. Menthol should be comminuted with the emulsifier

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

e. Menthol should be dissolved in oil

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

a. Alkali

b. Fehling's reagent

c. Iron ammonium alum

d. Molisch's reagent

e. Iron (II) sulfate

116. 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. Anthracene derivatives

c. Flavonoids

d. Alkaloids

e. Tannins

117. 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. Liberal

b. Authoritarian

c. Democratic

d. Collective

e. Direct

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

a. Herba Bursae pastoris

b. Folia Digitalis lanata

c. Folia Cotini coggygriae

d. Folia Urticae

e. Folia Vitis idaeae

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

a. Refined sugar

b. Corn starch

c. Rice starch

d. Lactose

e. Mannitol

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

a. Silver nitrate

b. Calcium gluconate

c. Copper sulfate

d. Boric acid

e. Furacilin (Nitrofurantoin)

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

a. Acridine

b. Purine

c. Phenothiazine

d. Indole

e. Benzimidazole

122. 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. Financial planning

b. Operational planning

c. -

d. Strategic planning

e. Business planning

123. 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. Accompanying statement to the bag with cash

e. Cash book

124. 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. Middlemen-oriented sales promotion

c. Public relations, sponsorship

d. Personal sale

e. Consumer-oriented sales promotion

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

a. Pectin

b. Methylcellulose

c. Starch

d. Gelatin

e. Pepsin

126. 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. Technological
- b. Legal
- c. Economical
- d. Political

e. Sociocultural

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

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

128. 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. Dismembrator, electrical impulse plasmolyzer
- b. Centrifugal mixer with rotating housing
- c. Rotor-pulsation apparatus, dismembrator
- d. Disintegrator, liquid whistle

e. Liquid whistle, magnetostrictive source

129. 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. Taraxaci radices
- b. Calami radices
- c. Tormetillae radices
- d. Glycyrrhizae radices

e. Araliae mandshuricae radices

130. 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. Prevention of hydrolysis of bioactive substances
- b. Extending the shelf life of raw materials
- c. Acceleration of bioactive substances extraction

d. Formation of biostimulants

e. Reducing the content of ballast substances

131. 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. Constipations
- b. Drug dependence
- c. Blood pressure rise

d. Bronchospasm

e. Cumulation

132. 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. Ambroxol

- b. Butamirate
- c. Salbutamol
- d. Codeine phosphate

e. Oxeladin

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

- a. 96%
- b. 70%
- c. 90%
- d. 40%

e. 60%

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

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

135. 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. Propranolol
- c. Amlodipine
- d. Fenoterol
- e. Nitroglycerin

136. 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. Euphyllin (Aminophylline)
- b. Calcium gluconate
- c. Calcium chloride
- d. Potassium aspartate and magnesium aspartate
- e. Hydrochlorothiazide

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

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

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

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

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

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

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

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

- a. Vacuum
- b. Syringe**
- c. Devaporation
- d. Syringe and vacuum
- e. Syringe and devaporation

142. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

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

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

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

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

145. A 6-year-old girl has been suffering from bronchial asthma for 3 years. To stop the attacks, the pediatrician prescribed her a short-acting beta₂-adrenomimetic. What medicine was prescribed by the doctor in this case?

- a. Tiotropium bromide
- b. Fluticasone
- c. Budesonide
- d. Salbutamol**
- e. Ipratropium bromide

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

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

147. 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. 3 months
- c. 6 months
- d. 5 years
- e. 2 years

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

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

- a. Only because preservatives were added into the syrup
- b. Because of decreased surface tension between the solution and the microbial cell
- c. Because of low pH
- d. Because of high pH
- e. Because osmotic pressure in the solution is higher than in the microbial cell**

150. 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. Employee turnover
- d. Diagonal rotation
- e. Horizontal rotation**

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

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

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

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

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

154. What lubricants are used in tablet manufacturing?

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

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

- a. Forced air dryer
- b. Infrared dryer
- c. Freeze dryer
- d. Silica gel dryer

e. Fluidized bed dryer

156. 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. Calcitonin

b. Piperazine

- c. Ribavirin
- d. Pyrazinamide
- e. Riboflavin

157. To identify cardiac glycosides there are usually three groups of color reactions being performed: for steroid nucleus, for lactonic ring, and for carbohydrate component. Specify the reaction for identification of butenolide ring:

- a. Stahl's reaction
- b. Mayer's test
- c. Reaction of sublimation

d. Legal's test

e. Dragendorff's test

158. 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. Enalapril
- b. Corglycon (convallatoxin)
- c. Prazosin

d. Nitroglycerine

e. Captopril

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

a. Sodium edetate

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

160. 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. Iodine monochloride
- b. Hydrochloric acid
- c. Potassium permanganate

d. Cerium sulfate

e. Silver nitrate

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

a. 1:10

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

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

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

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

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

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

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

166. 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. Althaea officinalis herba**
- b. Hyoscyamus niger folium
- c. Gnaphalium uliginosum herba
- d. Urtica dioica folium
- e. Digitalis purpurea folium

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

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

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

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

a. Infructescences

b. Bark

c. Flowers

d. Roots

e. Buds

170. 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. 100 000 UAH

b. 500 000 UAH

c. 3 000 000 UAH

d. 750 000 UAH

e. 5 000 000 UAH

171. 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. Tender pricing

c. Competition-based pricing

d. Breakeven pricing

e. Cost-based pricing

172. 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. Callus treatment bandage

b. Adhesive bandage

c. Pepper plaster bandage

d. Bactericidal adhesive bandage

e. Simple lead bandage

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

a. Tropeolin 00

b. Phenolphthalein

c. Mordant black

d. Potassium chromate

e. Ammonium iron (III) sulfate

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

a. With 70% alcohol in 1:5 proportion

b. With 70% alcohol in 1:15 proportion

c. With 48% alcohol in 1:2 proportion

d. With 90% alcohol in 1:20 proportion

e. With 70% alcohol in 1:10 proportion

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

a. Hot air

b. Steam under pressure

c. Flowing steam

d. Not subject to sterilization

e. Ultraviolet radiation

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

a. Color change from yellow to black

b. Solution decoloration

c. Precipitation

- d. Ammonia production
- e. Precipitation and gassing

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

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

178. 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. Complaint
- c. Request**
- d. Contract
- e. Statement

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

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

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

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

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

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

183. 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. -
- b. Staff turnover**
- c. Staff rotation
- d. Promotion

e. Recruitment

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

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

e. Compounding and retail pharmacies

185. 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. 10%
- c. 20%
- d. 40%

e. 50%

186. 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. Isoquinoline derivatives

b. Tropane derivatives

c. Indole derivatives

d. Purine derivatives

e. Quinuclidine derivatives

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

a. Dry heat

b. Flowing steam

c. Membrane filtration

d. Ultraviolet irradiation

e. Pasteurization

188. What medicinal substance is a derivative of morphinan?

a. Pachycarpine hydroiodide

b. Caffeine

c. Codeine

d. Cocaine hydrochloride

e. Quinine sulfate

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

a. Cotinus coggygria leaves

b. Nettle leaves

c. Solidago canadensis grass

d. Persicaria hydropiper grass

e. Rose hips

190. 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 auxiliary raw stock and materials

b. Characteristics of the end product

c. Information materials

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

e. Description of the manufacturing process

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

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

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

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

193. What preparation has an antacid effect?

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

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

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

195. A pharmaceutical company produces suppositories made from thermolabile medicinal substances. What method is used in their production?

- a. Rolling
- b. Pouring
- c. Dispersion
- d. Pressing**
- e. Steeping

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

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

197. 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. 3%**
- b. 2%
- c. 10%
- d. 30%
- e. 20%

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

- a. Diltiazem
- b. Triamterene**

- c. Bisoprolol
- d. Prazosin
- e. Furosemide

199. 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. Anisum vulgare
- b. Foeniculum vulgare
- c. Coriandrum sativum
- d. Anethum graveolens
- e. Carum carvi**

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

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

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

- a. Granulation using briquetting
- b. Wet granulation in vertical granulators
- c. Granulation in the fluidized bed**
- d. Granulation in the dragee pan
- e. Granulation in spray dryers

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

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

203. Medications Passit and Novopassit are used as tranquilizing, sedative and mild hypnotic agents. These medications are produced from the following grass:

- a. Elecampane
- b. Lesser periwinkle
- c. Three-lobed beggarticks
- d. Purple passionflower**
- e. Garden sage

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

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

205. 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. Nephrotoxicity
- e. Cardiotoxicity**

206. The amount of temporary disability benefits to be paid is calculated taking into account the insured record of service of an employee. What percentage of temporary disability benefits will be paid to an employee with a disability certificate and more than 8-year-long insured record of service?

a. 100% of salary

b. 60% of salary

c. 75% of salary

d. 50% of salary

e. 90% of salary

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

a. *Helianthus tuberosus*

b. *Hypericum maculatum*

c. *Althaea officinalis*

d. *Brassica juncea*

e. *Astragalus dasyanthus*

208. 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. Ganglionic blockers

d. Calcium channel blockers

e. Diuretics

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

a. Mass sales method

b. Intensive method

c. Integrated method

d. Selective method

e. -

210. A woman with open tuberculosis is undergoing in-patient treatment in the tuberculosis clinic. What drug was prescribed by her physician for etiotropic treatment?

a. Benzylpenicillin (Penicillin G)

b. Acyclovir

c. Metronidazole

d. Doxycycline hydrochloride

e. Isoniazid

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

a. Bromthymol blue

b. Eriochrome black

c. Potassium chromate

d. Starch

e. Methyl orange

212. 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. Pumpkin seeds

b. Fennel fruits

c. Flax seeds

d. *Silybum* fruits

e. *Schisandra* seeds

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

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

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

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

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

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

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

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

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

218. What medicinal substance has benzimidazole in its structure?

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

219. The analyst determines quantitative content of sodium benzoate by means of acidimetry in non-aqueous medium according to the State Pharmacopoeia of Ukraine. What reagent is used as a solvent in this case?

- a. Sulfanilic acid
- b. Dimethyl formamide
- c. Anhydrous acetic acid**
- d. Pyridine
- e. Concentrated sulfuric acid

220. 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 over-the-counter drugs
- c. Sale of ready-to-use drugs
- d. Sale of extemporal dosage forms

e. Sale to other organizations for commercial use

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

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

e. The principle of <<three layers>>

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

- a. $K_2[HgI_4]$
- b. K_2CrO_4
- c. $[NH_4]_2C_2O_4$

d. $FeCl_3$

e. $KMnO_4$

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

- a. Nitrofurantoin
- b. Retinol acetate
- c. Resorcinol

d. Tyrosine

e. Sulfamethoxazole

224. Anthocyanidins are euflavonoid compounds that color plant tissues in shades that vary from pink to black-purple. What characteristic feature of anthocyanidins is used in their analysis?

- a. Ability to sublime
- b. Solubility in fats
- c. Amorphous state
- d. Alcohol precipitation

e. Ability to change color depending on the pH of the medium

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

- a. Social (involvement in the events)
- b. Safety and protection

c. Physiological

d. Esteem

e. Self-actualisation

226. 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. Pure monopoly market

e. Market with pure (free) competition

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

a. VEN analysis

b. SWOT analysis

- c. PEST analysis
- d. -
- e. ABC analysis

228. 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 boiling water
- c. Mixed it with cold water, than poured the mixture into boiling water and boiled for 1-2 minutes
- d. Dissolved it in cold water and heated
- e. Mixed it with hot water and added cold water

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

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

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

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

231. After lifting a load, a man developed sharp lumbar pain that intensifies during movements and radiates into the left leg. The patient was diagnosed with lumbosacral radiculopathy. What drug can be recommended in this case?

- a. Cyanocobalamin
- b. Drotaverine hydrochloride
- c. Diclofenac sodium
- d. Atropine sulfate
- e. Enterosgel

232. 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. Lack of understanding of the information's importance
- b. Poor feedback
- c. Semantic barriers
- d. Nonverbal barriers
- e. Psychological distance

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

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

- a. Camphor
- b. Benzoic acid

- c. Anesthesin
- d. Vinilin (polyvinyl butyl ether)
- e. Streptocide

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

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

236. 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 3 days
- b. In a week
- c. In a month
- d. In 5 days
- e. In 10 days

237. A pharmacist has a labour dispute with the pharmacy administration about rescheduling his annual vacation leave. The employee can appeal against the decision of the pharmacy administration to the following body:

- a. Labour disputes committee (LDC)
- b. The Ministry of Public Health of Ukraine
- c. Commercial court
- d. Highest management bodies of pharmaceutical service at the regional level
- e. Trade union committee

238. 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. Probiotics
- b. Antispasmodics
- c. Antitussive drugs
- d. Expectorants
- e. Mucolytic agents

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

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

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

241. Oblong tablets are called:

- a. Capsules
- b. Caplets
- c. Forte tablets
- d. Dragee
- e. Pellets

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- a. Technical**
- b. Top-level
- c. Institutional
- d. Administrative
- e. Middle-level

252. Powder moisture content affects its:

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

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

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

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

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

- a. Tartaric acid
- b. Sulfuric acid
- c. Benzoic acid
- d. Chromotropic acid**
- e. Acetic acid

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

- a. Ethanol**
- b. Glycerine
- c. Chloroform

- d. Acetone
- e. Dichloroethane

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

- a. Economic
- b. Social
- c. Technological
- d. Informational

e. Legal

258. 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. Increased activity of iron preparations
- c. Accelerated absorption of iron preparations

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

- e. Accelerated clearance of iron preparations

259. 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. Enalapril
- b. Doxazosin**
- c. Verapamil
- d. Propranolol
- e. Bisoprolol

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

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

e. Potassium ferrocyanide

261. 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 Pastinacae sativae
- c. Herba Meliloti

d. Semina Hippocastani

- e. Fructus Ammi majoris

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

a. Sodium chloride

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

263. 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. Coumarins
- b. Flavonoids
- c. Lignans**
- d. Xanthones

e. Iridoids

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

a. Tannins

b. Carbohydrates

c. Glycosides

d. Iridoids

e. Lipids

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

a. Magnesium oxide

b. Aluminium hydroxide

c. Calcium carbonate

d. Sodium bicarbonate

e. Sodium alginate

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

a. State regulation of price formation

b. Manufacturing costs

c. The stage of the product life cycle

d. Marketing goals of the company

e. Marketing strategy of the company

267. 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. Potassium hydroxide solution

c. Sodium acetate solution

d. Ammonium chloride solution

e. Sodium bicarbonate solution

268. 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. Flowability

c. Compaction (compression) coefficient

d. Bulk volume

e. Porosity

269. 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 100 mL

c. 0.25 g and 100 mL

d. 20.0 g and 140 mL

e. 10.0 g and 120 mL

270. 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. Scopolamine

b. Platyphyllin

c. Codeine

d. Morphine

e. Papaverine

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

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

272. What prescription form is used to prescribe psychotropic drugs in their pure form or in a mixture with indifferent substances for the dispensation free of charge or at a discount?

