

1. 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. Suppositories**
  - c. Lozenges
  - d. Capsules
  - e. Spray
2. 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. Spectrophotometry**
  - c. Photocolorimetry
  - d. Polarimetry
  - e. Refractometry
3. Several cholesterol gallstones are detected in the gallbladder of a woman. Choose the drug to dissolve and excrete the stones:
- a. Domperidone
  - b. Papaverine
  - c. Loperamide
  - d. Platiphyllin
  - e. Ursodeoxycholic acid**
4. Several species of Polygonum genus are used in medicine. One of these species has rootstocks rich in tanning agents, which are used to treat diarrhea. Name this species:
- a. Polygonum bistorta**
  - b. Polygonum persicaria
  - c. Polygonum aviculare
  - d. Polygonum hydropiper
  - e. Polygonum alpinum
5. The head managers of the pharmacy's over-the-counter department and ready-to-use drugs department exchange information on the demand for medicines. What type of communication is it?
- a. Horizontal**
  - b. Vertical descending
  - c. External
  - d. Interlevel
  - e. Vertical ascending
6. 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. Increased tone of the cough center
  - b. Exacerbation of chronic bronchitis
  - c. Gastroesophageal reflux
  - d. Accumulation of residual bradykinin in the blood**
  - e. Inhibition of histamine synthesis
7. 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. Psychographic approach
  - b. -
  - c. Demographic approach**
  - d. Geographical approach
  - e. Behavioral approach
8. A pharmaceutical company produces medicinal syrups. What substances ensure the microbial

stability of this dosage form?

- a. Solubilizers
- b. Thickeners
- c. Preservatives**
- d. Emulsifiers
- e. Pectin substances

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

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

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

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

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

- a. Ophthalmic dosage forms
- b. Suspensions
- c. Emulsions
- d. Infusions
- e. Dosage forms for newborns**

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

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

13. 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

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

- a. Reaction with Fehling's reagent
- b. Reaction with Dragendorff's reagent
- c. Reaction with an alkali**
- d. Reaction with ammonium iron(III) sulfate
- e. Reaction with iron sulfate

15. Rectal suppositories, each containing 0.1 g of ephedrine (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. 1.9 g

b. 2.9 g

c. 2.4 g

d. 3.9 g

e. 1.4 g

16. 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. Glucose

c. Gelatin

d. Protargol (Silver proteinate)

e. Calcium chloride

17. The substances and their salts that are used in production and purification of narcotic and psychotropic substances should be accounted in the pharmacy as:

a. Precursors

b. Narcotic substances

c. Potent substances

d. Toxic substances

e. Psychotropic substances

18. 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. Chemically pure, depyrogenated

c. Analytical grade pure

d. No manganese salt admixtures

e. Anhydrous, analytical grade pure

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

a. Ninhydrin test

b. Murexide test

c. Thalleioquin test

d. Hydroxamate test

e. Iodoform test

20. The herbal raw material of a foxglove is a source, from which cardiotonic agents are obtained. What organs of the Digitalis purpurea are harvested as a herbal raw material?

a. Rhizomes

b. Fruits

c. Roots

d. Seeds

e. Leaves

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

a. Inhibition of neutrophil aggregation

b. Inhibition of platelet adhesion and aggregation

c. Inhibition of prostaglandin synthesis in the mucosa

d. Inhibition of lipid peroxidation

e. Disturbed pain impulse conduction

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

a. Stahl's reaction

b. Reaction of sublimation

c. Dragendorff's test

d. Legal's test

e. Mayer's test

23. 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. An authorized person

d. A financially accountable person

e. A representative of the laboratory

24. What is the duration of the leave due to pregnancy and childbirth?

a. 126 calendar days

b. 59 working days

c. 70 working days

d. 56 calendar days

e. 90 calendar days

25. Because of dissatisfaction with working conditions, a dispensing chemist has resigned of his own free will from the pharmacy and found a job as a medical representative of a pharmaceutical company. Such movement of the personnel corresponds with the following concept:

a. Staff turnover

b. Staff rotation

c. -

d. Promotion

e. Recruitment

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

a. Oleum Cucurbitae

b. Oleum Ricini

c. Oleum Maydis

d. Oleum Lini

e. Oleum Amygdalarum

27. 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. Azomethine dye

c. Azo dye

d. Iron(III) hydroxamate

e. Indophenol dye

28. 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. Functional

b. Divisional

c. Line and staff

d. Line

e. Matrix

29. During storage, suspension instability manifests itself as:

a. Caking of particles

b. Sedimentation of particles

c. Flocculation of particles

d. Change of particles shape

e. Dissolution of particles

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

a. During the fruiting

**b. During mass flowering**

- c. During the shoot growth
- d. During the budding
- e. Before the flowering

31. 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. Matrix
- d. Productive
- e. Adaptive

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

**a. Paraffin, spermaceti**

- b. Benzalkonium chloride
- c. Ethanol, purified water
- d. Propylene glycol, gelatin
- e. Sodium lauryl sulfate

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

a. Saponins

**b. Essential oil**

- c. Lipids
- d. Iridoids
- e. Vitamins

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

a. Methylcellulose

b. Starch

**c. Pepsin**

d. Pectin

e. Gelatin

35. 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. Motivation

b. Planning

**c. Delegation**

d. Control

e. Organization

36. 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. Acid-base titration in nonaqueous medium**

d. Permanganometry

e. Bromometry

37. A man came to the ophthalmologist complaining of poor twilight vision. Having collected the patient's medical history, the doctor suspected that these signs could be caused by the lack of a certain vitamin. What vitamin is likely to be deficient in this case?

**a. Ergocalciferol**

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

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

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

39. 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. 62 000 UAH
- b. 2 000 UAH
- c. 32 000 UAH**
- d. 60 000 UAH
- e. 90 000 UAH

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

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

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

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

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

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

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

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

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

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

- a. Ointment
- b. Gel
- c. Cream
- d. Liniment
- e. Paste

46. 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. 10%
- c. 20%
- d. 15%
- e. 1%

47. 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. 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 the solvent into a stand, measure out the substance
- d. Measure out ethyl alcohol into a vial for dispensing, measure out salicylic acid
- e. Commute the substance in a mortar, add the solvent

48. 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. Citric acid, sodium phosphate salts
- d. Paraffin, spermaceti
- e. Glycerine, dimethyl sulfoxide

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

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

50. The calculation of isotonic concentration using the cryoscopic method is based on the following law:

- a. Dalton's law
- b. -
- c. Raoult's law
- d. Clapeyron-Mendeleev equation
- e. Boyle-Mariotte law

51. Profitability is an economic parameter that characterizes the effectiveness of the pharmacy's commercial, financial, and manufacturing activity. What parameters are used to determine the profitability of sales?

**a. Profit turnover of goods**

- b. Turnover of goods cost price of products
- c. Liquidity solvency
- d. Cost price of products liquidity
- e. Turnover of goods wages

52. 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. Filtration of the ideas
- b. Generation of the ideas

**c. Economic analysis**

- d. Commercial manufacturing
- e. Test marketing

53. An analytical pharmacist analyzes a cefazolin sodium substance. What solution is used for identification of sodium ions?

- a. Magnesium sulfate solution
- b. Sodium nitrite solution
- c. Barium chloride solution
- d. Ammonium oxalate solution

**e. Potassium pyroantimonate solution**

54. 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. With 70% discount

**c. Free of charge**

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

55. 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. Coercive power

**d. Referent power**

- e. -

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

**a. Preparation of solutions for various pharmaceutical purposes**

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

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

**a. Helianthus tuberosus**

- b. Althaea officinalis
- c. Hypericum maculatum
- d. Astragalus dasyanthus
- e. Brassica juncea

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

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

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

- a. Yes, if approved by the head manager of the pharmacy

- b. No**

- c. Yes, with permit from the Pharmacopoeia Center
- d. Yes, it can sell all the batch that is already in its possession
- e. Yes, with permit from the State Inspectorate

60. When is it necessary to renew the agreement on collective (team) material responsibility?

- a. When 30% of employees from the original team leave the team

- b. When 50% of employees from the original team leave the team**

- c. When 25% of employees from the original team leave the team
- d. Whenever a new employee joins the team
- e. Whenever an employee leaves the team

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

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

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

63. 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 an emulsion
- b. Melt a part of fatty vehicle and dissolve the substances there
- c. Melt all of fatty vehicle and dissolve the substances there
- d. Introduce the substances as a suspension**
- e. Dissolve the substances in the water heated to 45°C

64. 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. Opening of the pyridine ring
- b. Oxidation of the hydrazine residue with potassium bromide
- c. Oxidation of the hydrazine group with bromine**
- d. Bromination of the pyridine ring
- e. Reduction of the hydrazine residue with bromine

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

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

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

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

68. 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. Melissa officinalis
- b. Sambucus nigra
- c. Thymus serpyllum
- d. Mentha piperita
- e. Rubia tinctorum**

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

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

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

71. What herbal raw material is used for the industrial production of Quercetin medicine?

- a. Fructus Sophorae japonicae**
- b. Fructus Hippophaes rhamnoides
- c. Herba Polygonii avicularis
- d. Herba Violae tricoloris
- e. Flores Helichrysi arenarii

72. 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. Equisetum arvense grass

- b. Centaurea cyanus flowers
- c. Birch leaves
- d. Vaccinium vitis-idaea leaves
- e. Centaurium grass**

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

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

74. 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. Formation of biostimulants**

- c. Acceleration of bioactive substances extraction
- d. Extending the shelf life of raw materials
- e. Reducing the content of ballast substances

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

- a. Local council
- b. Regional state administration
- c. The Ministry of Health

**d. Pharmacy**

- e. Inspectorate for medicine quality control

76. 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 a part of magnesium oxide, add sodium bicarbonate, add the remaining magnesium oxide, mix the ingredients
- e. Comminute sodium bicarbonate with alcohol, add magnesium oxide, mix the ingredients

77. Tosylchloramide sodium (chloramine) has a disinfecting effect due to the release of active chlorine in an acidic medium. What method is used to quantify it?