- a. Two copies of prescription form f-1
- b. Prescription form f-1
- c. Prescription form f-3
- d. Two prescription forms f-1 and f-3**
- e. Two copies of prescription form f-3

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

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

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

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

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

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

276. There are several indirect taxes in the Ukrainian taxation system. What indirect tax is paid by the consumer as a surcharge to the value of goods?

- a. Excise tax**
- b. Single tax
- c. Individual income tax
- d. Income tax
- e. Commercial patent

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

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

278. After the start of a treatment, a tuberculosis patient has developed red coloration of urine, saliva, and lacrimal fluid. What drug could have caused such changes in this case?

- a. Ciprofloxacin

- b. Alcoholic iodine solution
- c. Isoniazid

d. Rifampicin

- e. Benzylpenicillin (Penicillin G) sodium salt

279. 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. Hypokalemia

b. Hemorrhages

- c. Thrombus formation
- d. Hyperkalemia
- e. Dysbacteriosis

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

- a. Length and quantity of the suppositories
- b. Quantity and vehicle of the suppositories
- c. Diameter and quantity of the suppositories
- d. Diameter and vehicle of the suppositories

e. Diameter, length, and quantity of the suppositories

281. 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. Aminoglycosides

- b. Macrolides
- c. Fluoroquinolones
- d. Penicillins
- e. Cephalosporins

282. 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 hydrochloric acid solution

- b. Iodized potassium iodide solution
- c. Saturated sodium chloride solution
- d. Titrated sodium edetate solution
- e. Freshly prepared tannin solution

283. 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 on the holiday
- c. To pay the salaries 10 days earlier
- d. There are no regulations regarding payment of salaries in this case

e. To pay the salaries one day earlier

284. 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. Strophanthus kombe
- b. Convallaria majalis

c. Digitalis lanata

- d. Adonis vernalis
- e. Erysimum canescens

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

a. Head of a department

b. Packer

c. Pharmacist

d. -

e. Accountant

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

a. Ascorbic acid

b. Sodium bicarbonate

c. Novocaine (Procaine)

d. Caffeine and sodium benzoate

e. Sodium thiosulfate

287. 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. Surname and initials of the doctor

e. Own address

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

a. Evaluation and analysis of the external environment

b. Choosing a strategy

c. Formulation of the mission

d. Implementation of the strategic plan

e. Strategy evaluation

289. 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. Blue coloring

c. White opalescence

d. Yellow coloring

e. Brown coloring

290. 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. Satisfied

b. Negative

c. Irrational

d. Unsatisfied

e. Hidden

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

a. Prevent drying and contamination of the epidermis

b. Absorbed by the outer layers of the skin

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

d. Protect the skin from external factors

e. Protect the skin from microbial infection

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

a. Ethacridine lactate

b. Dimedrol (Diphenhydramine)

c. Glucose

- d. Streptocide (Sulfanilamide)
- e. Magnesium oxide

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

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

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

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

295. 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. Diuretics
- b. alpha-adrenergic blockers
- c. Calcium antagonists
- d. beta-adrenergic blockers**
- e. Ganglionic blockers

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

- a. 1.25
- b. 1.31
- c. 1.21**
- d. 1.11
- e. 1.20

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

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

298. A patient with arterial hypertension was prescribed enalapril, but after two weeks of treatment, taking this drug at the dose of 10 mg twice a day, the patient developed a dry non-productive cough. What is the likely cause of this side effect?

- a. Accumulation of residual bradykinin in the blood**
- b. Inhibition of histamine synthesis
- c. Exacerbation of chronic bronchitis
- d. Gastroesophageal reflux
- e. Increased tone of the cough center

299. A woman suddenly developed an angina pectoris attack. To arrest the attack, she took a medicine that caused her a severe headache, facial hyperemia, and tachycardia. Such side effects are characteristic of the following group of drugs:

- a. Beta-adrenergic antagonists

b. Alpha-adrenergic agonists

c. Nitrates

d. Calcium channel blockers

e. Antispasmodics

300. 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. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (7:3)

b. A mixture of paraffin and sunflower oil (3:7)

c. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (5:5)

d. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (6:4)

e. 10.0 of vaseline (petroleum jelly) "for eye ointments"

301. What should be the disintegration time for effervescent tablets according to the requirements of the State Pharmacopoeia of Ukraine?

a. 30 minutes

b. 15 minutes

c. 60 minutes

d. 3 minutes

e. 5 minutes

302. 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. Oxidation of the medicinal substance

c. Decarboxylation of the medicinal substance

d. Reduction of the medicinal substance

e. Hydrolysis of the ester group

303. 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. Inhibition of hepatic microsomal enzymes

b. Relative overdosage

c. Mutual potentiation

d. Acceleration of metabolism and excretion

e. Antibiotic malabsorption

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

a. Ascorbic acid and aerosil (fumed silica)

b. Citric acid and magnesium stearate

c. Citric acid and aerosil (fumed silica)

d. Tartaric acid and magnesium stearate

e. Tartaric acid and sodium bicarbonate

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

a. Cortex Viburni opuli

b. Rhizoma Tormentillae

c. Fructus Sorbi

d. Cortex Quercus

e. Folium Menthae piperitae

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

a. Oleum Maydis

b. Oleum Cucurbitae

c. Oleum Amygdalarum

- d. Oleum Ricini
- e. Oleum Lini

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

- a. Equity capital**
- b. Reserves and expenses
- c. Accounts receivable
- d. Circulating assets
- e. Work-in-process inventory

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

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

309. 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. Iridoids
- b. Tannins
- c. Anthraquinones**
- d. Alkaloids
- e. Glycosides

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

- a. Ethanol
- b. Peach-kernel oil
- c. Chloroform
- d. Purified water**
- e. Vaseline

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

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

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

- a. Flores Centaureae cyani
- b. Flores Crataegi
- c. Flores Tanacetii
- d. Herba Equiseti arvensis
- e. Semina Sylibi**

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

- a. After solid medicinal substances are dissolved
- b. Before ethanol-containing liquids are added
- c. Last, because of its essential oil content
- d. First**
- e. After concentrated solutions

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

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

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

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

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

317. Bromatometry allows quantitative analysis of the following drug:

- a. Glutamic acid
- b. Sodium salicylate**
- c. Potassium acetate
- d. beta-Alanine
- e. Benzoic acid

318. 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. Glycyrrhiza glabra
- b. Bidens tripartita
- c. Ononis arvensis
- d. Styphnolobium japonicum**
- e. Thermopsis alterniflora

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

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

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

- a. Thermopsis grass, sodium chloride, purified water

b. Thermopsis grass, sodium bicarbonate, purified water

c. Thermopsis tincture, purified water

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

e. Thermopsis grass, purified water

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

a. For preparation of tinctures

b. For quick preparation of infusions and decoctions in pharmacy practice

c. To be used as ready-made medicines

d. For preparation of thick extracts

e. For preparation of dry extracts

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

a. Folia Eucalypti

b. Folia Salviae

c. Folia Betulae

d. Folia Absinthii

e. Folia Menthae piperitae

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

a. Iridoids

b. Saponins

c. Flavonoids

d. Alkaloids

e. Simple phenols

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

a. Acetylsalicylic acid

b. Paracetamol

c. Ibuprofen

d. Celecoxib

e. Metamizole sodium

326. 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. Ascorbic acid

b. Hydrochloric acid

c. Sodium metabisulfite

d. Sodium bicarbonate

e. Sodium hydroxide

327. 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. Vertical

b. Interlevel

c. Internal

d. Horizontal

e. External

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

a. Fluconazole

b. Acyclovir

c. Amikacin

d. Levofloxacin

e. Metronidazole

329. 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. Remains unregistered documentarily
- b. Invoice
- c. Cash income order
- d. Cash expense order**
- e. Receipt

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

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

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

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

333. The Dobropharma pharmacy manager makes plans for standard stock of various groups of goods, based on their purpose. Convenience goods belong to the following group:

- a. Single delivery
- b. Seasonal accumulation
- c. Current demand**
- d. Specific demand
- e. Prior delivery

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

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

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

336. 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. With 50% discount
- d. At full cost
- e. With 70% discount

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

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

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

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

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

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

340. At the exhibition, calendars, notebooks, and business gifts with the logo of a pharmaceutical company were handed out to the exhibition visitors for free. What is this type of advertising called?

- a. Point-of-sale advertising
- b. Film advertising
- c. Print advertising
- d. Out-of-home advertising
- e. Souvenir advertising**

341. A 50-year-old woman complains of headache, dizziness, visual snow, and nausea. The skin of her face is hyperemic. Objectively, her heart rate is 85/min., her blood pressure is 210/120 mm Hg. What is the provisional diagnosis in this case?

- a. Hemorrhagic stroke
- b. Myocardial infarction
- c. Meningococcal infection
- d. Hypertensive crisis**
- e. Angina pectoris attack

342. 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. Lanatosides
- d. Ginkgosides
- e. Glucofrangulins**

343. A pharmacy sells various medicines. What medicine is a subject to strict accounting in a special

inventory log?

- a. Gentamicin sulfate
- b. Hydrocortisone acetate
- c. Retabolil (Nandrolone)
- d. Tramadol, tablets**
- e. Microfollin (Ethinylestradiol), tablets

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

- a. Metronidazole
- b. Aceclidine**
- c. Nicotinic acid
- d. Nitroxoline
- e. Bendazol

345. 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, simple and ciliated hairs
- b. Branched and capitate hairs
- c. T-shaped hairs along the leaf edge**
- d. Simple and capitate hairs
- e. Retor-shaped hairs

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

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

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

- a. Diarrhea
- b. Constipation
- c. Headache**
- d. Nausea
- e. Vomiting

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

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

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

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

- a. Hypotension
- b. Jaundice
- c. Osteoporosis**
- d. Hypoglycemia

e. Constipation

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

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

e. Preparation of individual formulations

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

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

353. A pharmaceutical factory produces soft dosage forms. What soft dosage form melts at the body temperature?

- a. Ointment
- b. Cream
- c. Paste

d. Liniment

e. Gel

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

- a. Tetracycline
- b. Erythromycin
- c. Ampicillin

d. Gentamicin

e. Penicillin

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

a. Hepatoprotectors

b. Antispasmodics

- c. Antibiotics
- d. Antacids
- e. Cholagogues

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

a. Muscle pain

b. Diabetes mellitus

- c. Cuts and abrasions
- d. Cold
- e. Headache

357. 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. Cashier's check

b. Cash receipt order

- c. Bank statement
- d. Cash withdrawal order
- e. Payment order

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

a. Solutions

b. Narcotic substances

c. Substances that are hard to comminute

d. All medicines are written in a random order

e. Medicines included in the Essential Medicines List

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

a. Ampicillin

b. Rifampicin

c. Cephalexin

d. Amikacin

e. Methacycline

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

a. Angle of rotation

b. Viscosity

c. Solution pH

d. Optical density

e. Refractive index

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

a. Polyvinyl alcohol

b. Boric acid

c. Hydrochloric acid

d. Methyl cellulose

e. Sodium chloride

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

a. At least once per shift

b. At least once a week

c. At least twice a month

d. At least twice a week

e. At least once a month

363. 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. Signature of the head manager of the medical facility or signature of the deputy head manager for medical work

d. Doctor's personal seal and signature

e. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility

364. 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. Sunflower oil

b. Castor oil

c. Cocoa butter

d. Olive oil

e. Flaxseed oil

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

a. Lyophilized

b. Porous

c. Multi-layered

d. Hollow

e. Dyed

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

a. Visual optical

b. Limulus test

c. NMR and UV-visible spectroscopy

d. Gravitational

e. Amperometric

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

a. Dispersion

b. Vehicle production

c. Mixing components with the vehicle

d. Homogenization

e. Ointment concentrate production

368. A dispensing chemist has a total insured work record of 10 years. It means that the dispensing chemist can expect the following amount of temporary disability benefits:

a. 50% of the average salary

b. 100% of the average salary

c. 70% of the average salary

d. 60% of the average salary

e. 80% of the average salary

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

a. Omeprazole

b. Clarithromycin

c. Amoxicillin

d. Bismuth subcitrate

e. Metronidazole

370. 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. Aldehyde group

b. Sulfamide group

c. Esther group

d. Ketone group

e. Carboxylic group

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

a. Tetracycline

b. Metronidazole

c. Omeprazole

d. Amoxicillin

e. Bismuth subcitrate

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

a. Cash deposit and cash withdrawal receipts

b. Transactions log book

c. Payroll records

d. Invoices

e. Payment orders

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

a. One month

b. One year

c. Five years

d. The prescription must be returned to the patient

e. Three years

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

a. Secoiridoids

b. Complex iridoid alkaloids

c. Valepotriates

d. Cyclopentane iridoids

e. Common iridoids

375. 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. Motivation

c. Planning

d. Organization

e. Control

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

a. Acidimetry in a non-aqueous medium

b. Bromatometry

c. Photocolorimetry

d. Nitritometry after alkaline hydrolysis

e. Alkalimetry

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

a. Accelerates

b. Increases

c. Decreases

d. Activates

e. Remains unchanged

378. 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. Cardiac glycosides

c. Polysaccharides

d. Flavonoids

e. Essential oils

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

a. 5 years

b. 3 years

- c. 6 months
- d. 1 year
- e. 2 years

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

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

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

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

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

383. "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 Rhei
- c. Radices Araliae elata
- d. Radices Ginseng
- e. Herba Echinaceae purpurea**