**a. Iodometry**

- b. Nitritometry
- c. Permanganatometry
- d. Iodochlorometry
- e. Complexonometry

78. A domestic pharmaceutical company introduces to the market a generic drug at a significantly lower price than its imported brand name counterparts. What pricing strategy has this domestic company chosen?

- a. Following the leader
- b. Tender pricing strategy
- c. "Skim-the-cream" strategy
- d. -
- e. Deep penetration into the market**

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

- a. Midantan (Amantadine)
- b. Menthol

c. Thiopental sodium

d. Piracetam

e. Polyvinylpyrrolidone

80. 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. USP-1

c. AB-1 (non-boric glass)

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

e. MTB (colorless glass for medical containers)

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

a. Concentrated solution was added into the prepared extract

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

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

d. Dry substance was dissolved in the infusion apparatus

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

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

a. 1:5

b. 1:30

c. 1:400

d. 1:20

e. 1:10

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

a. Employee time sheet

b. Material aid log book

c. Medical certificate

d. Payroll

e. Work schedule

84. The method of stirring-up (dispersion) is used to make suspensions with a certain substance.

Name this substance:

a. Streptocide (Sulfanilamide)

b. Ethazole

c. Camphor

d. Basic bismuth nitrate

e. Sulfur

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

a. Hydrolysis

b. Hydroxylation

c. Oxidation

d. Phosphorylation

e. Reduction

86. "Immunal" immunostimulant is often prescribed against chronic upper respiratory tract infections.

What herbal raw material is used in its production?

a. Herba Echinaceae purpurea

b. Radices Rhei

c. Rhizomata et radices Eleuterococci

d. Radices Araliae elata

e. Radices Ginseng

87. 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. Novocaine**
- c. Calcium chloride
- d. Potassium chloride
- e. Hexamethylenetetramine

88. 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. Unitary demand
- d. Perfectly inelastic demand
- e. Universal demand

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

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

- a. Presence of a film membrane
- b. Different concentration of the active substance in the raw material and extractant**
- c. High polarity of the extractant
- d. Brownian motion of the particles
- e. High temperature of the extractant

91. A patient with atrophic hypoacid gastritis type A has been diagnosed with a complication in the blood system - the development of B<sub>12</sub>-deficiency anemia. What medicine is pathogenetically justified in this case?

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

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

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

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

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

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

a. Angle-closure glaucoma

b. Pulmonary fibrosis

c. Heart failure

d. Kidney failure

e. Peptic ulcer disease

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

a. Tubatines

b. Rectal capsules

c. Medules

d. Microcapsules

e. Spansules

96. 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. Countermarketing

b. Synchromarketing

c. Remarketing

d. -

e. Conversion marketing

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

a. Full pharmacological name of the medicine and the name of its manufacturer

b. Objective information about the medicines, presented in such a way that the advertising nature of the message is obvious to the consumers

c. Claims that the effect of the medicines is guaranteed

d. Recommendation to always read the instructions for the medicines

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

98. 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. Fruits

c. Seeds

d. Leaves and flower heads

e. Grass

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

a. Anaesthesia (Benzocaine)

b. Metoprolol

c. Sodium thiopental

d. Suprastin (Chloropyramine)

e. Midecamycin

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

a. Antioxidant

b. pH regulator

c. Isotonicity regulator

d. Antimicrobial preservative

e. Buffer solution

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

a. Herba Thermopsis lanceolatae

b. Radices Berberidis

c. Herba Chelidonii

d. Fructus Capsici

e. Folia Belladonnae

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

a. Vaseline For Eye Ointments

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

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

d. Lanolin: vaseline - 1:1

e. 30 parts of lanolin - 70 parts of vaseline

103. 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. Organic

b. Informal

c. Combined

d. -

e. Mechanistic

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

a. Granulation in spray dryers

b. Granulation using briquetting

c. Wet granulation in vertical granulators

d. Granulation in the dragee pan

e. Granulation in the fluidized bed

105. "Avicenna", a newly founded pharmaceutical company, operates round-the-clock. What employees cannot be assigned to night shifts?

a. Employees under 18 (underage)

b. -

c. Employees under 30

d. Employees under 25

e. Employees of retirement age

106. 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. Direct

b. Liberal

c. Authoritarian

d. Collective

e. Democratic

107. 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. Inulin

c. Schisandrin

d. Colchicine

e. Capsaicin

108. Concentrated solutions are used to speed up the preparation of mixtures. What volume of a 5% sodium bicarbonate solution (1:20) must be taken to prepare a mixture that contains 6.0 g of the medicinal substance?

a. 120 mL

b. 90 mL

- c. 30 mL
- d. 7.5 mL
- e. 60 mL

109. 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. Carboxyl group
- c. Aliphatic amino group
- d. Ester group
- e. Phenolic hydroxyl**

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

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

111. What preparation has an antacid effect?

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

112. Pharmacy assets can be divided into current and non-current. What should be classified as non-current assets when drawing up the balance sheet?

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

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

114. 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. Ceftriaxone
- c. Penicillin
- d. Gentamicin**
- e. Ampicillin

115. Bioactive substances of this plant have secretolytic, antispasmodic, antiflatulent, and slight diuretic effect. Its essential oil is used in making of gripe water. What plant is it?

- a. Calendula officinalis
- b. Crataegus sanguinea
- c. Betula pendula
- d. Tanacetum vulgare
- e. Foeniculum vulgare**

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

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

117. 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. 38
- b. 40
- c. 36
- d. 17**
- e. 41

118. An analytical pharmacist detects a primary aromatic amino group in the structure of benzocaine (anesthesine). What compound would the pharmacist use for identification?

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

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

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

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

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

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

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

122. In production of extraction drugs with maximum purity level, the extracts are purified using the method of liquid-liquid extraction, which is the process of:

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

123. A pharmaceutical company that has been producing nasal drops begins to produce the same drug in a spray dosage form. What marketing approach does this company choose in its relationship

with customers?

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

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

- a. Naloxone
- b. Unithiol
- c. Protamine sulfate
- d. Acetylcysteine
- e. Potassium chloride

125. 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 Molisch reagent
- b. Reaction with iron(II) sulfate
- c. Reaction with Fehling reagent
- d. Reaction with an alkali
- e. Reaction with ammonium iron(III) sulfate

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

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

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

128. 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. Rinsing of exhausted raw material with 3-5 times the amount of ethanol
- e. Distillation with inert gases

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

- a. Myocarditis
- b. Pneumonia
- c. Pyelonephritis
- d. Gastrointestinal bleeding
- e. Salivation

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

- a. Mixing components with the vehicle
- b. Dispersion
- c. Ointment concentrate production

d. Homogenization

e. Vehicle production

131. 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. Notify the head manager of the pharmacy
- b. Sell this medicine to the patient
- c. Give the patient a copy of the prescription
- d. Register the prescription in the log book and sell this medicine to the patient

e. Affix the <>Invalid prescription>> stamp to the prescription and return it to the patient

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

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

e. Ferroin

133. 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. 10 ml
- b. 2 ml
- c. 5 ml
- d. 1 ml
- e. 0,5 ml

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

a. Permanganometry

- b. Nephelometry
- c. Spectrophotometry
- d. Chromatography
- e. Photoelectrocolorimetry

135. What amount of the standard pharmacopoeial formaldehyde solution must be taken to prepare 100 mL of a 20% formalin solution?

- a. 30 mL
- b. 5 mL
- c. 20 mL
- d. 10 mL
- e. 54 mL

136. An alkaloid drug has the chemical name of 1,3,7-Trimethyl-3,7-dihydro-1H-purine-2,6-dione.

Name this substance:

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

137. 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. Concurrent
- b. Preliminary
- c. -
- d. Financial

e. Concluding

138. 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. Authoritarian
- c. Liberal
- d. Directive
- e. Autocratic

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

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

140. 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. Yellow coloring
- b. Blue coloring
- c. Pink coloring
- d. Brown coloring
- e. White opalescence

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

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

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

143. 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. Flavonoids
- b. Polysaccharides
- c. Vitamins
- d. Tannins
- e. Alkaloids

144. 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. -
- b. Dissolution of authority

c. Reduction of authority

d. Withdrawal of authority

**e. Delegation of authority**

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

a. Folia Salviae

b. Folia Eucalypti

**c. Folia Menthae piperitae**

d. Folia Uvae ursi

e. Folia Absinthii

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

a. Ammonia solution

b. Dichloroethane

c. Water

**d. Aqueous-alcoholic solutions**

e. Chloroform

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

a. Horizontal

**b. Vertical**

c. Mixed

d. -

e. Combined

148. 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 beta<sub>2</sub>-adrenergic agonists

b. Inhaled muscarinic antagonists

**c. Inhaled glucocorticosteroids**

d. Mucolytics

e. Herbal antiseptics

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

a. Ultraviolet radiation

b. Filtration

**c. Lyophilization**

d. Boiling

e. Hydrolysis

150. After mineralization of bromocamphor with zinc dust, bromide-ions can be detected in the filtrate in the presence of CHCl<sub>3</sub> by performing a reaction with:

**a. Chloramine**

b. Chloral hydrate

c. Acetyl chloride

d. Sodium chloride

e. Chloromethane

151. 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. Hyperkalemia

d. Thrombus formation

e. Dysbacteriosis

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

a. Light green precipitate

b. White precipitate

c. Blue precipitate

d. Black precipitate

e. Yellow precipitate

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

a. Agent

b. Broker

c. Dealer

d. Commission agent

e. Consignee

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

a. Dissolve in alkaline medium

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

c. Add equal amount of sodium chloride

d. Dissolve in the water free of redox substances

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

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

a. Gastrically absorbed

b. Water-soluble

c. -

d. Intestinally absorbed

e. Fat-soluble

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

a. Two-level

b. One-level

c. Zero-level

d. Three-level

e. Four-level

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

a. Metal cylinders

b. Glass-stoppered bottles

c. Paper boxes

d. Packaging materials

e. Glassware

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

a. Omeprazole

b. Vicasol (Menadione)

c. Phenazepam

d. Dibazol (Bendazolum)

e. Indometacin

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

a. Statement

b. Job description

c. Collective agreement

d. Contract of delivery

e. Decree

160. Various groups of propellants are used in production of aerosols. What group does carbon dioxide CO<sub>2</sub> belong to?

a. Compressed gases

b. Volatile gases

c. Rarefied gases

d. Liquefied gases

e. Non-volatile gases

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

a. Grass

b. Roots

c. Roots, rhizomes, and grass

d. Leaves and essential oil

e. Flowers

162. Tyndallization is used at a pharmaceutical factory as one of sterilization methods for thermolabile substances. What is the essence of this method?

a. Sterilization with flowing steam at 100°C

b. Triple heating of solution to 40-60°C with 24-hour-long intervals in between for thermostating

c. Sterilization with high-frequency and microwave frequency current

d. Sterilization with dry heat at 180-200°C for a lengthy period of time

e. Autoclaving at 119-121°C with pressure at 1,0-1,1 atm

163. 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. Harvesting of herbal raw material

b. Marking of herbal raw material

c. Sorting of herbal raw material

d. Standardization of herbal raw material

e. Packing of herbal raw material

164. During stock-taking at a pharmacy, a surplus of material goods was discovered. What should the inventory committee do with the discovered surplus?

a. Recording as received

b. Writing off

c. Confiscation

d. Conducting an official investigation

e. Elimination

165. Powder moisture content affects its:

a. Particle size

b. Solubility

c. Flowability

d. Homogeneity

e. Particle shape

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

a. Rectification

b. Lyophilization

c. Sublimation

d. Recuperation

e. Extraction

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

- a. Ready-made dosage forms
- b. Medical cosmetics
- c. Prescription and production**
- d. Stock of goods
- e. Over-the-counter sales

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

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

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

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

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

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

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

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

172. 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. It is a mandatory condition to be able to sell medicines at a reduced price to certain population groups
- c. Justification of a higher price for the medicine
- d. Differentiation between the competing medicines on the market**
- e. Eligibility for registration in the List of medicines and medical products with state-controlled prices

173. 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. Imidazole cycle
- c. Naphthalene cycle
- d. Steroid cycle**
- e. Xanthine cycle

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

- a. Litholytic
- b. Detoxicant**
- c. Cardiotonic
- d. Expectorant
- e. Astringent

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

176. 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. Panel research
- e. Observation

177. 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. Alkaline glass "АБ-1"
- c. Neutral glass "HC-2"
- d. Borosilicate neutral glass "УСП -1"
- e. Neutral glass "HC-2A"

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

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

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

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

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

181. Specify the indicator that measures the total contribution of various solutes to the osmotic pressure of the solution:

- a. Isotonicity

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

182. 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. Flax seeds
- b. Pumpkin seeds
- c. Silybum fruits
- d. Schisandra seeds**
- e. Fennel fruits

183. A 24-year-old man suffers from exacerbation of chronic bronchitis. This condition is accompanied by production of a small amount of viscous sputum. What drug is indicated to facilitate the expectoration in this case?

- a. Oxeladin
- b. Fenoterol
- c. Ipratropium bromide
- d. Acetylcysteine**
- e. Budesonide

184. 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. Administered
- c. Multichannel**
- d. Contractual
- e. Horizontal

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

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

186. 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 21:00 to 6:00
- b. From 22:00 to 6:00**
- c. From 22:00 to 7:00
- d. From 00:00 to 8:00
- e. From 22:00 to 10:00

187. 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. Potassium bromate solution
- d. Sodium nitrite solution
- e. Zinc sulfate solution

188. 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. Myocardial infarction
- b. Progressing coronary atherosclerosis
- c. Impairment of coronary circulation
- d. Progressing ischemic heart disease
- e. Development of nitrate tolerance

189. A pharmaceutical factory uses maceration technique to produce tinctures. How long must herbal raw materials be steeped according to this technique?

- a. 5 days
- b. 12 hours
- c. 7 days
- d. 24 hours
- e. 2 days

190. 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. Migraine attack
- b. Cervical osteochondrosis
- c. Hypertensic crisis
- d. Exertional angina pectoris attack
- e. Acute conjunctivitis

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

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

192. Representatives of the family Solanaceae are widely used in medical practice as alkaloid-containing plants. Which representative is the source for production of semi-synthetic steroid hormones?

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

193. 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. Filtration
- e. Heating followed by rapid cooling

194. A certain pharmaceutical company is focused on the manufacture of medicines, while the sales play only a secondary role. What is the company's main type of business activity in this case?

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

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

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

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

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

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

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

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

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

199. 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. Phosalugel (Aluminum phosphate)
- d. Ranitidine
- e. Famotidine

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

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

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

- a. 18%**
- b. 20%
- c. 15%
- d. 0%
- e. 5%

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

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

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

a. Material storage room

b. Washing room

c. Distillation room

d. Aseptic block

e. Shop floor

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

a. Dismembrator

b. Disintegrator

c. Double-slide tablet press machine

d. Excelsior

e. Three-roll ointment mill

205. 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. Intrapersonal

b. Individual vs. group

c. Intergroup

d. -

e. Interorganizational

206. 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. Out-of-home advertising

b. Souvenir advertising

c. Film advertising

d. Print advertising

e. Point-of-sale advertising

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

a. Sulfur

b. Phenyl salicylate

c. Camphor

d. Menthol

e. Basic bismuth nitrate

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

a. Microcapsules

b. Spansules with polymer coating

c. Dragee

d. Granules

e. Dragee tablets

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

a. 0.5 and 9.5

b. 1.0 and 9.0

c. 0.1 and 9.9

d. 0.05 and 9.95

e. 0.01 and 9.99

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

a. Oak bark

b. Althaea roots

- c. Camomile grass
- d. Thermopsis grass**
- e. Motherwort grass

211. 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 full liability
- b. A company, the members of which bear additional solidary liability for the company's obligations with all their property
- c. A company, the members of which bear additional solidary liability for the company's obligations with all their property, while the company's investors bear liability only in the amount of their investments
- d. A company, the members of which bear the liability for the company's debts within the amount of their contributions**
- e. A company, the members of which bear the liability for the company's debts within the amount of their contributions, and if these amounts are insufficient, all the members are equally liable to cover the debt with their personal property

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

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

213. 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. 20**
- b. 10
- c. 30
- d. 50
- e. 40

214. 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. Social
- b. Medical
- c. Economic**
- d. Legal
- e. Technological

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

- a. Glycerine solutions**
- b. Chloroform solutions
- c. Alcohol solutions
- d. Oil solutions
- e. Water solutions

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

- a. Phencarol (Quifenedidine)
- b. Bendazol
- c. Piracetam**
- d. Furosemide
- e. Tolbutamide

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

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

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

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

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

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

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

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

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

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

222. 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. 5 years
- c. 3 years**
- d. 6 years
- e. 2 years

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

- a. Macleaya grass
- b. Belladonna grass
- c. Vinca minor grass
- d. Glaucium flavum grass**
- e. Chelidonium grass

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

- a. Mechanical strength
- b. Dry residue
- c. Resuspension

d. Dissolution time

e. Boiling point

225. Oblong tablets are called:

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

e. Caplets

226. What is the minimum permissible total area of a pharmaceutical sales point, according to the current Licensing Requirements?