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

- a. Ambroxol**
- b. Glaucine
- c. Euphylline (Theophylline)
- d. Codeine
- e. Dextromethorphan

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

386. 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. -
- d. Financial activity
- e. Financial and credit activity

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

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

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

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

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

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

390. 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. Collective
- c. Rational
- d. Collegial
- e. Adaptive

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

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

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

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

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

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

394. 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. Helical (vertical) rotation**

- b. Employee turnover
- c. Mixed rotation
- d. Spiral (horizontal) rotation
- e. Recruitment

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

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

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

- a. Antifriction materials
- b. Solvents
- c. Thickeners
- d. Film formers
- e. Leaveners**

397. A 65-year-old man has been taking nitroglycerin continuously for 2 months. Lately, he has been observing a gradual decrease in its clinical effect. Name the concept that describes this phenomenon:

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

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

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

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

- a. Washing room
- b. Shop floor
- c. Material storage room**
- d. Distillation room
- e. Aseptic block

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

401. What medicinal substance must fill only 2/3 of the vial before sterilization?

- a. Sodium bicarbonate**
- b. Sodium chloride
- c. Hexamethylenetetramine
- d. Calcium chloride
- e. Euphyllin (Aminophylline)

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

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

- a. Accountant
- b. Pharmacist on duty
- c. Authorized person**
- d. Lawyer
- e. Supplier representative

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

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

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

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

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

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

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

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

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

409. An analytical chemist has conducted a qualitative reaction to confirm the presence of a steroid ring in the prednisolone molecule. For this purpose the following reagent was used:

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

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

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

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

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

412. 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. Indophenol
- e. Azo dye**

413. According to the State Pharmacopoeia of Ukraine, an analytical chemist can determine sulfate admixtures in sodium tetraborate by the effect of white opalescence that results from its reaction with the following solution:

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

414. 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. *Olea europaea*
- b. *Rubus idaeus*
- c. *Humulus lupulus***
- d. *Alnus incana*
- e. *Juniperus communis*

415. During identification of a medicinal substance, a chloroform layer colors yellow-orange after addition of a solution of chloramine and hydrochloric acid. Name this substance:

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

416. 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. Codeine phosphate
- d. Ambroxol
- e. Doxycycline**

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

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

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

419. 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. Tolerance**
- b. Psychological dependence
- c. Physical dependence
- d. Cumulation
- e. Sensitization

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

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

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

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

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

423. 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. Received from a higher-level organization

d. Individual

e. -

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

a. 0.1 M solution of sodium hydroxide

b. Weibel stabilizer

c. Boric acid

d. 0.1 M solution of hydrochloric acid

e. Sodium sulfite

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

a. -

b. Bonuses

c. In-store advertising

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

e. Coupons

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

a. Passiflora grass

b. Taraxacum roots

c. Acorus calamus rhizomes

d. Viburnum bark

e. Populus nigra buds

427. 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. Red-brown

b. Green

c. White and amorphous

d. Creamy

e. Yellow

428. 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 need special purification

e. Solutions of the substances that cannot be thermally sterilized

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

a. Marketing

b. Advertisement

c. Communications

d. Supply

e. Trademark

430. 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. Conversion marketing
- b. Demarketing**
- c. Stimulation marketing
- d. Remarketing
- e. Synchromarketing

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

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

432. The drug sanguiritrin contains a combination of alkaloid bisulfates - sanguinarine and chelerythrine - that have an antimicrobial effect against Gram-positive bacteria and exhibit an antitrichomonal effect. What plant is the source of these alkaloids?

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

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

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

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

435. 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. Manufacturing activity
- e. Financial activity

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

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

437. Merchandising is a complex of communication techniques that aim to increase the sales in the

pharmacies. The main goal of merchandising is:

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

438. A certain injection solution cannot undergo thermal sterilization, because high temperatures lead to its hydrolysis with formation of formaldehyde and ammonia. Name this solution:

- a. Aminazine solution
- b. Glucose solution
- c. Novocaine (procaine) solution
- d. Diprazine (promethazine) solution
- e. Hexamethylenetetramine solution

439. Snake venom-based drugs are widely applied in treatment of locomotor apparatus diseases. Main components of these venoms are:

- a. Toxic proteins
- b. Phenol-alcohols
- c. Alkaloids
- d. Glucosinolates
- e. Cardiac glycosides

440. When preparing suspensions, the medicinal substance is ground with a small amount of liquid. What is the optimal amount of liquid for comminution of 20 mg of zinc oxide according to the Deriagin's rule?

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

441. 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 20.00 to 9.00
- b. From 22.00 to 6.00
- c. From 23.00 to 7.00
- d. From 24.00 to 8.00
- e. From 21.00 to 9.00

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

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

443. 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. By package size
- c. Seasonality
- d. Doubling product facings
- e. Among competitors

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

- a. Benzene and thiazole

b. Pyrrole and benzene

- c. Benzene and pyridine
- d. Two 4-oxycoumarin residues
- e. Pyrimidine and imidazole

445. 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. Dosing
- c. Packing

d. Dissolution

- e. Comminution

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

a. Lisinopril

- b. Atenolol
- c. Carvedilol
- d. Labetalol
- e. Hydrochlorothiazide

447. According to the rules in force, workrooms should regularly undergo humid disinfection. How often should the floors be washed?

- a. No less than thrice in a week
- b. No less than once in a week
- c. No less than twice in a week

d. No less than once in a shift

- e. No less than twice in a month

448. A pharmaceutical company produces sterile aqueous solutions for eye rinsing and moisturizing, as well as for impregnation of the materials that are applied to the eyes topically. Name these solutions:

- a. Eye drops
- b. Eye inserts
- c. Eye sprays

d. Eye lotions

- e. Eye ointments

449. The head manager of the "Ecopharm" pharmacy has entrusted the deputy head manager with some of his duties. The process when an executive partially transfers the authority to perform certain tasks to his or her subordinates is called:

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

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

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

d. Selectivity toward active substances

- e. Cost

451. Accounts receivable develop in the process of pharmaceutical company work. Specify where in the balance book they are recorded:

- a. Credit
- b. Liabilities
- c. Assets**

- d. Debit
- e. Account

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

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

453. A 12-year-old girl has been diagnosed with acute pyelonephritis. What antibacterial agent has an age limit for its prescription to a patient?

- a. Clarithromycin
- b. Cefuroxime
- c. Amoxicillin
- d. Benzylpenicillin sodium salt
- e. Levofloxacin

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

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

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

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

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

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

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

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

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

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

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

a. Bromatometry

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

460. 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. Motivation

- b. Delegation
- c. Control
- d. Planning
- e. Organization

461. 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. Flowering
- b. Fruiting
- c. Dormancy
- d. Defoliation

e. Sap flow

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

a. Fluidity (flowability)

- b. Bulk density
- c. Relative density
- d. Humidity
- e. Porosity

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

b. Once a year

- c. At least thrice a year
- d. Once every three years
- e. At least once in a quarter

464. 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. Intensification
- b. Integration
- c. Insurance

d. Diversification

- e. Consolidation

465. 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. Novocaine
- c. Solpadeine
- d. Digoxin

e. Phenobarbital

466. 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. Quality

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

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

a. 10 mL

- b. 12.5 mL
- c. 7.5 mL
- d. 6.25 mL
- e. 3 mL

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

- a. Import
- b. Tender
- c. Direct investments

d. Joint venture

- e. Franchising

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

- a. Saponins
- b. Lignans

c. Coumarins

- d. Anthracene derivatives
- e. Cardiac glycosides

470. The market can be characterized by the following conditions: there are many sellers and buyers, who have no influence over current prices; similar and interchangeable competing goods are available; there are no price limits. What type of market is it?

- a. Pure monopoly
- b. Economic planning
- c. Monopolistic competition

d. Pure competition

- e. Oligopoly

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

- a. Mucolytic agents
- b. Polyvitamins
- c. Decongestants

d. Antitussive drugs

- e. Antibacterial drugs

472. A herbal raw material (fruits) was sent for analysis. This material consists of glossy black drupes 8 mm in diameter with one large spherical light-brown seed that is very firm. Its chemical analysis showed the presence of condensed tannins. What plant is the source of this herbal raw material?

- a. *Schisandra chinensis*

b. *Prunus padus*

- c. *Rhamnus cathartica*
- d. *Ribes nigrum*
- e. *Vaccinium myrtillus*

473. 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. *Rhizomata et radices Rubiae*

b. Radices Althaeae

c. Rhizomata et radices Inulae

d. Radices Taraxaci

e. Radices Ononidis

474. 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. 3 years

e. 5 years

475. 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. Geographical

b. -

c. Behavioral

d. Demographic

e. Psychographic

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

a. Furosemide

b. Phencarol (Quifenadine)

c. Tolbutamide

d. Piracetam

e. Bendazol

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

a. Spermaceti

b. Wax

c. Butyrol

d. Vaseline (petroleum jelly)

e. Cocoa butter

478. What solution should be used by an expert at the laboratory of the pharmaceutical product certification center to identify the medicines that contain potassium ions?

a. Sodium hydroxide

b. Sodium cobaltinitrite

c. Ammonium oxalate

d. Barium chloride

e. Magnesium sulfate

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

a. The State Regulatory Service of Ukraine

b. The Audit Chamber of Ukraine

c. The Control and Revision Office

d. The State Service of Ukraine for Medicines

e. The State Service of Ukraine for Drug Control

480. 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. Demand-based

c. Supply-based

d. Breakeven

e. Cost-based

481. Several cholesterol gallstones are detected in the gallbladder of a woman. Choose the drug to dissolve and excrete the stones:

- a. Loperamide
- b. Domperidone

c. Ursodeoxycholic acid

- d. Platyphyllin
- e. Papaverine

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

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

e. Sedatives

483. 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. -

c. Deep penetration into the market

- d. Following the leader
- e. Tender pricing strategy

484. 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. Cherry

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

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

- a. Survey
- b. Panel
- c. Observation

d. Experiment

- e. -

486. A patient with ischemic heart disease and chronic circulatory failure had been taking for a long time one of the drugs listed below. He developed hypokalemia, which resulted in cardiac rhythm disturbance and muscle weakness. What drug can lead to this complication as a side effect?

- a. Lisinopril

b. Furosemide

- c. Nifedipine
- d. Spironolactone
- e. Propranolol

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

- a. Horizontal
- b. Vertical descending

c. Vertical ascending

d. Intra-level

e. External

488. 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. Natural penicillins

b. Combined penicillins

c. Synthetic penicillins

d. Aminoglycosides

e. Macrolides

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

a. Lipids

b. Cytisine

c. Flavonoids

d. Papaverine

e. Atropine

490. 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. Democratic

b. Autocratic

c. Liberal

d. Authoritarian

e. Directive

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

a. Intestine

b. Stomach

c. Oral cavity

d. Rectum

e. Esophagus

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

a. Standard set of sieves

b. Laboratory identifiers

c. Friabilators

d. Various vibrosieves

e. Microscope

493. What drug is used to treat hyperthyroidism?

a. Insulin

b. Mercazolil (Thiamazole)

c. Oxytocin

d. Metformin

e. Prednisolone

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

a. Vroom's expectancy theory

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

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

a. Functional marketing

b. Product-based marketing

- c. Segment marketing
- d. Regional marketing
- e. Combined marketing (matrix model)

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

a. Inventory department

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

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

a. Certain value of the solution pH

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

498. 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 6 years of age

c. Under 3 years of age

- d. From 3 to 6 years of age
- e. Under 16 years of age

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

- a. Diuretic
- b. Choleric

c. Laxative

- d. Sedative
- e. Litholytic

500. 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. Maceration
- d. Extraction of primary juice

e. Mass transfer

501. 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. Mechanistic

c. -

d. Organic

e. Combined

502. 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. Moisture content

b. Ash values (Total ash)

c. Extractive values

d. Mineral admixtures

e. Acceptable admixtures

503. 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. Sponsorship

b. Product promotion

c. Publicity

d. Direct marketing

e. Lobbying

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

a. Equity capital

b. Salaries payment

c. Monetary funds

d. Bank loans

e. Debt settlement with the creditors

505. What medicine would be the best choice for a pregnant woman with signs of acute respiratory viral disease, who needs to lower her body temperature?

a. Acetylsalicylic acid

b. Paracetamol

c. Indomethacin

d. Nimesulide

e. Diclofenac sodium

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

a. 5 years

b. 10 years

c. 1 year

d. 3 years

e. 3 months

507. 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. Public relations

b. Advertising

c. Sales promotion, sampling

d. Personal selling

e. Lobbying

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

a. Solvent

- b. Emollient
- c. Preservative
- d. Solubilizer

e. Plasticizer

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

- a. Potassium chromate
- b. Starch
- c. Bromphenol blue

d. Iron (III) ammonium sulphate

e. Sodium eosinate

510. 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. Social

- c. Criminal
- d. Personal
- e. Legal

511. 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. Tramadol

b. Nitrous oxide

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

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

a. Expectorant

b. Antidepressant

- c. Analgesic
- d. Antiasthmatic
- e. Anticonvulsant

513. 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. Camomile grass
- d. Althaea roots
- e. Motherwort grass

514. 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. Generation of the ideas
- b. Commercial manufacturing

c. Economic analysis

- d. Filtration of the ideas
- e. Test marketing

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

- a. Mechanical strength
- b. Resuspension
- c. Dissolution time**

- d. Boiling point
- e. Dry residue

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

517. What is the medicine of choice for treatment of acute pyelonephritis in a woman, who is at the I trimester of her pregnancy?