- a. No less than 250 m<sup>2</sup>
- b. No less than 30 m<sup>2</sup>
- c. No less than 18 m<sup>2</sup>
- d. No less than 50 m<sup>2</sup>
- e. No less than 40 m<sup>2</sup>

227. 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 company's statistical reports
- c. Customer survey
- d. Analysis of the periodical publications
- e. Analysis of the statistical reference books

228. 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 tarty. The fruits are up to 3 cm long, 1.5 cm in diameter, and are filled with hard small angular yellow nutlets. The nutlets and the inner surface of the fruits are covered with long and extremely coarse bristly down. This herbal raw material can be identified as:

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

229. 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. 30-45<sup>o</sup>C
- b. 25-35<sup>o</sup>C
- c. 80-100<sup>o</sup>C
- d. 15-20<sup>o</sup>C
- e. 45-55<sup>o</sup>C

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

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

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

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

e. "Three layers" method

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

a. Aldehyde group

b. **Esther group**

c. Sulfamide group

d. Ketone group

e. Carboxylic group

233. A certain drug explodes when heated to 180<sup>o</sup>C or upon impact and, therefore, must be handled carefully during receipt and storage. This drug is:

a. Calcium chloride

b. Activated carbon

c. Barium chloride

d. Alcoholic iodine solution

e. **Nitroglycerine solution**

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

a. No more than 6 days

b. No more than 10 days

c. **No more than 3 days**

d. No more than 14 days

e. No more than 7 days

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

a. Once every three years

b. At least thrice a year

c. At least twice a year

d. At least once in a quarter

e. **Once a year**

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

a. References to the cases of successful drug use

b. Comparison with other medical products

c. Reference to the drug as the most effective

d. **Warning that self-medication can be harmful to health**

e. Naming and mentioning celebrities, movie and cartoon characters, competent authorities

237. 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. Account

e. Debit

238. A pharmaceutical company uses various methods of advertising. What method of advertising foresees its distribution to everyone, not just the target audience?

a. -

b. **Out-of-home advertising**

c. Postal cards and pamphlets

d. Professional-targeted advertising

e. Advertising souvenirs

239. 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. Metallic objects
- c. Glass fragments
- d. Soil particles
- e. Sand

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

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

241. 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. 20.0 g and 140 mL
- b. 0.25 g and 100 mL
- c. 5.0 g and 110 mL
- d. 10.0 g and 100 mL
- e. 10.0 g and 120 mL**

242. Who determines the amount of cash that may remain in the cash register at the end of a workday?

- a. A statistics authority
- b. The Ministry of Finance
- c. The company itself**
- d. A revenue and duties authority
- e. The National Bank of Ukraine

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

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

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

- a. 5 years**
- b. 7 years after the current one
- c. 3 years
- d. 1 year after the current one
- e. 2 years after the current one

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

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

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

- a. Aceclidine**
- b. Metronidazole
- c. Nitroxoline

- d. Bendazol
- e. Nicotinic acid

247. 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 nitrate
- e. Sodium sulfate

248. What should be used by a dispensing chemist-analyst for identification of bismuth-containing medicinal substances?

- a. Cobalt nitrate solution
- b. Iron(III) sulfate solution

- c. Thiourea solution

- d. Beta-naphthol solution

- e. Potassium permanganate solution

249. 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. Sales promotion, sampling

- b. Lobbying

- c. Public relations

- d. Personal selling

- e. Advertising

250. 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 power, success, and affiliation
- b. The need for safety

- c. Hygienic and motivational factors

- d. The need for protection

- e. The need for existence, connection, growth

251. During the two years of working in his position, the pharmacist proved to be a responsible and efficient specialist. The pharmacy's head manager appointed him to the position of the head of the Extemporaneous Compounding Department. What is this type of personnel movement called?

- a. Recruitment

- b. Helical (vertical) rotation

- c. Spiral (horizontal) rotation

- d. Employee turnover

- e. Mixed rotation

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

- a. Progesterone

- b. Retabolil (Nandrolone)

- c. Adrenalin

- d. Prednisolone

- e. Synoestrol (Hexestrol)

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

- a. Osteoporosis

- b. Hypoglycemia

- c. Hypotension

- d. Jaundice

- e. Constipation

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

- a. With a 10% discount
- b. For 50% of the cost
- c. With a 25% discount
- d. For the full cost
- e. 100% free**

255. 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. Ethyl alcohol
- b. Atropine sulfate
- c. Prednisolone
- d. Tramadol**
- e. Zopiclone

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

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

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

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

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

- a. Dispersion
- b. Granulation
- c. Emulsification
- d. Extraction
- e. Resuspension**

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

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

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

261. 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. Metoclopramide
- b. Omeprazole**
- c. Acetylsalicylic acid
- d. Clarithromycin
- e. Papaverine hydrochloride

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

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

**263.** 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. Personal
- b. -
- c. Intuitive
- d. Autocratic
- e. Collegial**

**264.** What is the purpose of injectablettae tablets?

- a. Obtaining injectable solutions**
- b. Sublingual use
- c. Implantation
- d. Obtaining solutions for various pharmaceutical purposes
- e. Oral use

**265.** 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 bromide**
- d. Sodium chloride
- e. Sodium fluoride

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

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

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

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

**268.** What type of tax is the Individual Income Tax?

- a. Nationwide, indirect
- b. Special
- c. Local, direct
- d. Nationwide, direct**

e. Local, indirect

269. 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. Tolerance

**b. Tachyphylaxis**

c. Withdrawal syndrome

d. Antagonism

e. Synergism

270. Quality of dried extracts is assessed according to several criteria. Specify the highest acceptable amount of moisture in dried extracts according to the State Pharmacopoeia of Ukraine:

a. 75%

b. 20%

c. 25%

d. 95%

**e. 5%**

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

a. Stabilization

b. Action prolongation

**c. Create pressure in the package**

d. Emulsification

e. Dispersion

272. 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. Arbutin

b. Vinblastine

c. Gallic acid

d. Rutin

**e. Hyoscyamine**

273. 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. Potassium ferrocyanide**

c. Sodium hydroxide

d. Calcium chloride

e. Potassium bromide

274. The chemical structure of Strophantus cardiac glycosides can be characterized by the presence of the following in position 10 of the steroid ring:

a. Phenolic hydroxyl

b. Ethoxy group

c. Alcoholic hydroxyl

d. Methoxy group

**e. Aldehyde group**

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

a. Absence of mechanical inclusions

**b. Apyrogenicity**

c. The way in which it was obtained

d. pH value

e. Absence of heavy metals

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

277. A 48-year-old woman, who undergoes a prolonged treatment for chronic hepatitis, was diagnosed with pneumonia. What antibacterial agent should she be prescribed in this case?

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

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

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

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

280. 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 (Nitrofural)
- c. Riboflavin
- d. Sulfur**
- e. Brilliant green

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

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

282. 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. Meta-analysis
- c. VEN analysis
- d. SWOT analysis**
- e. XYZ analysis

283. 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. Organizational management methods
- b. Indirect control methods
- c. Psychosocial management methods
- d. Economic management methods**
- e. Legal management methods

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

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

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

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

286. A pharmaceutical company studies the life cycle of a drug that is being introduced to the market. Name the stage, when sales volume grows slowly and large investments in organization of sales and manufacturing are necessary.

- a. Decline phase
- b. Saturation phase
- c. Market entry**
- d. Testing phase
- e. Maturity phase

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

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

288. The ampoule workshop of a factory produces a 5% oil-based solution of tocopherol acetate for injections. What filling technique should be used to fill the ampoules with this solution?

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

289. 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. -
- c. Trade patent**
- d. License for production of medicines
- e. Quality certificate

290. 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. Ciprofloxacin

c. Clarithromycin

d. Gentamicin

e. Cefazolin

291. Genetically induced adverse reaction to a certain drug is caused by various enzyme defects.

Name this reaction:

a. Idiosyncrasy

b. Steal syndrome

c. Rebound effect

d. Dysbiosis

e. Withdrawal syndrome

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

a. Cash book

b. Cashier's check

c. Accompanying statement

d. Payment order

e. Cash deposit slip

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

a. Under CO<sub>2</sub>-free conditions

b. Under the temperature of -5°C

c. Separate from the others

d. In metal containers

e. Under normal conditions

294. 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. Nitrates

b. beta-adrenergic blockers

c. Calcium antagonists

d. Statins

e. Anticoagulants

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

a. Pneumatic

b. Mechanical

c. Ultrasonic

d. Circulation

e. Acoustic

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

a. Spectrophotometry

b. Acidimetry

c. Cerimetry

d. Argentometry

e. Potentiometry

297. Powders made with a certain medicinal substance need to be prepared at a separate workplace, using separate scales and mortar. Name this substance:

a. Magnesium oxide

b. Ascorbic acid

c. Xeroform (bismuth tribromphenolate and bismuth oxide complex)

d. Zinc oxide

e. Glucose

298. 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. 1 mL
- b. 10 mL**
- c. 2 mL
- d. 0.5 mL
- e. 5 mL

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

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

300. Purpurea glycoside A and purpurea glycoside B are the main active substances of Digitalis purpurea. They belong to the following class of bioactive substances:

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

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

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

302. Companies draw up their balance sheets to obtain information about the availability and composition of their property. What section of the balance sheet includes accounts receivable for goods?

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

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

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

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

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

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

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

306. 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. Introduction
- c. Saturation
- d. Decline
- e. Growth

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

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

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

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

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

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

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

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

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

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

312. A 67-year-old man with chronic heart failure takes digoxin. To reduce the side effects of digoxin, his doctor recommended him to combine this drug with:

- a. Hydrochlorothiazide
- b. Calcium chloride

c. Potassium aspartate and magnesium aspartate

d. Calcium gluconate

e. Euphyllin (Aminophylline)

313. When examining a substance with an ester group, you can conduct a reaction that produces:

a. Indophenol

b. Azo dye

c. Berlin blue

d. Diazonium salt

e. Iron(III) hydroxamate

314. 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. Phenolic hydroxyl

c. Alcoholic hydroxyl

d. Ester group

e. Amide group

315. 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. 10 working days before the closure

b. Notification is optional

c. 1 month before the closure

d. 20 working days before the closure

e. 3 months before the closure

316. 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. Social responsibility

c. Charity

d. Commercial activity

e. Industrial activity

317. Nitroxoline with sodium hydroxide solution produces:

a. Orange-red coloration

b. Yellow precipitate

c. Green-black coloration

d. Violet coloration

e. White precipitate

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

a. 15 minutes

b. 25 minutes

c. 45 minutes

d. 30 minutes

e. 40 minutes

319. A pharmacy visitor approached the pharmacist with complaints of constrictions 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. Nitroglycerin

b. Diclofenac sodium

c. Captopril

d. Bisoprolol

e. Drotaverine

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

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

321. The method of preparing suspensions depends on the properties of the component substances.

What substances have hydrophobic properties?

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

322. A pharmacist has prepared a suspension that contains basic bismuth nitrate. What method was used in the process of its preparation?

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

323. A pharmaceutical company that specializes in the manufacture of herbal medicines is expanding its scope of work and establishes the production of cosmetics. What development strategy did the company choose?

- a. Stability
- b. Survival
- c. Diversification**
- d. Modernization
- e. -

324. 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. Moisture
- b. Sulfates
- c. Chlorides
- d. Pyrogenic substances**
- e. Redox substances

325. 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 20%
- b. At least 30%
- c. At least 65%**
- d. At least 50%
- e. At least 40%

326. A pharmacy has received from its supplier a shipment of drugs that are included into the National Essential Drugs List. What is the pricing policy regarding these drugs?

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

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

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

329. 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. Magnesium-containing drugs
- c. Aluminium-containing drugs**
- d. Calcium carbonate
- e. Simethicone

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

- a. Starch**
- b. Phenolphthalein
- c. Eriochrome black
- d. Phenol red
- e. Litmus paper

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

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

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

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

334. 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. Sulfur dioxide
- b. Ammonia
- c. Pyridine
- d. Ethyl acetate**
- e. Benzaldehyde

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

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

336. How should the rectal ointments be applied?

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

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

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

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

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

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

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

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

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

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

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

- a. Meropenem
- b. Clarithromycin**
- c. Gentamicin
- d. Biseptol (Co-trimoxazole)
- e. Ceftriaxone

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

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

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

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

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

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

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

347. What medicinal substance has benzimidazole in its structure?

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

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

**a. Macrolides**

- b. Carbapenems
- c. Penicillins
- d. Aminoglycosides
- e. Cephalosporins

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

**a. Probiotics**

- b. Antacids
- c. Prokinetics
- d. Choleretics
- e. Uroseptics

350. To identify a medicinal substance, an analytical chemist performed a reaction of azo dye formation. This reaction is characteristic of the following medicine:

- a. Chlorpropamide

- b. Phenyl salicylate

**c. Benzocaine**

- d. Resorcinol

- e. Acetylsalicylic acid

351. 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. Dissolution**

- b. Mixing

- c. Dosing

- d. Packing

- e. Comminution

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

- a. Dissolved it in boiling water

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

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

- d. Mixed it with hot water and added cold water

- e. Dissolved it in cold water and heated

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

- a. Methylcellulose

- b. Protargol

**c. Pepsin**

- d. Starch

- e. Gelatine

354. During an asphyxiating attack the patient with bronchial asthma was given intravenously a drug that caused nausea, headache, excitation, and palpitations as side effects. What drug can cause such reaction?

**a. Euphylline (Aminophylline)**

- b. Papaverine hydrochloride

- c. Suprastin (Chloropyramine)

- d. Ambroxol

- e. Prednisolone

355. 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. Diversification**

- b. Integration

- c. Consolidation

- d. Insurance
- e. Intensification

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

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

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

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

358. 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. Many-armed, two-armed, and simple hairs
- d. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate**
- e. T-shaped hairs along the leaf margin

359. 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. Grind it with a part of the molten base
- c. Dissolve it in the molten base
- d. Comminute it with glycerin
- e. Comminute it with an alcohol or ether

360. The extemporaneous compounding department of a pharmacy prepares eye drops. Which one of the listed substances is a preservative?

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

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

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

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

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

- a. Dried extract
- b. Suspensions
- c. Emulsions
- d. Tablets
- e. Powders**

364. Aqueous lanolin consists of:

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

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

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

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

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

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

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

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

- a. Bank loan, accounts payable**
- b. Accounts receivable, prepaid expenses
- c. Authorized capital, fixed assets
- d. Fixed assets, accounts receivable
- e. Retained earnings, intangible assets

369. The head of a pharmacy uses a flexible system of pharmacy management methods. Select from the list below a measure that corresponds with organizational influence methods:

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

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

- a. Taste improvement
- b. Obtaining tablets of the required weight

c. Ensuring rapid mechanical destruction of the tablets in a liquid medium

d. Making it easier to push the tablets out of the matrix

e. Improvement of the granulation process

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

a. Thymol

b. Menthol

**c. Zinc oxide**

d. Streptocide (Sulfanilamide)

e. Camphor

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

a. Propranolol

b. Dipiridamol

**c. Nitroglycerine**

d. Acetylsalicylic acid

e. Drotaverine hydrochloride

373. 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. Hyponatremia

b. Hypocalcemia

c. Hypernatremia

**d. Hyperkalemia**

e. Hypoglycemia

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

a. Sodium sulfate

b. Sodium chloride

c. Boric acid

d. Sodium nitrate

**e. No isotonation is needed**

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

a. Senadexine (sennosides A and B)

b. Bisacodyl

c. Ononis herbal medicine

d. Macrogol

**e. Lactulose**

376. 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

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

a. From 23.00 to 7.00

b. From 20.00 to 9.00

c. From 24.00 to 8.00

d. From 21.00 to 9.00

e. From 22.00 to 6.00

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

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

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

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

380. 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. Referent
- b. Mixed
- c. Decentralized
- d. Specialized
- e. Centralized

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

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

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

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

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

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

384. 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. 500 mg
- c. 100 mg
- d. 200 mg
- e. 400 mg

385. 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. License
- b. Balance sheet
- c. Auditor's conclusion
- d. Credit contract**
- e. Full material liability contract

386. 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. Glutamic
- c. Glutaconic**
- d. Glyoxylic
- e. Gluconic

387. 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. Inadequate
- b. Irregular**
- c. Unrealized
- d. Irrational
- e. Incorrect

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

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

389. 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. Profitability
- b. Price index
- c. Stock of goods
- d. Labor productivity**
- e. Turnover

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

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

391. 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. Capsella bursa-pastoris
- b. Mentha piperita
- c. Atropa belladonna

d. *Urtica dioica*

e. *Origanum vulgare*

392. 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. Tetracycline

c. **Bismuth subcitrate**

d. Metronidazole

e. Omeprazole

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

a. **Semina Sylibi**

b. Herba Equiseti arvensis

c. Flores Centaureae cyani

d. Flores Crataegi

e. Flores Tanaceti

394. A 74-year-old man came to the pharmacy. He had been prescribed ampicillin for antibiotic treatment of dysenteric gastroenterocolitis. What group of drugs should be recommended for dysbiosis prevention in this case?