- a. Norfloxacin
- b. Ofloxacin
- c. Co-trimoxazole
- d. Amoxicillin**
- e. Gentamicin

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

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

519. A pharmacy needs to prepare a furacilin (nitrofuril) solution (1:5000). What are the specifics of furacilin dissolution?

- a. In the boiling water in the presence of sodium chloride**
- b. In the purified water, after grinding it down
- c. In the cold purified water
- d. In the purified water, filtered in advance
- e. In the minimal amount of ethanol

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

521. To retain full control over its trade operations on the regional market, the "Fitoprom" pharmaceutical company conducts its marketing policy without any intermediate parties. Name the marketing practice that excludes the middleman:

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

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

e. Unithiol (DMPS)

523. 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. Salary payments
- b. Withdrawing sales proceeds for the transfer to the current account

c. Receipt of funds for advance salary payments

- d. Issuing a cash sum to be accounted for
- e. Payment for the goods purchased for the business needs

524. After mineralization of bromocamphor with zinc dust, bromide-ions can be detected in the filtrate in the presence of CHCl_3 by performing a reaction with:

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

e. Chloramine

525. A pharmacy customer complains of constricting, sometimes burning pain behind the sternum, with irradiation to the neck and left arm. The pain lasts for 5-10 minutes. What drug should be given to this customer for emergency aid?

- a. Isosorbide dinitrate

b. Nitroglycerine

- c. Nifedipine
- d. Digoxin
- e. Bisoprolol

526. At the laboratory of a pharmaceutical company, a corticosteroid medicinal substance - hydrocortisone acetate - is being analyzed. What cycle in its molecule causes the appearance of an intense bright yellow coloring, when concentrated sulfuric acid is added?

- a. Pyridine cycle

b. Steroid cycle

- c. Naphthalene cycle
- d. Xanthine cycle
- e. Imidazole cycle

527. 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. Rubia tinctorum

- b. Sambucus nigra
- c. Melissa officinalis
- d. Mentha piperita
- e. Thymus serpyllum

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

- a. Expectorant
- b. Astringent

c. Detoxicant

- d. Cardiotonic
- e. Litholytic

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

- a. Sodium chloride solution
- b. 5% glucose solution

c. Collargol solution

- d. Burow's solution
- e. Nonaqueous solution

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

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

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

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

533. 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. Receipts and expenditures report
- b. Double entry
- c. Turnover balance sheet
- d. Balance sheet**
- e. Business transactions log book

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

- a. Argentometry
- b. Cerimetry
- c. Spectrophotometry**
- d. Potentiometry
- e. Acidimetry

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

- a. Pteridine**
- b. Isoalloxazine
- c. Phenothiazine
- d. Corrin
- e. Purine

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

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

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

- a. Stoichiometric coefficient
- b. Distribution coefficient**

- c. Coefficient of surface tension
- d. Coefficient of viscosity
- e. Correction factor

538. 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. Cash register receipt
- b. Check payable in account
- c. Accounting form
- d. Cash order
- e. Payment order**

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

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

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

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

541. 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. Benzoic acid
- c. Glutaminic acid
- d. Acetylsalicylic acid
- e. Salicylic acid

542. According to the State Pharmacopoeia of Ukraine monograph, alkalimetry should be used for the quantitative determination of the nicotinic acid. What is used as an indicator in this case?

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

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

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

545. A manufacturing company initiates changes to the package insert of a drug, which are aimed at limitation of its use. What type of marketing is used by the company in this case?

a. Counteractive

b. Conversion

c. Remarketing

d. Synchromarketing

e. Stimulating

546. 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. Insulin

b. Urea

c. Glibenclamide

d. Etacrynic acid

e. Metformin

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

a. Specialized

b. Mixed

c. Referent

d. Decentralized

e. Centralized

548. An analytical quality control laboratory analyzes a resorcinol substance. What method is used for its quantitative determination?

a. Bromometry

b. Mercurimetry

c. Nitritometry

d. Argentometry

e. Complexometric titration

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

a. Grass of plume poppy

b. Celandine grass

c. Tea leaves

d. Grass of common periwinkle

e. Pods of opium poppy

550. 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. Thermal stability

c. Volatility

d. Thermolability

e. Low solubility in water

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

a. Chlorides

b. Sulfates

c. Pyrogenic substances

d. Moisture

e. Redox substances

552. 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. Survey

b. Testing

c. Observation

d. Experiment

e. Panel

553. 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. Productivity

c. Practical implementation of management decisions

d. Survival

e. Efficiency

554. A marketing study found that the main group of consumers of venotonics are women aged 40 to 60 years. What principle is used for market segmentation in this case?

a. Behavioral approach

b. Geographical approach

c. -

d. Demographic approach

e. Psychographic approach

555. 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. 5 ml

b. 2 ml

c. 10 ml

d. 0,5 ml

e. 1 ml

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

a. Suspension

b. Aerosol

c. True solution

d. Emulsion

e. Colloid solution

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

a. -

b. To ensure business survival

c. To create the image of high-quality medicine manufacturer

d. To maximize profits

e. To gain leadership due to high quality of manufactured medicines

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

a. Vomiting

b. Decreased blood pressure

c. Increased blood pressure

d. Red coloring of urine

e. Ototoxicity

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

a. Glycerine

b. Purified water

c. Vaseline (petroleum jelly)

d. Glycerine-water solution

e. Dimethylsulfoxide

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

a. Cost of ingredients

b. Cost of labor and price markup

c. Cost of ingredients and package

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

e. Cost of ingredients, package, and labor

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

a. Insufficient amount of dyes

b. Insufficient amount of lubricants

c. Insufficient amount of adhesives

d. Insufficient amount of leaveners

e. Insufficient amount of diluents

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

a. Fatty oils

b. Inulin

c. Essential oils

d. Pectin

e. Slime

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

a. *Rhodiola roseae* rhizomata et radices

b. *Uvae ursi* folia

c. *Urticae* folia

d. *Filicis maris* rhizomata

e. *Hyperici* herba

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

a. Lincomycin

b. Co-trimoxazole

c. Clarithromycin

d. Levomycetin (Chloramphenicol)

e. Ceftriaxone

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

a. Customers ledger

b. Prescription logbook

c. Transactions ledger

d. Cash book

e. Receipt book

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

a. Oak bark

- b. Ash bark
- c. Willow bark
- d. Birch bark

e. Buckthorn bark

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

- a. Bromphenol blue
- b. Potassium chromate

c. Ferroin

- d. Phenolphthalein
- e. Methyl orange

568. A patient diagnosed with acute rhinitis was using xylometazoline drops. After 7 days of treatment, the patient notes that the effect of the medicine decreased and was not restored after an increase in the dosage. What medical term characterizes a sudden decrease in the sensitivity to a medicine?

- a. Synergism
- b. Withdrawal syndrome

c. Tachyphylaxis

- d. Tolerance
- e. Antagonism

569. 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. Diclofenac sodium

d. Nitroglycerin

- e. Captopril

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

- a. Material
- b. Special
- c. Labor

d. Financial

- e. -

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

- a. Nimesulide
- b. Naproxen
- c. Acetylsalicylic acid
- d. Diclofenac

e. Ibuprofen

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

- a. Extract from the State Register of Medicines
- b. Drug Quality Standard
- c. Written Control Passport

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

- e. Technical regulations for the drug

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

a. Demographic

- b. Behavioral
- c. Geographic
- d. Socioeconomic
- e. Psychographic

574. Sodium and potassium oxides are introduced into the ampoule glass to:

a. Decrease its melting point

- b. Increase its mechanical stability
- c. Increase its chemical stability
- d. Increase its dimming ability
- e. Increase its thermal stability

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

- a. Iodometry
- b. Nitritometry

c. Alkalimetry

- d. Bromatometry
- e. Complexonometry

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

a. Cyanogen bromide reagent

- b. Thioacetamide reagent
- c. Thioglycolic acid solution
- d. Grade reagent
- e. Copper-tartrate solution

577. A pharmaceutical company plans to introduce traditional herbal remedies to new markets. What marketing opportunity according to Ansoff Matrix was used by the company?

a. Product development

b. Market development

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

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

- a. Glandular hairs
- b. Glandular <<spots>>

c. Essential oil cavities

- d. Essential oil glandules
- e. Secretory cells

579. Working hours for the pharmacy workers are reduced. What is the length of the work week for the pharmacist-analyst?

a. 32 hours

b. 36 hours

- c. 45 hours
- d. 24 hours
- e. 30 hours

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

a. 0.04 g

b. 0.05 g

- c. 0.03 g
- d. 0.02 g
- e. 0.1 g

581. 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. Accounts ledger
- d. Inventory**
- e. Commodity report

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

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

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

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

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

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

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

586. 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. Panax ginseng roots
- b. Aralia mandshurica roots
- c. Berberis roots
- d. Glycyrrhiza roots**
- e. Taraxacum roots

587. To reduce business risks, the director of a pharmaceutical company has decided to withdraw a part of the profits and invest money into the restaurant business. Name the phenomenon, when the effort and capital are divided and invested into different types of business, the results of which are not directly related.

- a. Liquidation
- b. Indexation

c. Diversification

- d. Bankruptcy
- e. Insurance

588. 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. Decentralized
- b. -
- c. Centralized
- d. Referent

e. Mixed

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

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

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

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

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

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

592. 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. Cortisone acetate
- b. Hydrocortisone acetate
- c. Prednisone
- d. Prednisolone

e. Betamethasone dipropionate

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

594. 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. Ester group
- c. Phenolic hydroxyl
- d. Amide group
- e. Alcoholic hydroxyl

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

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

596. 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. Hydroxamic reaction
- c. Azo dye formation
- d. Iodoform test

e. Lignin test

597. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds with the following drug:

- a. Chingamin (Chloroquine)
- b. Quinocide
- c. Ofloxacin
- d. Dibazol (Bendazol)

e. Nitroxoline

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

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

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

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

e. F-3 form

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

- a. Bank loan
- b. Prolonged loan
- c. Term loan
- d. State loan

e. Commercial loan

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

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

e. An authorized person

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

- a. Antacids
- b. ACE inhibitors

- c. Tranquilizers
- d. Antipsychotics
- e. Calcium antagonists

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

- a. Camphor**
- b. Talcum
- c. Sugar
- d. Sodium chlorides
- e. Osarsolum (Acetarsol)

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

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

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

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

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

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

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

608. 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. Financial
- c. -
- d. Concluding**
- e. Concurrent

609. 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. Acridine
- b. Furfural

c. Methyl isothiocyanate

d. Hydroxyquinoline

e. Naphthoquinone

610. 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. Sodium nitrite

d. Perchloric acid

e. Iodine

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

a. Checklist

b. Act on the inventory results

c. Commercial report

d. Invoice

e. Inventory item description

612. 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. 115 days

c. 100 days

d. 126 days

e. 50 days

613. 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. Vaseline

d. Gelatin-glycerine gel

e. Soap-glycerine base

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

a. Mechanical dispersion

b. Solubilization

c. Maceration

d. Ultrasonic dispersion

e. Coacervation

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

a. Fluoride

b. Nitrogen

c. Hydrogen

d. Chlorine

e. Oxygen

616. 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. 30 minutes

b. 45 minutes

c. 15 minutes

d. 10 minutes

e. 25 minutes

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

a. Ophthalmic dosage forms

b. Dosage forms for newborns

c. Emulsions

d. Infusions

e. Suspensions

618. 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. 0.03 g

b. 0.01 g

c. 0.05 g

d. 0.02 g

e. 0.04 g

619. 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. Marking of herbal raw material

c. Sorting of herbal raw material

d. Standardization of herbal raw material

e. Harvesting of herbal raw material

620. 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. Calcium chloride

b. Sodium carbonate

c. Sodium nitrite

d. Silver nitrate

e. Ammonium hydroxide

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

a. Profitability

b. Self-development capability

c. Success

d. Capitalization level

e. Culture

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

a. Rhizomes

b. Roots

c. Flowers

d. Grass

e. Fruits

623. 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. Markups

b. Profit

c. Profitability

d. Commodity circulation

e. Expenses

624. 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. Beta-blockers
- c. Alpha-blockers
- d. Proton pump inhibitors**
- e. Glucocorticosteroids

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

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

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

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

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

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

628. 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. Ephedrine
- b. Schisandrin
- c. Colchicine
- d. Inulin
- e. Capsaicin**

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

630. 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. Sodium nitrate solution
- d. Iron (III) chloride solution**
- e. Copper (II) sulfate solution

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

632. 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

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

- a. Cefazolin
- b. Oxacillin
- c. Ampicillin**
- d. Chloramphenicol
- e. Lincomycin

634. Berberis vulgaris herbal raw material is a source of medicinal substances with cholagogic and hemostatic effect. What parts of this plant are harvested as a herbal raw material?

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

635. 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. Introduce the substances as a suspension**
- b. Melt all of fatty vehicle and dissolve the substances there
- c. Melt a part of fatty vehicle and dissolve the substances there
- d. Dissolve the substances in the water heated to 45°C
- e. Introduce the substances as an emulsion

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

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

637. A patient receives heparin for acute myocardial infarction. On the third day the patient developed hematuria and subcutaneous hematomas. What medicine should be prescribed as an antidote in this case?