a. **Probiotics**

b. Antacids

c. Enzymatic agents

d. Immunosuppressants

e. Sorbents

395. 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. **Methionine**

b. Ascorbic acid

c. Cortisone acetate

d. Streptocide

e. Paracetamol

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

a. Thin-layer chromatography

b. **Polarimetry**

c. Nuclear magnetic resonance spectroscopy

d. Infrared spectroscopy

e. Refractometry

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

a. **Sodium thiosulfate**

b. Sodium iodide

c. Sodium bromide

d. Sodium chloride

e. Hydrogen peroxide

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

a. Financial

b. Final

c. -

d. **Current**

e. Preliminary

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

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

400. A 3-year-old child is intolerant to paracetamol. What antipyretic drug can be taken instead?

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

401. Specify the formula of extractant calculation in the process of creating a tincture:

- a.  $V = V_{\text{tincture}} + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$
- b.  $m_{\text{raw material}} = m_{\text{end product}} + m_{\text{losses}}$
- c.  $V = V_{\text{tincture}} \cdot n + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$
- d.  $\mu = \frac{m_{\text{end product}}}{m_{\text{raw material}}} \cdot 100\%$
- e.  $E = \frac{m_{\text{losses}}}{m_{\text{raw material}}} \cdot 100\%$

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

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

403. A pharmacy receives centralized deliveries of goods from the warehouse. Specify the document that is NOT NECESSARY for accounting of goods receipt by the pharmacy:

- a. Financial operating report of the pharmacy
- b. Cash receipt order
- c. Goods received record book by item and supplier
- d. Goods report (Inventory change report)
- e. Goods received record book by groups of goods

404. 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 flowering
- c. When the fruits are ripe
- d. Before the formation of green fruits
- e. During the flowering stage

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

- a. Phenothiazine
- b. Pyridine
- c. Quinoline
- d. Furan
- e. beta-lactam

406. 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. Castor oil
- b. Sunflower oil

- c. Cocoa butter
- d. Flaxseed oil
- e. Olive oil

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

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

408. Phenyl salicylates can be identified by the smell of phenol that is produced when the following is added into the preparation:

- a.  $\text{CoCl}_2$
- b.  $\text{H}_2\text{SO}_4$
- c.  $\text{CuSO}_4$
- d.  $\text{NaCl}$
- e.  $\text{AgNO}_3$

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

410. Practically no microorganisms can develop in the sugar syrup, if its concentration is optimal.

Why is it so?

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

411. A pharmacy supplies with medicines various groups of patients. Children of what age group receive drugs for free during their outpatient treatment?

- a. From 3 to 6 years of age
- b. Under 16 years of age
- c. Under 3 years of age
- d. Under 10 years of age
- e. Under 6 years of age

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

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

413. What medicinal substance has an imidazole fragment in its structure?

- a. Nitrofural
- b. Phenazone
- c. Nicotinic acid
- d. Thiamine bromide
- e. Pilocarpine hydrochloride

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

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

415. What reagent can confirm that alanine is an alpha-amino acid?

- a. Saturated sodium bicarbonate solution
- b. Ninhydrin solution**
- c. Sulfuric acid solution
- d. Sulfosalicylic acid solution
- e. Barium hydroxide solution

416. 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 seizures
- c. Increased ototoxicity of aminoglycosides**
- d. High risk of allergic reactions
- e. Increased hepatotoxic action of aminoglycosides

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

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

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

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

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

- a. Decrease its melting point**
- b. Increase its mechanical stability
- c. Increase its thermal stability
- d. Increase its dimming ability
- e. Increase its chemical stability

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

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

421. A pharmacy warehouse has received a shipment of drugs. During quality control by an authorized person, there were some drugs of questionable quality detected. What measures should be taken by the authorized person in this case?

- a. Return the shipment to the manufacturer

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

c. Dispose of the shipment that contains questionable drugs

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

e. Allow sale of the drug shipment

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

a. Zinc

b. Calcium

c. Sodium

d. Potassium

e. Magnesium

423. Specialists of a pharmaceutical enterprise confirm the identity of Cassia acutifolia herbal raw material. During reaction with alkali it developed cherry-red coloring. What substances were identified?

a. Tannins

b. Iridoids

c. Glycosides

d. Alkaloids

e. Anthraquinones

424. Polyethylene oxide base belongs to the following group:

a. Emulsion

b. Fat

c. Hydrophilic

d. Amphiphilic

e. Hydrophobic

425. 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. Adonitoxin

b. Atropine

c. Vinblastine

d. Hyoscyamine

e. Reserpine

426. 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. The Ministry of Public Health of Ukraine

b. Labour disputes committee (LDC)

c. Trade union committee

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

e. Commercial court

427. 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. Lactulose

d. Paracetamol

e. Dexamethasone

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

a. Lyophilized

- b. Dyed
- c. Porous
- d. Multi-layered
- e. Hollow

429. 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. Fixed assets**

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

430. A pharmacist has prepared suppositories with novocaine (procaine) hydrochloride using a rolling technique. The novocaine hydrochloride content is less than 5%. How is this substance introduced into the base in this case?

**a. Dissolution in the minimal amount of water**

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

431. The "Aromeline" phytodrug exhibits P-vitamin activity. What herbal raw material is used in production of this drug?

- a. Fructus Crataegi

**b. Fructus Aroniae melanocarpa**

- c. Fructus Sorbi
- d. Fructus Sambuci nigrae
- e. Fructus Viburni

432. 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. Authorized person**

- c. Supplier representative
- d. Pharmacist on duty
- e. Lawyer

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

- a. Essential and fatty oils
- b. Coumarins and phenol glycosides
- c. Iridoids and vitamins
- d. Flavonoids and essential oils

**e. Anthracene derivatives and tannins**

434. 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. Strategic planning
- b. Financial planning
- c. -

**d. Operational planning**

- e. Business planning

435. 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. Ministry of Labor and Social Policy of Ukraine
- b. State Service of Ukraine on Medicines and Drugs Control

c. State Expert Center of the Ministry of Health of Ukraine

**d. National Health Service of Ukraine**

e. State Fiscal Service of Ukraine

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

a. Direct distribution channel (zero channel)

b. Three-level distribution channel

c. Four-level distribution channel

d. Two-level distribution channel

e. One-level distribution channel

437. In its work, a pharmaceutical company combines ensuring its own profitability with meeting the needs of consumers and raising the standard of living in the society. What marketing management concept has the company chosen?

a. Product improvement

b. Marketing

c. Intensification of commercial efforts

**d. Socio-ethical marketing**

e. Production improvement

438. 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. Statement of changes in equity

b. Cash flow statement

**c. Auditor's conclusion**

d. Income statement

e. Balance sheet

439. Standard stactometer divides 1 ml of water into:

a. 25 drops

b. 10 drops

c. 15 drops

**d. 20 drops**

e. 30 drops

440. An analytical chemist performs the identification of ascorbic acid in an injection solution according to the State Pharmacopoeia of Ukraine. Its interaction with a certain solution produces a gray precipitate. Name this solution:

a. Sodium nitrite

b. Sodium carbonate

**c. Silver nitrate**

d. Calcium chloride

e. Ammonium hydroxide

441. 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. T-shaped hairs along the leaf edge**

b. Retor-shaped hairs

c. Branched and capitate hairs

d. Simple and capitate hairs

e. Branched, simple and ciliated hairs

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

a. Yellow

**b. White and amorphous**

- c. Green
- d. Red-brown
- e. Creamy

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

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

445. What medicinal substance is a derivative of morphinan?

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

446. 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. Administrative
- c. Technological
- d. Socio-psychological**
- e. Economic

447. A pharmacy visitor asked the pharmacist to recommend her an anthelmintic drug that would be effective against Ascaris roundworms. Select one such drug from the list.

- a. Piperazine**
- b. Riboflavin
- c. Calcitonin
- d. Ribavirin
- e. Pyrazinamide

448. What lubricants are used in tablet manufacturing?

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

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

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

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

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

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

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

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

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

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

455. 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

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

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

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

- a. Corrigents

- b. Thickeners
- c. Fillers
- d. Antioxidants
- e. Leavening agents

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

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

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

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

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

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

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

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

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

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

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

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

- a. Insufficient amount of diluents
- b. Insufficient amount of lubricants**
- c. Insufficient amount of dyes

- d. Insufficient amount of leaveners
- e. Insufficient amount of adhesives

465. 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. Vicasol (Menadione)
- b. Methionine
- c. Protamine
- d. Unithiol (DMPS)**
- e. Naloxone

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

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

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

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

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

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

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

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

- a. To be used as ready-made medicines
- b. For preparation of dry extracts
- c. For preparation of thick extracts
- d. For quick preparation of infusions and decoctions in pharmacy practice**
- e. For preparation of tinctures

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

- a. The presence of hydrochloric acid
- b. Immediate filtration
- c. The presence of sodium bicarbonate
- d. Cold infusion**
- e. The presence of ascorbic acid

472. As the result of reduction of alcoholic solutions of 5-nitrofuran derivatives by means of their

reaction with zinc in the presence of diluted hydrochloric acid, the following occurs:

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

e. Solution decoloration

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

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

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

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

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

- a. 36 hours
- b. 32 hours
- c. 30 hours
- d. 24 hours
- e. 45 hours

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

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

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

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

478. 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

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

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

e. Sodium chloride

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

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

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

482. To prepare eyedrops with antibiotic a dispensing chemist has been using flowing steam sterilization under 100°C for 30 minutes. What antibiotic allows for such sterilization?