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

638. Thymus serpyllum grass is harvested in Ukraine. At what stage of plant growth is this herbal raw

material harvested?

- a. After harvesting the fruits
- b. Before the formation of green fruits
- c. When the fruits are ripe
- d. Before the flowering

e. During the flowering stage

639. 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 increasing alcohol concentration**
- d. In the order of decreasing alcohol concentration
- e. In the order of increasing volume of alcohol-containing solutions

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

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

641. An analytical pharmacist analyzes a cefazolin sodium substance. What solution is used for identification of sodium ions?

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

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

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

643. 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 hydropiper
- b. Polygonum aviculare
- c. Polygonum bistorta**
- d. Polygonum alpinum
- e. Polygonum persicaria

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

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

645. 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. Annually

- b. -
- c. Quarterly
- d. Monthly
- e. Daily

646. Suspension stability increases, when the substances that increase the viscosity of a continuous medium are introduced to a suspension. Specify a substance that has such a property:

- a. Ethyl alcohol
- b. Dimexide (dimethyl sulfoxide)
- c. Glycerine
- d. Purified water
- e. Atropa belladonna tincture

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

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

648. Optical rotation angle of substances is determined under the temperature of 20°C, in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ($\lambda = 589,3 \text{ nm}$), and is calculated with reference to a solution containing 1 g of the substance per ml. It is called:

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

649. 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. Sphere
- b. Cylinder
- c. Ovoid
- d. Pessary
- e. Torpedo

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

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

651. 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. Chromotropic acid disodium salt
- e. Cyanogen bromide reagent

652. 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. 0.2 g
- c. 0.1 g
- d. 0.5 g

e. 0.25 g

653. 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 summary

- b. Cash cheque
- c. Payment request and order
- d. Payment order
- e. Cheque payable

654. 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. Phylloquinone (Phytomenadione)
- b. Ergocalciferol
- c. Tocopherol
- d. Cholecalciferol

e. Retinol

655. 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. Butamide (Tolbutamide)
- b. Glibenclamid
- c. Insulin

d. Glucose

- e. Metformin

656. 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 leveling, synchromarketing

b. Demand making, conversion marketing

- c. Demand decrease, demarketing
- d. Demand stimulation, promotional marketing
- e. Demand increase, remarketing

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

a. Omeprazole

- b. Metamizole sodium
- c. Spironolactone
- d. Prednisolone
- e. Ceftriaxone

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

- a. Thiosulfate
- b. Naloxone
- c. Methionine
- d. Unithiol (Dimercaptopropanesulfonate sodium)

e. Protamine sulfate

659. 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. Phenolphthalein

c. Starch

d. Phenol red

e. Litmus paper

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

a. Froehde reagent

b. Vitali-Morin reagent

c. Dragendorff reagent

d. Marquis reagent

e. Erdman reagent

661. 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. Argentometry

b. Alkalimetry

c. Complexonometry

d. Acidimetry

e. Nitritometry

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

a. Ferroin

b. Methyl orange

c. Potassium chromate

d. Phenolphthalein

e. Tropeolin 00

663. 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. Vicasol (Menadione)

b. Riboflavin

c. Cocarboxylase hydrochloride

d. Ergocalciferol

e. Rutin

664. 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. Nifedipine

b. Nitroglycerine

c. Lisinopril

d. Atorvastatin

e. Hydrochlorothiazide

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

a. Dipyridamol

b. Acetylsalicylic acid

c. Propranolol

d. Nitroglycerine

e. Drotaverine hydrochloride

666. 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. Hypertensive crisis

b. Exertional angina pectoris attack

- c. Cervical osteochondrosis
- d. Migraine attack
- e. Acute conjunctivitis

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

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

668. 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. Centaurium grass**
- b. Birch leaves
- c. Centaurea cyanus flowers
- d. Vaccinium vitis-idaea leaves
- e. Equisetum arvense grass

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

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

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

671. 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. Boric acid
- b. Glucose
- c. Sodium chloride**
- d. Sodium sulfate
- e. Sodium nitrate

672. What medicinal substance has an imidazole fragment in its structure?

- a. Phenazone
- b. Thiamine bromide
- c. Pilocarpine hydrochloride**
- d. Nitrofuril
- e. Nicotinic acid

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

- a. First dissolve it in the minimum amount of water**
- b. Commminute it with an alcohol or ether
- c. Commminute it with glycerin

- d. Dissolve it in the molten base
- e. Grind it with a part of the molten base

674. 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. Elastic demand**
- c. Perfectly inelastic demand
- d. Unitary demand
- e. Universal demand

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

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

676. 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**

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

678. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

- a. Vincaton
- b. Ergotamine hydrotartrate**
- c. Digitoxin
- d. Vinblastine
- e. Galantamine hydrobromide

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

- a. Urolesan
- b. Herbogastrine
- c. Bellasthesin**
- d. Solutan
- e. Olimetinum

680. During identification of a herbal raw material, an analytical chemist prepared water-based extractions and shook the test tube, which resulted in the formation of a large amount of stable foam. What bioactive substances are present in the material?

- a. Saponins**
- b. Anthracene derivatives
- c. Tannins
- d. Alkaloids
- e. Fatty oil

681. 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. Profit invoice
- b. Disbursement cash order**
- c. Cashier's check
- d. Receipt for issuing money
- e. Expense invoice

682. 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. Boric acid, calcium carbonate
- e. Zinc oxide, talcum

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

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

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

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

686. 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. Perchloric acid solution**
- c. Sodium nitrite solution
- d. Zinc sulfate solution
- e. Potassium bromate solution

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

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

688. 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. Flavonoids**

b. Thioglycosides

- c. Fatty oil
- d. Alkaloids
- e. Polysaccharides

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

- a. Doxycycline hydrochloride
- b. Kanamycin monosulfate
- c. Lincomycin hydrochloride
- d. Amoxicillin

e. Streptomycin sulfate

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

- a. 1 month
- b. 5 weeks

c. 5-7 days

- d. 2 weeks
- e. 3 weeks

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

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

e. *Urtica dioica*

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

- a. Payroll
- b. Work schedule

c. Employee time sheet

- d. Medical certificate
- e. Material aid log book

693. 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. Free-of-control price

b. Controlled price

- c. Contract price
- d. Indicative price
- e. Fixed price

694. 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. Ammonia

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

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

- a. Ibuprofen
- b. Acetylsalicylic acid
- c. Indomethacin

d. Metamizole sodium

- e. Nimesulide

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

- a. Emulsions
- b. Dried extract
- c. Tablets
- d. Powders**
- e. Suspensions

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

- a. Regardless of food intake
- b. During eating**
- c. 2 hours before a meal
- d. 1 hour before a meal
- e. 1 hour after a meal

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

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

700. 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. Ranitidine
- b. Bismuth subcitrate**
- c. Omeprazole
- d. Famotidine
- e. Lansoprazole

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

- a. Has first-degree vermin infestation
- b. Contains poisonous plants**
- c. Contains other parts of the target plant
- d. Contains excessive moisture
- e. Contains other non-poisonous plants

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

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

- a. Ferroin**

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

704. 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. 80%**
- b. 100%
- c. 60%
- d. 70%
- e. 50%

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

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

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

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

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

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

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

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

709. Thymol and carvacrol are the main active substances of *Thymus vulgaris*. They belong to the following class of bioactive substances:

- a. Essential oils**
- b. Anthracene derivatives
- c. Iridoids
- d. Alkaloids
- e. Flavonoids

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

711. 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. Theoretical research

b. Field research

c. Survey

d. Observation

e. Panel research

712. 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. Enfleurage

b. Extraction

c. Compression

d. Dynamic sorption

e. Hydrodistillation

713. 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. 2 000 UAH

b. 90 000 UAH

c. 32 000 UAH

d. 62 000 UAH

e. 60 000 UAH

714. 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. Anthracene derivatives

c. Phenolic compounds

d. Cardiac glycosides

e. Flavonoids

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

a. Dispersion

b. Emulsification

c. Granulation

d. Resuspension

e. Extraction

716. 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. Indefinitely

b. 2 years

c. 5 years

d. 1 years

e. 3 years

717. The chemical structure of Strophanthus cardiac glycosides can be characterized by the presence of the following in position 10 of the steroid ring:

a. Ethoxy group

b. Alcoholic hydroxyl

c. Methoxy group

d. Phenolic hydroxyl

e. Aldehyde group

718. A man has bought nitroglycerine for sublingual administration in a pharmacy. He wants to know, what side effect might develop after taking this medicine:

- a. Urinary retention
- b. Drowsiness
- c. Dry cough
- d. Increased blood pressure

e. Headache

719. 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. Commission agents
- c. Brokers
- d. Agents

e. Dealers

720. 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. Myocardial infarction
- c. Impairment of coronary circulation

d. Development of nitrate tolerance

e. Progressing coronary atherosclerosis

721. 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. 60 mL

b. 120 mL

c. 90 mL

d. 30 mL

e. 7.5 mL

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

- a. Aniline
- b. Pyridine
- c. Cyanogen bromide
- d. Diphenylamine

e. Ninhydrin

723. 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 substance into a vial for dispensing, measure out ethyl alcohol, shake the vial

c. Measure out ethyl alcohol into a vial for dispensing, measure out salicylic acid

d. Commminute the substance in a mortar, add the solvent

e. Measure out the solvent into a stand, measure out the substance

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

a. Direct distribution channel (zero channel)

b. Two-level distribution channel

c. Three-level distribution channel

d. Four-level distribution channel

e. One-level distribution channel

725. Which of the plants listed below contain inulin?

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

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

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

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

- a. 2 years after the current one
- b. 3 years
- c. 1 year after the current one
- d. 5 years**
- e. 7 years after the current one

728. 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. Concentrated ammonia
- b. Cyanogen bromide
- c. 2,4-Dinitrochlorobenzene
- d. Ninhydrin**
- e. 2,4-Dinitrophenylhydrazine

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

- a. Reaction with ammonium iron(III) sulfate
- b. Reaction with an alkali**
- c. Reaction with Dragendorff's reagent
- d. Reaction with iron sulfate
- e. Reaction with Fehling's reagent

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

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

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

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

732. 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. Regulation

b. Planning

c. Control

d. Motivation

e. Organization

733. 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

734. To prepare eyedrops with antibiotic a dispensing chemist has been using flowing steam sterilization under 100°C for 30 minutes. What antibiotic allows for such sterilization?

a. Streptomycin sulfate

b. Erythromycin

c. Biomecin

d. Sodium benzylpenicillin

e. Levomycetin (Chloramphenicol)

735. A pharmacy has received a prescription for tincture. What herbal raw material can be used to make this dosage form?

a. Arrow-wood bark

b. Rhubarb roots

c. Oak bark

d. Valerian rootstock

e. Buckthorn bark

736. 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. Hematotoxic

b. Chondrotoxic

c. Neurotoxic

d. Hepatotoxic

e. Nephrotoxic

737. 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. Merchandising

b. Sales stimulation

c. Public relations

d. Direct marketing

e. Personal selling

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

a. Sugar, glucose, essential oils, menthol, fruit juice concentrates, indigo carmine, iron oxide, mannitol

b. Starch, glucose, kaolin, magnesium oxide, sodium bicarbonate

c. Stearic acid, calcium and magnesium stearate, starch, talcum

d. Purified water, starch glue, sugar syrup, gelatin, carboxymethylcellulose solution

e. Methylcellulose, polyvinylpyrrolidone, acetylphthalylcellulose

739. 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. Product-oriented

b. Segment-oriented

c. Functional

d. Regional

e. Market-oriented

740. 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 minimal quantity of purified water

b. Dissolve in alcohol

c. Dissolve in Dimexid (Dimethylsulfoxide)

d. Dissolve in vaseline oil

e. Dissolve in molten cocoa butter

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

a. Captopril

b. Propranolol

c. Verapamil

d. Hypothiazid (Hydrochlorothiazide)

e. Amlodipine

742. 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. Flavonoids

b. Saponins

c. Slime

d. Alkaloids

e. Anthracene derivatives

743. 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. Withdrawal syndrome

d. Allergic response

e. Dysbiosis

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

a. Ethyl alcohol

b. Hydrogen peroxide

c. Glucose

d. Ascorbic acid

e. Brilliant green

745. 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. Oxidation

b. Reduction

c. Phosphorylation

d. Hydroxylation

e. Hydrolysis

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

a. Paracetamol

b. Cortisone acetate

c. Ascorbic acid

d. Methionine

e. Streptocide

747. 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. Methyl group

b. Imidazole ring

c. Lactonic ring

d. Methylene group

e. Chloride ions

748. 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. Analytical grade pure

c. No manganese salt admixtures

d. Chemically pure, depyrogenated

e. Anhydrous, analytical grade pure

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

a. Three years, not counting the current one

b. One month, not counting the current one

c. The receipt form is not kept by the pharmacy

d. One year, not counting the current one

e. Five years, not counting the current one

750. What herbal raw material is used for the industrial production of Quercetin medicine?

a. Fructus Hippophaes rhamnoides

b. Flores Helichrysi arenarii

c. Fructus Sophorae japonicae

d. Herba Violae tricoloris

e. Herba Polygonii avicularis

751. What is the purpose of injectable tablets?

a. Oral use

b. Sublingual use

c. Obtaining solutions for various pharmaceutical purposes

d. Implantation

e. Obtaining injectable solutions

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

a. Clarithromycin

b. Meropenem

c. Gentamicin

d. Ceftriaxone

e. Biseptol (Co-trimoxazole)