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

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

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

- a. Bromphenol blue
- b. Phenolphthalein
- c. Murexide
- d. Diphenylcarbazone
- e. **Starch**

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

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

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

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

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

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

- a. Characteristics of the end product
- b. Information materials
- c. Characteristics of the raw stock, materials, and intermediate products
- d. Description of the manufacturing process
- e. Characteristics of the auxiliary raw stock and materials

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

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

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

491. 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. Paper chromatography
- b. Gas chromatography
- c. Thin layer chromatography
- d. Adsorption chromatography
- e. Ion-exchange chromatography**

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

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

493. 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. Pessary
- b. Torpedo**
- c. Cylinder
- d. Ovoid

e. Sphere

494. An 18-year-old girl was hospitalized with complaints of polyuria, dry skin, loss of weight, and general weakness. She was diagnosed with diabetes mellitus type I, first diagnosed. What drug should be taken first in the course of the therapy?

- a. Glibenclamid
- b. Exenatide
- c. Insulin
- d. Arphasetin
- e. Metformin

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

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

496. 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 extemporal dosage forms
- c. Sale of ready-to-use drugs
- d. Sale of over-the-counter drugs
- e. Sale to other organizations for commercial use

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

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

498. 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. Barium chloride
- c. Silver nitrate
- d. Magnesium sulfate
- e. Ammonium oxalate

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

500. The management plans to open a new pharmacy in one of the local villages. Such activity can be identified as:

- a. Horizontal diversification
- b. Conglomerate diversification
- c. Horizontal integration
- d. Growth strategy
- e. Vertical integration

501. 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. Glycerine**
- c. Purified water
- d. Dimexide (dimethyl sulfoxide)
- e. Atropa belladonna tincture

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

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

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

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

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

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

505. The preparations of *Silybum marianum*, "Silibor" and "Carsil", have hepatoprotective action. What parts of *Silybum marianum* are the herbal raw material from which these medicines are being made?

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

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

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

508. 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. 15 minutes
- b. 10 minutes
- c. 45 minutes
- d. 30 minutes
- e. 25 minutes**

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

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

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

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

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

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

512. A pharmaceutical warehouse received a herbal raw material that consists of "cones" with loose scales that are attached to a firm twig with or without fruits. Its collective fruits are pale green, fragrant, and bitter. Name the plant from which this herbal raw material was harvested:

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

513. 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 10 days
- b. In a week
- c. In 3 days
- d. In a month**
- e. In 5 days

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

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

515. 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. Ninhhydrin
- b. 2,4-Dinitrophenylhydrazine
- c. Cyanogen bromide
- d. Concentrated ammonia
- e. 2,4-Dinitrochlorobenzene

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

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

517. 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. Breakeven point
- b. Profitability
- c. Markup level
- d. Profit
- e. Goods turnover

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

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

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

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

521. 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. Experiment
- b. Panel
- c. Survey
- d. Observation
- e. -

522. In the process of pharmaceutical company entering an offshore market the traditions and

customs, religion, system of values, and education level of the local population were analyzed. What factors of international marketing environment were researched?

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

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

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

524. What is the fundamental difference of the Japanese management model?

- a. Strict control procedure
- b. Collectivism**
- c. Individualism
- d. Strictly formalized management system
- e. Focus on individual results

525. Standard herbal material of lily-of-the-valley is obtained by drying it at a temperature of 50-60<sup>o</sup>C to prevent the following possible biochemical process:

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

526. 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. 3.0-7.0 g
- d. 4.0-7.5 g
- e. 1.0-4.0 g

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

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

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

- a. Staff turnover**
- b. Vertical job rotation
- c. Horizontal job rotation
- d. -
- e. Recruiting

529. 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 O0
- b. Mordant black
- c. Phenolphthalein**
- d. Potassium chromate

e. Ammonium iron (III) sulfate

530. 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. Personal

**b. Social**

c. Administrative

d. Legal

e. Criminal

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

a. Antibacterial agents

**b. Sedatives**

c. Laxatives

d. Diuretics

e. Wound healing agents

532. An analytical pharmacist quantifies the ascorbic acid substance using the iodometric method.

What indicator must be used in the process?

a. Methyl orange

b. Phenolphthalein

c. Bromophenol blue

d. Murexide

**e. Starch**

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

a. Essential oils

b. Fatty oils

c. Slime

**d. Inulin**

e. Pectin

534. 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. Mucolytic agents

b. Antitussive drugs

**c. Probiotics**

d. Expectorants

e. Antispasmodics

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

a. Bovine trachea

b. Velvet antlers

c. Human blood

d. Bovine spleen

**e. Bovine blood**

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

a. Glaucine hydrochloride

b. Securinine nitrate

c. Ergotamine

**d. Novopassit**

e. Vinblastine

537. A pharmaceutical company lacks the manufacturing power to satisfy the demand for certain medicines. The company increased the price of these medicines and stopped advertising them. What type of marketing is it?

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

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

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

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

- a. Ratio of the sum of profits to the sum of expences x100%
- b. Ratio of the sum of profits to the sum of turnover x100%**
- c. -
- d. Ratio of the sum of profits to the total cost of fixed assets x100%
- e. Ratio of the sum of profits to the sum of cost price of the goods x100%

540. A 24-year-old patient after a thorough examination was diagnosed with type 1 diabetes mellitus for the first time. What antihyperglycemic agent should be prescribed in this case?

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

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

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

542. 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. Cheque payable
- b. Payment order
- c. Payment summary**
- d. Payment request and order
- e. Cash cheque

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

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

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

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

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

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

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

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

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

548. 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. Atropine and hyoscyamine
- b. K-Strophanthin
- c. Lanatosides A and B
- d. Convallatoxin
- e. **Purpurea glycosides A and B**

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

- a. Various vibrosieves
- b. Microscope
- c. **Standard set of sieves**
- d. Friabilators
- e. Laboratory identifiers

550. 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. Tender
- b. Import
- c. Direct investments
- d. **Joint venture**
- e. Franchising

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

552. 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. Opalescent mixture
- c. True solution
- d. High-molecular compound solution
- e. Colloidal solution

553. 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. Projective cover method
- b. Geodesically
- c. Permanent quadrate method
- d. Visually
- e. Model sample method

554. A medicine has caused a side effect in the patient due to the patient's hereditary defect of the enzymatic system. This phenomenon is called:

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

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

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

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

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

558. 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. -
- b. Referent
- c. Decentralized
- d. Centralized
- e. Mixed**

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

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

- e. Ammonium oxalate**

560. Herbal mixtures contain several types of comminuted or non-commminuted herbal raw material.

What stage is NOT a part of herbal mixture production?

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

561. 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. 30 minutes at room temperature**

c. 30 minutes of water bath infusion and immediate filtering without cooling

d. 30 minutes of water bath infusion and 10 minutes of cooling at room temperature

e. 60 minutes at room temperature

562. 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. Modified-release tablets**
- b. Soluble tablets
- c. Effervescent tablets
- d. Dispersible tablets
- e. Chewable tablets

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

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

- e. Refractive index**

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

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

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

566. Thymol and carvacrol are the main active substances of *Thymus vulgaris*. They belong to the following class of bioactive substances:

- a. Flavonoids
- b. Iridoids
- c. Essential oils**
- d. Anthracene derivatives
- e. Alkaloids

567. 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. Remarketing
- e. Incentive marketing

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

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

570. 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. -
- c. Integrated method
- d. Selective method**
- e. Intensive method

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

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

572. 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. 20%

- c. 30%
- d. 2%
- e. 10%

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

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

574. 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. Tinnitus
- c. Cough
- d. Nausea
- e. Abdominal pain

575. Pharmaceutical logistics is aimed at advertising, search for customers, entering into agreements, after-sales service, and transportation. What type of logistics is it?

- a. Procurement
- b. Sales
- c. Human resources
- d. Manufacturing
- e. Information

576. A pharmacist prepares a vaseline-based ointment. The vehicle was heated to 40<sup>o</sup>C) What substance was introduced into the heated vehicle?

- a. Anesthesin
- b. Vinilin (polyvinyl butyl ether)
- c. Streptocide
- d. Benzoic acid
- e. Camphor

577. A herbal raw material was sent for analysis. The material consists of cylindrical pieces of roots of varying length, covered with a brown, longitudinally wrinkled bark. When peeled, the raw material externally varies in color from light yellow to brownish yellow and is light yellow and very fibrous on section. Its smell is faint. Its taste is sweet and slightly irritating. What herbal raw material is being analyzed in this case?

- a. Berberis roots
- b. Taraxacum roots
- c. Panax ginseng roots
- d. Glycyrrhiza roots
- e. Aralia mandshurica roots

578. A 54-year-old hypertonic patient undergoing pharmacotherapy developed bronchial spasm. His physician considers it to be a therapy-induced complication caused by the drug that belongs to the following group:

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

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

a. Dragendorff reagent

b. Vitali-Morin reagent

c. Marquis reagent

d. Froehde reagent

e. Erdman reagent

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

a. Phenobarbital

b. Analgin (Metamizole)

c. Digoxin

d. Solpadeine

e. Novocaine

581. A patient has been diagnosed with essential hypertension and prescribed an adequate treatment with antihypertensive drugs. However, two months later the patient began to notice a slight cough.