753. 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. Calcium chloride

c. Potassium chloride

d. Novocaine

e. Hexamethylenetetramine

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

a. Peptic ulcer disease

- b. Pulmonary fibrosis
- c. Heart failure
- d. Kidney failure

e. Angle-closure glaucoma

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

- a. Azo dye
- b. Triphenylmethane dye
- c. Schiff base

d. Indophenol dye

e. Aurin dye

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

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

e. Prednisolone

757. 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. Alcoholic hydroxyl
- b. Keto group

c. Phenolic hydroxyl

- d. Aldehyde group
- e. Ester group

758. 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 powder should be sifted in advance
- d. Mix the components in the descending order based on their amount
- e. Riboflavin should be added on the top of the prepared mixture of other ingredients

759. 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. Profitability

c. Labor productivity

- d. Turnover
- e. Price index

760. 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. Inhaled muscarinic antagonists
- c. Herbal antiseptics
- d. Inhaled beta₂-adrenergic agonists
- e. Mucolytics

761. 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. 15%

d. 1%

e. 10%

762. A 24-year-old man suffers from exacerbation of chronic bronchitis. This condition is accompanied by production of a small amount of viscous sputum. What drug is indicated to facilitate the expectoration in this case?

a. Acetylcysteine

b. Ipratropium bromide

c. Budesonide

d. Fenoterol

e. Oxeladin

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

a. Bromometry

b. Nitritometric titration

c. Permanganatometry

d. Complexometric titration

e. Alkalimetry

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

a. Myocarditis

b. Gastrointestinal bleeding

c. Salivation

d. Pneumonia

e. Pyelonephritis

765. 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. Narcotic substances

b. Precursors

c. Toxic substances

d. Psychotropic substances

e. Potent substances

766. Pharmaceutical logistics is aimed at advertising, search for customers, entering into agreements, after-sales service, and transportation. What type of logistics is it?

a. Human resources

b. Information

c. Manufacturing

d. Procurement

e. Sales

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

a. Specifications to the contract of delivery

b. Financial statement of the supplier

c. All of the listed

d. Contract of delivery

e. Motor waybill

768. 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. In metal containers

c. Under normal conditions

d. Under CO₂-free conditions

e. Under the temperature of -5°C

769. 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. beta-lactam**
- c. Furan
- d. Phenothiazine
- e. Pyridine

770. 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. Insulin**
- c. Metformin
- d. Arphasetin
- e. Exenatide

771. 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. Oxidation of the hydrazine residue with potassium bromide
- b. Opening of the pyridine ring
- c. Oxidation of the hydrazine group with bromine**
- d. Bromination of the pyridine ring
- e. Reduction of the hydrazine residue with bromine

772. Name the optimal vehicle for soluble vaginal suppositories:

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

773. A pharmaceutical company that has been producing nasal drops begins to produce the same drug in a spray dosage form. What marketing approach does this company choose in its relationship with customers?

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

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

775. 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. Saturation
- c. Decline
- d. Introduction**

e. Growth

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

- a. Vacuum filling
- b. Chamber filling
- c. Ultrasonic filling
- d. Vortex filling

e. Syringe filling

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

- a. Social and psychological
- b. Technological
- c. Social and political

d. Economic

e. Administrative

778. 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 $\times 100\%$
- b. Ratio of the sum of profits to the sum of turnover $\times 100\%$**
- c. Ratio of the sum of profits to the sum of cost price of the goods $\times 100\%$
- d. -
- e. Ratio of the sum of profits to the sum of expenses $\times 100\%$

779. 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 amount of liquids in the diet
- e. Increase the physical exertion

780. What reagent is used to identify sodium sulfate?

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

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

- a. Alcohol solutions
- b. Glycerine solutions**
- c. Chloroform solutions
- d. Oil solutions
- e. Water solutions

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

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

783. 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. Modernization
- b. Stability
- c. Survival
- d. Diversification**
- e. -

784. A pharmaceutical company wants to strengthen its position in the competitive market environment. It decides to use brand names as a part of its trade policy. What is the purpose of a brand name?

- a. Ensuring the necessary quality of medicines
- b. Differentiation between the competing medicines on the market**
- c. Eligibility for registration in the List of medicines and medical products with state-controlled prices
- d. Justification of a higher price for the medicine
- e. It is a mandatory condition to be able to sell medicines at a reduced price to certain population groups

785. In a pharmacy each employee is subordinate to only one manager, who makes all the management decisions. What type of organizational structure of the pharmacy's management is it?

a. Linear

- b. Functional
- c. Productive
- d. Adaptive
- e. Matrix

786. 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. Saponins
- b. Iridoids**
- c. Polysaccharides
- d. Essential oils
- e. Alkaloids

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

788. What substance forms a film coating of tablets and can be dissolved only in intestinal juice?

- a. Diethylaminomethylcellulose
- b. Sodium carboxymethyl cellulose
- c. Acetylphthalylcellulose**
- d. Benzylaminocellulose
- e. Paraaminobenzoate of sugars

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

790. There are several formal and informal groups among the pharmaceutical company's employees.

What feature is characteristic of formal groups?

- a. They are created to implement the production process
- b. They form spontaneously
- c. The group leader receives authority from the group
- d. They form as a result of interest, sympathy
- e. They resist changes in the organization

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

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

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

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

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

794. Herbal mixtures contain several types of comminuted or non-comminuted herbal raw material. What stage is NOT a part of herbal mixture production?

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

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

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

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

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

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

- a. Immediate filtration

b. Cold infusion

- c. The presence of sodium bicarbonate
- d. The presence of ascorbic acid
- e. The presence of hydrochloric acid

798. Tyndallization is used at a pharmaceutical factory as one of sterilization methods for thermolabile substances. What is the essence of this method?

a. Triple heating of solution to 40-60°C with 24-hour-long intervals in between for thermostating

- b. Sterilization with high-frequency and microwave frequency current
- c. Autoclaving at 119-121°C with pressure at 1,0-1,1 atm
- d. Sterilization with flowing steam at 100°C
- e. Sterilization with dry heat at 180-200°C for a lengthy period of time

799. The management plans to open a new pharmacy in one of the local villages. Such activity can be identified as:

- a. Vertical integration
- b. Horizontal integration

c. Growth strategy

- d. Horizontal diversification
- e. Conglomerate diversification

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

a. Withdraw the medicines and send them for laboratory testing

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

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

- a. Subject to taxation
- b. Tax rate

c. Tax concession

- d. Tax system
- e. Tax

802. What is the duration of the leave due to pregnancy and childbirth?

- a. 59 working days
- b. 90 calendar days

c. 126 calendar days

- d. 56 calendar days
- e. 70 working days

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

- a. Diluted hydrochloric acid
- b. Perchloric acid 0.1 M
- c. Anhydrous acetic acid

d. Concentrated sulfuric acid

- e. Diluted phosphoric acid

804. The ampoule workshop of a factory produces a 5% oil-based solution of tocopherol acetate for injections. What filling technique should be used to fill the ampoules with this solution?

- a. Syringe and vapor condensation
- b. Syringe and vacuum
- c. Vapor condensation
- d. Vacuum

e. Syringe

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

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

806. A patient with atrophic hypoacid gastritis type A has been diagnosed with a complication in the blood system - the development of B₁₂-deficiency anemia. What medicine is pathogenetically justified in this case?

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

807. 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. Leaves**
- b. Seeds
- c. Roots
- d. Rhizomes
- e. Fruits

808. The phytochemical department of a pharmaceutical manufacture produces maximally purified extracts. In the process, specific methods are used for the extract purification. Which description corresponds with the dialysis method?

- a. The process of extraction from one liquid using another liquid
- b. The process of electrolyte action
- 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**

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

- a. 10 parts of anhydrous lanolin - 90 parts of vaseline For Eye Ointments**
- b. Lanolin: vaseline - 1:1
- c. 30 parts of lanolin - 70 parts of vaseline
- d. Vaseline For Eye Ointments
- e. 40 parts of anhydrous lanolin - 60 parts of vaseline For Eye Ointments

810. 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. Allow sale of the drug shipment
- 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. 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"**

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

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

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

- a. Hepatoprotective
- b. Reparative
- c. Sedative
- d. Antitumor
- e. Tonic**

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

- a. Nationwide, direct**
- b. Nationwide, indirect
- c. Local, indirect
- d. Local, direct
- e. Special

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

- a. Tubatines**
- b. Spansules
- c. Microcapsules
- d. Rectal capsules
- e. Medules

815. 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. Maturity phase
- b. Saturation phase
- c. Decline phase
- d. Testing phase
- e. Market entry**

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

- a. Glassware
- b. Paper boxes
- c. Metal cylinders**
- d. Glass-stoppered bottles
- e. Packaging materials

817. When is it necessary to renew the agreement on collective (team) material responsibility?

- a. Whenever a new employee joins the team
- b. When 50% of employees from the original team leave the team**
- c. When 25% of employees from the original team leave the team
- d. When 30% of employees from the original team leave the team
- e. Whenever an employee leaves the team

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

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

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

- a. Lidocaine hydrochloride
- b. Ciprofloxacin hydrochloride
- c. Diphenhydramine hydrochloride**

- d. Papaverine hydrochloride
- e. Ethylmorphine hydrochloride

820. A dispensing chemist was hired to work a night shift at a pharmacy. What time is considered to be a night time according to the Ukrainian legislation currently in force?

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

821. 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 iodide
- c. Sodium chloride
- d. Sodium bromide
- e. Sodium thiosulfate**

822. A pharmacist has prepared a tincture from Adonis vernalis grass. What special technique was necessary in this case to extract the active substances?

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

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

- a. Retained earnings, intangible assets
- b. Accounts receivable, prepaid expenses
- c. Authorized capital, fixed assets
- d. Fixed assets, accounts receivable
- e. Bank loan, accounts payable**

824. A patient with arterial hypertension, who takes captopril, was prescribed a potassium-sparing diuretic, spironolactone. What complication can develop in the patient due to this combination of drugs?

- a. Hypoglycemia
- b. Hypocalcemia
- c. Hyponatremia
- d. Hypernatremia
- e. Hyperkalemia**

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

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

826. 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. Acetylsalicylic acid
- b. Omeprazole**
- c. Metoclopramide
- d. Clarithromycin

e. Papaverine hydrochloride

827. What should be used by a dispensing chemist-analyst for identification of bismuth-containing medicinal substances?

a. Iron(III) sulfate solution

b. Cobalt nitrate solution

c. Thiourea solution

d. Potassium permanganate solution

e. Beta-naphthol solution

828. 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. Quinine sulfate

b. Codeine phosphate

c. Pachycarpine hydroiodide

d. Caffeine monohydrate

e. Scopolamine hydrobromide

829. Polyethylene oxide base belongs to the following group:

a. Amphiphilic

b. Emulsion

c. Fat

d. Hydrophilic

e. Hydrophobic

830. The management of a pharmaceutical company uses F. Herzberg's two-factor theory of motivation. What is this theory based on?

a. The need for protection

b. Hygienic and motivational factors

c. The need for safety

d. The need for existence, connection, growth

e. The need for power, success, and affiliation

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

a. Methyldopa

b. Enalapril

c. Bisoprolol

d. Losartan

e. Reserpine

832. The "Aromeline" phytodrug exhibits P-vitamin activity. What herbal raw material is used in production of this drug?

a. Fructus Viburni

b. Fructus Aroniae melanocarpae

c. Fructus Crataegi

d. Fructus Sambuci nigrae

e. Fructus Sorbi

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

a. Folia Belladonnae

b. Herba Thermopsis lanceolatae

c. Fructus Capsici

d. Radices Berberidis

e. Herba Chelidonii

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

a. Glucose

- b. Starch
- c. Talcum
- d. Sucrose

e. Lactose

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

- a. Disintegrator
- b. Double-slide tablet press machine

c. Three-roll ointment mill

- d. Dismembrator
- e. Excelsior

836. Marketing department of the Public Company "Lugansk Chemical Pharmaceutical Factory" determined that the demand for a herbal cough remedy, manufactured for children as a syrup, fluctuates significantly within a year. Such demand is considered to be:

- a. Unrealized
- b. Irrational
- c. Inadequate

d. Irregular

- e. Incorrect

837. 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. Mortars
- c. Filter

d. Sieve

- e. Tweezers

838. Pharmacy assets can be divided into current and non-current. What should be classified as non-current assets when drawing up the balance sheet?

- a. Packaging

b. Buildings

- c. Herbal raw materials
- d. Monetary funds
- e. Goods

839. 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. Competitiveness of the drugs

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

840. 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. Atropine and hyoscyamine

d. Purpurea glycosides A and B

- e. Convallatoxin

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

- a. Vitamins
- b. Iridoids
- c. Flavonoids
- d. Coumarins

e. Polysaccharides

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

a. Idiosyncrasy

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

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

a. Tannins

b. Saponins

- c. Vitamins
- d. Flavonoids
- e. Anthraquinones

844. 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. Intensification of commercial efforts
- b. Product improvement
- c. Production improvement

d. Socio-ethical marketing

e. Marketing

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

- a. In autoclave chamber with high-pressure saturated steam
- b. High frequency current

c. Filtration through membrane

- d. Addition of buffer solutions
- e. Ultrasound

846. 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. Ambroxol syrup
- c. Ammonium chloride
- d. Mucaltin

e. Potassium iodide

847. *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. Grass

c. Leaves and flower heads

- d. Seeds
- e. Fruits

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

a. Line and staff

b. Line

- c. Matrix
- d. Functional
- e. Divisional

849. 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. State Service of Ukraine on Medicines and Drugs Control
- c. Ministry of Labor and Social Policy of Ukraine
- d. State Expert Center of the Ministry of Health of Ukraine
- e. National Health Service of Ukraine**

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

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

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

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

852. 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. Starch
- c. Fructose
- d. Pectin**
- e. Glucose

853. 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. Income statement
- e. Cash flow statement

854. To restore the demand for a traditional medicine, the manufacturer has improved its characteristics, increased advertising costs, reduced prices, and involved new intermediaries. What type of marketing is used in this case?

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

855. 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. Transdermal therapeutic system
- b. Matrix tablet

c. Liposome

d. OROS tablet

e. Infusion therapeutic system

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

a. Fluocinolone acetonide

b. Hydrocortisone acetate

c. Prednisolone

d. Dexamethasone

e. Triamcinolone acetonide

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

a. Cash deposit slip

b. Payment order

c. Cashier's check

d. Accompanying statement

e. Cash book

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

a. Methylprednisolone

b. Nimesulide

c. Prednisolone

d. Methotrexate

e. Diclofenac sodium

859. What is the fundamental difference of the Japanese management model?

a. Individualism

b. Strictly formalized management system

c. Collectivism

d. Strict control procedure

e. Focus on individual results

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

a. Benzene

b. Anhydrous acetic acid

c. Dimethyl formamide

d. Chloroform

e. Ethyl alcohol

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

a. Dissolved during comminution

b. Dissolved in cold water

c. Added the powder onto the water surface and waited until complete dissolution

d. Dissolved in purified water in a vial for dispensing

e. Dissolved in warm water

862. 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. Tetracycline

c. Chloramphenicol

d. Gentamicin

e. Norfloxacin

863. 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. Thickeners
- b. Pigments
- c. Stabilizers
- d. Preservatives

e. Plasticizers

864. A pharmacy receives centralized deliveries of goods from the warehouse. Specify the document that is textbfNOT NECESSARY for accounting of goods receipt by the pharmacy:

- a. Goods received record book by groups of goods
- b. Financial operating report of the pharmacy

c. Cash receipt order

- d. Goods received record book by item and supplier
- e. Goods report (Inventory change report)

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

- a. Menthol
- b. Thymol
- c. Camphor
- d. Streptocide (Sulfanilamide)

e. Zinc oxide

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

- a. Wormwood grass
- b. Dandelion roots

c. Lily-of-the-valley grass

- d. Plantain foliage
- e. Buckthorn bark

867. 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. Microcapsules
- c. Dragee tablets

d. Dragee

- e. Granules

868. 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. 1.4 g
- b. 2.4 g

c. 2.9 g

- d. 3.9 g
- e. 1.9 g

869. 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. Phenolic hydroxyl

- d. Carboxyl group
- e. Ester group

870. During drug identification, a sample of the substance was moistened with concentrated sulfuric

acid and the bottom of the test tube was carefully heated. A white plaque appeared that coated the test tube walls from the inside. What substance can be detected using this reaction?

- a. Benzocaine
- b. Theophylline monohydrate
- c. Nitrofural (Nitrofurazone)
- d. Sodium benzoate**
- e. Morphine hydrochloride

871. Nitroxoline with sodium hydroxide solution produces:

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

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

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

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

- a. 15 minutes
- b. 45 minutes
- c. 40 minutes**
- d. 25 minutes
- e. 30 minutes

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

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

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

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

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

877. A 63-year-old man suffering from ischemic heart disease was diagnosed with angle closure glaucoma. What group of drugs is CONTRAINDICATED in this case?

- a. Anticoagulants

- b. beta-adrenergic blockers
- c. Calcium antagonists
- d. Statins

e. Nitrates

878. 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. Hexanic
- b. Gluconic
- c. Glutamic
- d. Glyoxylic

e. Glutaconic

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

a. Organoleptic control

b. Physical control

- c. Written control
- d. Survey control
- e. Chemical control

880. 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. Calcium chloride
- c. Glucose
- d. Protargol (Silver proteinate)

e. Gelatin

881. 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. Elastic
- b. Inelastic
- c. Perfectly elastic
- d. Perfectly inelastic

e. Unitary

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

- a. One-level
- b. Two-level
- c. Four-level
- d. Three-level

e. Zero-level

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

- a. Projective cover
- b. Geodesic

c. Permanent quadrates

- d. Model specimen
- e. By eye

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

- a. Heart of cattle
- b. Egg white
- c. Pancreas of pigs or cattle**

- d. Lungs of cattle
- e. Gastric mucosa of pigs

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

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

886. 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

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

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

888. 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. Zopiclone
- c. Prednisolone
- d. Tramadol**
- e. Ethyl alcohol

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

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

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

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

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

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

892. A certain drug explodes when heated to 180°C or upon impact and, therefore, must be handled carefully during receipt and storage. This drug is:

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

893. Which of the following diuretics textbfSHOULD NOT be given to the patients with impaired hearing?

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

894. A pharmacist has prepared a suspension that contains basic bismuth nitrate. What method was used in the process of its preparation?

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

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

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

896. Standard stactometer divides 1 ml of water into:

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

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

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

- a. Protamine sulfate**
- b. Unithiol
- c. Acetylcysteine
- d. Potassium chloride
- e. Naloxone

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

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

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

901. What indicator of the pharmacy's financial performance is determined by the volume of sales, where the income from sales is equal to the expenses of the pharmacy?

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

902. According to the current Ukrainian legislation all drugs are divided into two categories: prescription and nonprescription (over-the-counter). Which one of the listed drugs requires no prescription?

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

903. 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. Bast fibers, tracheids, starch, vessels
- b. Simple capitate hairs
- c. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate**
- d. T-shaped hairs along the leaf margin
- e. Many-armed, two-armed, and simple hairs

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

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

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

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

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

907. 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. Turnover of goods wages
- b. Cost price of products liquidity
- c. Turnover of goods cost price of products
- d. Liquidity solvency
- e. Profit turnover of goods**

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

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

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

910. Specify the indicator that measures the total contribution of various solutes to the osmotic pressure of the solution:

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

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

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

912. Galenical preparations include:

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

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

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

914. 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. Metformin**
- b. Metronidazole

- c. Metoclopramide
- d. Meloxicam
- e. Metoprolol

915. What reagent can confirm that alanine is an alpha-amino acid?

- a. Sulfosalicylic acid solution
- b. Barium hydroxide solution
- c. Sulfuric acid solution
- d. Saturated sodium bicarbonate solution
- e. Ninhydrin solution**

916. 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. Leasing
- c. Consulting services
- d. Insurance
- e. Manufacture**

917. Various admixtures are possible in the process of harvesting, drying, and primary processing of herbal raw material. Organic admixtures include:

- a. Non-harvested parts of the same plant**
- b. Soil particles
- c. Sand
- d. Glass fragments
- e. Metallic objects

918. What is the minimum permissible total area of a pharmaceutical sales point, according to the current Licensing Requirements?

- a. No less than 30 m²
- b. No less than 50 m²
- c. No less than 18 m²**
- d. No less than 40 m²
- e. No less than 250 m²

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

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

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

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

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

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

- a. Foaming reaction
- b. Fehling's test
- c. Molisch's test
- d. Reaction with iron(III) chloride
- e. Dragendorff's test

923. What preparation has an antiemetic effect?

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

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

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

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

926. According to ecological survey, a certain pharmaceutical manufacturer holds the first place among the local "green" industries. What marketing concept is chosen by this manufacturer in relations with its customers?

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

927. 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. Borosilicate neutral glass "УСП -1"
- c. Alkaline glass "АБ-1"
- d. Neutral glass "HC-2A"
- e. Neutral glass "HC-2"

928. 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. Line and staff
- c. Matrix
- d. Divisional
- e. Linear

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

- a. Dry substance was dissolved in the infusion apparatus
- b. Dry substance was dissolved in the filtered extract in a stand**
- c. Concentrated solution was added into the prepared extract
- d. Sodium bromide was mixed in a separate vessel with a part of the extract, than this mixture was added into the prepared tincture
- e. Sodium bromide was dissolved in the tincture in a vial for dispensing

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

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

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

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

932. 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. *Crataegus sanguinea*
- b. *Calendula officinalis*
- c. *Tanacetum vulgare*
- d. *Betula pendula*
- e. *Foeniculum vulgare***

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

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

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

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

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

936. 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. 2 ml

e. 15 ml

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

a. Reduction of oral contraceptives effectiveness

b. Reduction of the antibacterial effect of doxycycline

c. -

d. Increase of oral contraceptives effectiveness

e. Increase of the antibacterial effect of doxycycline

938. 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. Tinidazole

b. Bismuth subcitrate

c. Tetracycline

d. Metronidazole

e. Omeprazole

939. 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

940. 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. Acetylsalicylic acid tablets

b. Paracetamol rectal suppositories

c. Ibuprofen tablets

d. Acetylsalicylic acid powder

e. Diclofenac sodium tablets

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

a. Dysbiosis

b. Elevated blood pressure

c. Bradycardia

d. Constipation

e. Osteoporosis

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

a. Procurement

b. Transport

c. Storage

d. Marketing

e. Automated accounting

943. "Avicenna", a newly founded pharmaceutical company, operates round-the-clock. What employees cannot be assigned to night shifts?

a. -

b. Employees under 18 (underage)

c. Employees of retirement age

- d. Employees under 25
- e. Employees under 30

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

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

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

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

946. 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. Allergic response
- d. Nephrotoxicity
- e. **Dysbiosis**

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

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

948. To increase the tone and specific rhythmic activity of the uterus, a certain ergot alkaloids-based herbal drug is used. Name this drug:

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

949. Incoming medicines inspection is performed by an authorized employee. What is NOT a part of the responsibilities of this person?

- a. -
- b. **To draw up orders for medicines and medical products, to conclude sales contracts**
- c. To keep a roster of incoming medicines
- d. To draw up conclusions regarding inspection of incoming medicines
- e. To check the pharmacy stock for low-quality or fake medicines

950. 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. 300 mg
- b. **100 mg**
- c. 200 mg
- d. 500 mg

e. 400 mg

951. During storage, suspension instability manifests itself as:

- a. Flocculation of particles
- b. Sedimentation of particles**
- c. Dissolution of particles
- d. Change of particles shape
- e. Caking of particles

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

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

953. 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. Tachyphylaxis
- b. Rebound effect
- c. Withdrawal syndrome**
- d. Idiosyncrasy
- e. Steal syndrome

954. Mandatory payroll deductions are withheld from the salary of pharmacy workers. Specify the tax rate on income of natural persons:

- a. 20%
- b. 5%
- c. 18%**
- d. 15%
- e. 0%

955. Pharmaceutical workers decided to organize a business. What is the basis of the concept of "limited liability company"?

- a. A company, the members of which bear additional solidary liability for the company's obligations with all their property, while the company's investors bear liability only in the amount of their investments
- b. A company, the members of which bear 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
- c. A company, the members of which bear additional solidary liability for the company's obligations with all their property
- d. A company, the members of which bear full liability
- e. A company, the members of which bear the liability for the company's debts within the amount of their contributions**

956. 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. Divisional**
- c. Functional
- d. Bureaucratic
- e. Decentralized

957. A pharmaceutical company produces tablets. Tableting by means of direct compression requires:

- a. Prior homogenization
- b. Formation of masses

c. Application of hydraulic press

d. No prior granulation

e. Prior granulation

958. In what capacity is benzyl alcohol used as a component of solutions for parenteral administration?

a. Buffer solution

b. Antimicrobial preservative

c. Antioxidant

d. pH regulator

e. Isotonicity regulator

959. A pharmacist approached the chief manager of the pharmacy with a request for pay raise. The chief manager turned down this request. What type of conflict is it?

a. Interpersonal conflict

b. Dysfunctional conflict

c. Intergroup conflict

d. Intrapersonal conflict

e. Conflict between individual and group

960. 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, Arctostaphylos leaves

b. Mint leaves, Althaea roots

c. Mint leaves, buckthorn bark

d. Mint leaves, flax seeds

e. Mint leaves, chamomile flowers

961. What herbal raw material contains alkaloid glaucine that has a strong antitussive effect?

a. Macleaya grass

b. Vinca minor grass

c. Chelidonium grass

d. Glaucium flavum grass

e. Belladonna grass

962. What medicine is used for anesthesia and cannot be prescribed to outpatients, according to Decree №360?

a. Metoprolol

b. Sodium thiopental

c. Midecamycin

d. Anaesthesin (Benzocaine)

e. Suprastin (Chloropyramine)

963. The head manager of a pharmacy has determined the salary of a dispensing chemist for the work performed according to the labor norms. What type of payment is it?

a. Incentive pay

b. Base salary

c. Pension benefit

d. Reimbursement

e. Additional salary

964. How should the rectal ointments be applied?

a. Apply to the skin

b. Apply to the conjunctival mucosa

c. Applied to the external genitalia

d. Apply to the affected area of the anus

e. Apply to the nasal mucosa

965. 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. Conglomeration
- c. Modernization
- d. Integration
- e. Diversification**

966. A pharmacy has received a prescription, written in an incorrect format. In this case, the dispensing chemist, tasked with the incoming control of the prescriptions, must do the following:

- a. Register the prescription in the log book and sell this medicine to the patient
- b. Affix the <<Invalid prescription>> stamp to the prescription and return it to the patient**
- c. Notify the head manager of the pharmacy
- d. Give the patient a copy of the prescription
- e. Sell this medicine to the patient

967. Various groups of propellants are used in production of aerosols. What group does carbon dioxide CO₂ belong to?

- a. Non-volatile gases
- b. Compressed gases**
- c. Liquefied gases
- d. Rarefied gases
- e. Volatile gases

968. A pharmaceutical factory produces juices from fresh herbal raw materials. What technological operation is performed at the stage of juice purification?

- a. Sedimentation
- b. Crystallization
- c. Adsorption
- d. Heating followed by rapid cooling**
- e. Filtration

969. 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. Concentrated HNO₃
- b. K₃[Fe(CN)₆]
- c. FeCl₃**
- d. NH₃
- e. AgNO₃

970. 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. $V = V_{\text{tincture}} + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$**
- 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. $V = V_{\text{tincture}} \cdot n + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$

971. Birch buds are used as a diuretic. Quality of the herbal raw material is determined by its content of:

- a. Saponins
- b. Vitamins
- c. Iridoids
- d. Lipids
- e. Essential oil**

972. 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. Cumulation
- c. Potentiation
- d. Tolerance
- e. Summation

973. A patient with heart failure has developed an electrolyte imbalance against the background of diuretic treatment with furosemide. What imbalance has the patient developed?

- a. Hypocalcemia
- b. Hyponatremia
- c. Hypermagnesemia
- d. Hyperkalemia
- e. Hypokalemia**

974. 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. Quantitative determination
- c. Sterility**
- d. Microbiological purity
- e. pH

975. Which one of the listed drugs is a glycoside antibiotic?

- a. Levomycetin (Chloramphenicol)
- b. Erythromycin**
- c. Polymyxin
- d. Cephalexin
- e. Tetracycline

976. An analytical pharmacist analyzes the antianginal agent glyceryl trinitrate (nitroglycerin). What solution would the pharmacist use to identify the nitrate ions that form after hydrolysis?

- a. Chloramine solution
- b. Glyoxal-hydroxyanil solution
- c. Thiourea solution
- d. Lanthanum(III) nitrate solution
- e. Diphenylamine solution**

977. 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. Vertical ascending
- b. Horizontal**
- c. Vertical descending
- d. Interlevel
- e. External

978. 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. Excessive**
- b. Negative
- c. Satisfied
- d. Declining
- e. Absent

979. Who determines the amount of cash that may remain in the cash register at the end of a workday?

- a. The company itself**
- b. The National Bank of Ukraine
- c. A revenue and duties authority
- d. The Ministry of Finance

e. A statistics authority

980. 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 the full cost
- b. For 50% of the cost
- c. With a 10% discount
- d. With a 25% discount

e. 100% free

981. The calculation of isotonic concentration using the cryoscopic method is based on the following law:

- a. Clapeyron-Mendeleev equation
- b. Boyle-Mariotte law
- c. Dalton's law

d. Raoult's law

e. -

982. Tosylchloramide sodium (chloramine) has a disinfecting effect due to the release of active chlorine in an acidic medium. What method is used to quantify it?

- a. Nitritometry
- b. Permanganatometry
- c. Iodochlorometry

d. Iodometry

e. Complexonometry

983. *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 ammonium iron(III) sulfate
- b. Reaction with Fehling reagent
- c. Reaction with Molisch reagent
- d. Reaction with iron(II) sulfate

e. Reaction with an alkali

984. What is the driving force of the diffusion process during the extraction of a herbal raw material?

- a. High polarity of the extractant
- b. Brownian motion of the particles

c. Different concentration of the active substance in the raw material and extractant

- d. High temperature of the extractant
- e. Presence of a film membrane

985. Name the main indicator that differentiates water for injection from purified water:

- a. Absence of heavy metals
- b. pH value
- c. The way in which it was obtained
- d. Absence of mechanical inclusions

e. Apyrogenicity

986. An analytical chemist performs collargol identification by means of ashing. Obtained residue is then dissolved in hydrochloric acid. Specify the analytical effect that is observed in this case:

- a. Blue precipitate
- b. White precipitate**
- c. Black precipitate
- d. Yellow precipitate
- e. Light green precipitate

987. 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. Meeting the cultural and social needs of employees

- b. Promotion
- c. Material reward (bonuses, increments, pay rise)
- d. Clear distribution of tasks between the employees**
- e. -

988. A pharmaceutical factory uses maceration technique to produce tinctures. How long must herbal raw materials be steeped according to this technique?

- a. 12 hours
- b. 24 hours
- c. 2 days
- d. 7 days**
- e. 5 days

989. 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 hematotoxicity of gentamicin
- b. High risk of allergic reactions
- c. Increased hepatotoxic action of aminoglycosides
- d. Increased ototoxicity of aminoglycosides**
- e. High risk of seizures

990. The extemporaneous compounding department of a pharmacy prepares eye drops. Which one of the listed substances is a preservative?

- a. Sodium chloride
- b. Methyl cellulose
- c. Polyvinyl alcohol
- d. Benzalkonium chloride**
- e. Acetate buffer

991. What pharmacy department carries out the individual production of extemporaneous medicines, their quality control, and their dispensing to consumers?

- a. Over-the-counter sales
- b. Ready-made dosage forms
- c. Stock of goods
- d. Prescription and production**
- e. Medical cosmetics

992. 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. Alkaloids
- c. Vitamins
- d. Flavonoids**
- e. Polysaccharides

993. 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. Acyclovir
- b. Xylometazoline**
- c. Dexamethasone
- d. Lactulose
- e. Paracetamol

994. 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. Legal

- b. Social
- c. Technological
- d. Economic**
- e. Medical

995. A 6-year-old child developed pneumonia and was prescribed an antibiotic for its treatment. After the treatment the child's hearing deteriorated. What drug could have caused this complication?

- a. Azithromycin
- b. Ampicillin
- c. Gentamicin**
- d. Ceftriaxone
- e. Penicillin

996. 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. Fixed assets**
- c. Package
- d. Non-negotiable tangible assets
- e. Goods

997. Storage of medical products in pharmacies is carried out in compliance with the law. What relative humidity is necessary for storage of rubber products to prevent their drying and deformation?

- a. At least 30%
- b. At least 40%
- c. At least 50%
- d. At least 65%**
- e. At least 20%

998. 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. 20 working days before the closure
- b. 1 month before the closure
- c. Notification is optional
- d. 3 months before the closure
- e. 10 working days before the closure**

999. 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

1000. 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. Almagel
- b. Omeprazole**
- c. Famotidine
- d. Phosphalugel (Aluminum phosphate)
- e. Ranitidine

1001. A pharmaceutical company produces medicinal syrups. What substances ensure the microbial stability of this dosage form?

- a. Pectin substances
- b. Solubilizers
- c. Preservatives**

- d. Emulsifiers
- e. Thickeners

1002. A pharmacy makes aqueous extracts. What extractant is used in preparation of infusions and decoctions?

- a. Purified water**
- b. Peach oil
- c. Glycerin
- d. Ethyl alcohol
- e. Mint oil

1003. A company manager analyzes, how effectively the available material assets are used, and identifies and eliminates the deviations arising in the course of work. What type of control is it?

- a. Final
- b. Financial
- c. -
- d. Current**
- e. Preliminary

1004. 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. Commission agent
- b. Dealer**
- c. Broker
- d. Consignee
- e. Agent

1005. What adjuvants can increase the viscosity and melting temperature of an ointment base?

- a. Ethanol, purified water
- b. Paraffin, spermaceti**
- c. Sodium lauryl sulfate
- d. Benzalkonium chloride
- e. Propylene glycol, gelatin

1006. Powders made with a certain medicinal substance need to be prepared at a separate workplace, using separate scales and mortar. Name this substance:

- a. Glucose
- b. Magnesium oxide
- c. Ascorbic acid
- d. Xeroform (bismuth tribromphenolate and bismuth oxide complex)**
- e. Zinc oxide

1007. A 3-year-old child is intolerant to paracetamol. What antipyretic drug can be taken instead?

- a. Acetylsalicylic acid
- b. Ibuprofen**
- c. Naproxen
- d. Diclofenac sodium
- e. Nimesulide

1008. 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 improve the flowability of granular material
- c. To improve the taste
- d. To make pills of a certain weight**
- e. To improve disintegration

1009. 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. Reserpine**
- c. Atropine
- d. Vinblastine
- e. Adonitoxin

1010. 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. State registration certificate
- b. License for production of medicines
- c. -
- d. Trade patent**
- e. Quality certificate

1011. A pharmacist has prepared an oak bark decoction. What is the ratio of the herbal raw material to extractant?

- a. 1:400
- b. 1:30
- c. 1:10**
- d. 1:20
- e. 1:5

1012. What amount of the standard pharmacopoeial formaldehyde solution must be taken to prepare 100 mL of a 20% formalin solution?

- a. 20 mL**
- b. 10 mL
- c. 30 mL
- d. 5 mL
- e. 54 mL

1013. Phenylli salicylas can be identified by the smell of phenol that is produced when the following is added into the preparation:

- a. NaCl
- b. AgNO₃
- c. H₂SO₄**
- d. CoCl₂
- e. CuSO₄

1014. 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. Biseptol (Co-trimoxazole)
- c. Streptomycin
- d. Rifampicin
- e. Amoxicillin**

1015. Specify the drugs recommended for prevention and correction of dysbiotic problems caused by antibiotic therapy:

- a. Uroseptics
- b. Probiotics**
- c. Cholagogues
- d. Prokinetics
- e. Antacids

1016. A pharmaceutical company uses various methods of advertising. What method of advertising foresees its distribution to everyone, not just the target audience?

- a. -
- b. Professional-targeted advertising

- c. Advertising souvenirs
- d. Postal cards and pamphlets

e. Out-of-home advertising

1017. Hemodes and Neohemodes preparations are used as blood plasma substitutes. What is their active substance?

a. Midantan (Amantadine)

b. Polyvinylpyrrolidone

c. Menthol

d. Thiopental sodium

e. Piracetam

1018. Select a non-steroid estrogen from the list below:

a. Progesterone

b. Prednisolone

c. Retabolil (Nandrolone)

d. Synoestrol (Hexestrol)

e. Adrenalin

1019. 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. Cerimetry

b. Complexometric titration

c. Permanganatometry

d. Acid-base titration in nonaqueous medium

e. Bromometry

1020. 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

d. Flowers

e. Roots, rhizomes, and grass

1021. When examining a substance with an ester group, you can conduct a reaction that produces:

a. Indophenol

b. Berlin blue

c. Azo dye

d. Iron(III) hydroxamate

e. Diazonium salt

1022. Sanguisorba officinalis herbal raw material contains tannins. What method must be used to determine their content according to the State Pharmacopoeia of Ukraine?

a. Nephelometry

b. Photoelectrocolorimetry

c. Permanganatometry

d. Chromatography

e. Spectrophotometry

1023. 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. Economic management methods

b. Organizational management methods

c. Psychosocial management methods

d. Legal management methods

e. Indirect control methods

1024. 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. 80 parts of anhydrous lanolin and 20 parts of water
- d. 50 parts of anhydrous lanolin and 50 parts of water
- e. 5 parts of anhydrous lanolin and 95 parts of water

1025. 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. 36
- b. 17
- c. 38
- d. 40
- e. 41

1026. 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. Tablets
- b. Spray
- c. Capsules
- d. Suppositories
- e. Lozenges

1027. 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. Chlorpropamide
- d. Phenyl salicylate
- e. Acetylsalicylic acid

1028. 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. 95%
- b. 75%
- c. 5%
- d. 20%
- e. 25%

1029. The method of stirring-up (dispersion) is used to make suspensions with a certain substance. Name this substance:

- a. Ethazole
- b. Camphor
- c. Streptocide (Sulfanilamide)
- d. Basic bismuth nitrate
- e. Sulfur

1030. A pharmacy prepares drugs by individual prescriptions. How often should the floors be mopped down in the prescription department?

- a. Once every 5 days
- b. Once in a week
- c. Once every 10 days
- d. Once every 3 days
- e. Once in a shift

1031. A pharmaceutical company plans to start selling its products abroad by transferring them into the ownership of a foreign reseller. This company will enter the foreign market by means of:

- a. Joint venture

b. Licensing

c. Export

d. Direct investments

e. Franchise

1032. The phytochemical workshop of a factory produces liquid extracts. What extractants are used in this manufacturing process?

a. Chloroform

b. Ammonia solution

c. Aqueous-alcoholic solutions

d. Dichloroethane

e. Water

1033. A 28-year-old woman came to a pharmacy complaining of constipation that developed after antacid treatment. What drug could be the cause of this symptom?

a. Ranitidine

b. Calcium carbonate

c. Magnesium-containing drugs

d. Simethicone

e. Aluminium-containing drugs

1034. The presence of a primary aromatic amino group in sulfanilamide structure can be confirmed with a reaction that produces:

a. Fluorescein

b. Azo dye

c. Murexide

d. Diazonium salts

e. Iodoform

1035. 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. Ambroxol

b. Euphylline (Aminophylline)

c. Papaverine hydrochloride

d. Suprastin (Chloropyramine)

e. Prednisolone

1036. 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, it can sell all the batch that is already in its possession

b. Yes, with permit from the State Inspectorate

c. No

d. Yes, if approved by the head manager of the pharmacy

e. Yes, with permit from the Pharmacopoeia Center

1037. During stock-taking at a pharmacy, a surplus of material goods was discovered. What should the inventory committee do with the discovered surplus?

a. Writing off

b. Conducting an official investigation

c. Confiscation

d. Recording as received

e. Elimination

1038. 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. Sorbents

- b. Antacids
- c. Immunosuppressants
- d. Probiotics**
- e. Enzymatic agents

1039. Capsaicin is the main active substance of *Capsicum annuum*. It belongs to the following class of bioactive substances:

- a. Alkaloids**
- b. Iridoids
- c. Phenolic compounds
- d. Anthracene derivatives
- e. Flavonoids

1040. 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. Disturbed pain impulse conduction
- b. Inhibition of prostaglandin synthesis in the mucosa**
- c. Inhibition of platelet adhesion and aggregation
- d. Inhibition of neutrophil aggregation
- e. Inhibition of lipid peroxidation

1041. 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

1042. 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. Pyridine
- b. Ammonia
- c. Benzaldehyde
- d. Sulfur dioxide
- e. Ethyl acetate**

1043. To identify vicasol (menadione), an analytical chemist places this substance moistened with hydrochloric acid into a colorless burner flame. The yellow flame coloring that develops as a result indicates the presence of the following cations in the molecule:

- a. Potassium
- b. Sodium**
- c. Zinc
- d. Calcium
- e. Magnesium

1044. 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. Auditor's conclusion
- b. Balance sheet
- c. Full material liability contract
- d. Credit contract**
- e. License