What drug can cause this side effect?

a. Hypothiazide (Hydrochlorothiazide)

b. Furosemide

c. -

d. Amlodipine

e. Captopril

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

a. Microbiological purity

b. pH

c. Quantitative determination

d. Sterility

e. Identification

583. 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. Acceleration of metabolism and excretion

c. Relative overdosage

d. Antibiotic malabsorption

e. Mutual potentiation

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

a. Piracetam

b. Metamizole sodium

c. Bendazol

d. Metronidazole

e. Thiamazole

585. 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. Diuretics

b. Angiotensin-converting-enzyme inhibitors

c. Calcium channel blockers

d. Imidazoline receptor blockers

e. Ganglionic blockers

586. 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. Isoniazid

c. Acyclovir

d. Doxycycline hydrochloride

e. Metronidazole

587. 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. Theophylline monohydrate

b. Nitrofural (Nitrofurazone)

c. Sodium benzoate

d. Benzocaine

e. Morphine hydrochloride

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

a. -

b. Financial activity

c. Manufacturing activity

d. Commercial activity

e. Social responsibility

589. 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. Disintegrator, liquid whistle

c. Centrifugal mixer with rotating housing

d. Liquid whistle, magnetostrictive source

e. Rotor-pulsation apparatus, dismembrator

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

a. Disintegrants

b. Fillers

c. Thickeners

d. Lubricants

e. Antioxidants

591. Manufacturer's marketing department detected negative demand for a certain goods. What would be the marketing task? What type of marketing should be applied?

a. Demand stimulation, promotional marketing

b. Demand increase, remarketing

c. Demand making, conversion marketing

d. Demand decrease, demarketing

e. Demand leveling, synchromarketing

592. 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. Testing

b. Observation

c. Survey

d. Experiment

e. Panel

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

a. Furan

b. Pyrrole

c. Imidazole

- d. Thiazole
- e. Pyrazole

594. 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 imported drugs
- b. Any drugs registered for distribution in Ukraine
- c. Only vital drugs

**d. Only the drugs from the list of approved procurements for budget-financed healthcare facilities**

- e. Only drugs produced domestically

595. 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. 80% of the average salary
- b. 60% of the average salary
- c. 100% of the average salary**
- d. 70% of the average salary
- e. 50% of the average salary

596. 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. Liquid ingestible antibiotics
- c. Injection solutions with thermolabile substances
- d. Concentrated solutions for burette systems

**e. Injection solutions with thermostable substances**

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

- a. Dry-heat sterilization
- b. Sterile filtration through membrane
- c. Gas sterilization
- d. Irradiation sterilization

**e. Autoclave chamber with high-pressure saturated steam**

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

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

599. What reagent is used to identify sodium sulfate?

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

600. Bromatometry allows quantitative analysis of the following drug:

- a. Glutamic acid
- b. Potassium acetate
- c. beta-Alanine
- d. Benzoic acid

**e. Sodium salicylate**

601. There are certain legal requirements to the format of a prescription. Physicians that have a private practice must state the following in the upper left corner of a prescription form:

- a. Medical facility seal

b. License number

c. Own address, license number and its date of issue

d. Surname and initials of the doctor

e. Own address

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

a. Atorvastatin

b. Hydrochlorothiazide

c. Lisinopril

d. Nitroglycerine

e. Nifedipine

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

a. 90% of salary

b. 100% of salary

c. 50% of salary

d. 60% of salary

e. 75% of salary

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

a. Preparation of individual formulations

b. Pharmaceutical care

c. Providing access to pharmaceutical information

d. Health education of the population

e. Storage of medical products

605. 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%

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

a. Purple passionflower

b. Lesser periwinkle

c. Garden sage

d. Elecampane

e. Three-lobe beggarticks

607. 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. Glucocorticosteroids

d. Proton pump inhibitors

e. Alpha-blockers

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

a. Folia Urticae

b. Folia Cotini coggygriae

c. Folia Vitis idaeae

- d. Folia Digitalis lanata
- e. Herba Bursae pastoris

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

a. Quality

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

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

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

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

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

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

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

613. A pharmacy has received a prescription for the preparation of a solution. What substance requires the presence of sodium chloride and a hot solvent during the dissolution?

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

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

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

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

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

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

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

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

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

- a. Information should be entered into the goods report
- b. No accounting documentation needs to be kept
- c. A deposit order should be filled in
- d. An inventory list needs to be drawn up

**e. It should be assigned an inventory number and registered in the inventory cards**

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

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

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

621. 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. 500 000 UAH**
- b. 100 000 UAH
- c. 750 000 UAH
- d. 5 000 000 UAH
- e. 3 000 000 UAH

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

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

623. 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. Invoices

- c. Payment orders
- d. Payroll records

e. Transactions log book

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

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

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

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

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

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

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

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

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

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

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

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

- a. Invoice
- b. Inventory item description
- c. Act on the inventory results

- d. Checklist
- e. Commercial report

631. A pharmaceutical company uses the Boston Consulting Group matrix to analyze the state of its strategic business units (drugs). What is the BCG Matrix based on?

- a. Market share and market growth rate

- b. Market segments
- c. Attractiveness of the industry
- d. Competitive Intensity
- e. Business opportunities

632. According to the current Ukrainian legislation all drugs are divided into two categories: prescription and nonprescription (over-the-counter). Which one of the listed drugs requires no prescription?

- a. Phenobarbital, tablets, 100 mg №6
- b. Ketamine, 5% infusion solution, 2 ml №10
- c. Clonidine, ampoules, 1 ml of 0,01% solution №10
- d. Tramadol, capsules, 0,05 №10

- e. Ascorbic acid, 500 mg №30

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

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

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

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

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

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

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

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

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

638. Adrenergic drug adrenaline tartrate contains phenolic hydroxyls in its structure. What solution should be used to conduct a reaction for their detection?

- a. Potassium bromide solution
- b. Magnesium sulfate solution
- c. Sodium nitrate solution
- d. Iron (III) chloride solution**
- e. Copper (II) sulfate solution

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

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

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

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

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

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

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

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

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

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

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

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

- a. Taste-correcting agents
- b. Smell-correcting agents

- c. Preservatives
- d. Only one active substance
- e. A sum of active substances**

646. 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. Cash book

- c. Fiscal cash receipt for the goods/services**

- d. Accompanying statement to the bag with cash
- e. Transactions ledger

647. 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. Rutin
- c. Riboflavin
- d. Ergocalciferol
- e. Cocarboxylase hydrochloride

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

- a. Celecoxib**

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

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

- a. Physiological**

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

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

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

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

- a. Complaint
- b. Contract
- c. Statement
- d. Offer

- e. Request**

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

- a. Molisch's reagent
- b. Fehling's reagent
- c. Alkali**

- d. Iron ammonium alum
- e. Iron (II) sulfate

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

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

**d. Abrasion resistance**

- e. Impurities

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

- a. Olimetinium
- b. Bellasthesin**
- c. Urolesan
- d. Herbogastrine
- e. Solutan

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

- a. Clonidine hydrochloride

- b. Papaverine hydrochloride

- c. Pilocarpine hydrochloride

- d. Morphine hydrochloride

**e. Procaine hydrochloride**

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

- a. Furacilin (Nitrofural)

**b. Nifuroxazole**

- c. Nitroxoline

- d. Furadonin (Nitrofurantoin)

- e. Nalidixic acid

657. 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. Pink**

- b. Violet

- c. Blue

- d. Yellow

- e. Green

658. A pharmacist needs to weigh out a medicinal substance from the general list - glucose. What minimum amount of glucose can be weighed out using one-gram hand scales?

**a. 0.02 g**

- b. 0.03 g

- c. 0.04 g

- d. 0.01 g

- e. 0.05 g

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

- a. Kvater's mixture

**b. Atropine sulfate eyedrops**

- c. Streptocide (sulfanilamide) ointment

- d. Riboflavin-containing powders

- e. Baby powder

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

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

661. 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. Reimbursement
- d. Additional salary
- e. Pension benefit

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

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

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

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

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

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

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

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

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

667. 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. 1% ammonium iron(III) sulfate solution
- b. Sudan III solution
- c. Alcoholic solution of methylene blue**

- d. 1% phloroglucinol solution
- e. Dragendorff reagent

668. 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 Eucalypti**

- b. Folia Betulae
- c. Folia Absinthii
- d. Folia Melissae
- e. Folia Menthae piperitae

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

a. Pouring

b. Rolling

**c. Pressing**

d. Dispersion

e. Steeping

670. 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 molten cocoa butter

**b. Dissolve in minimal quantity of purified water**

c. Dissolve in alcohol

d. Dissolve in vaseline oil

e. Dissolve in Dimexid (Dimethylsulfoxide)

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

a. Rice starch

**b. Lactose**

c. Mannitol

d. Refined sugar

e. Corn starch

672. A 60-year-old patient diagnosed with ischemic heart disease developed bradycardia of 50 min.

What drug will be contraindicated in this case?

a. Nifedipine

b. Nitroglycerin

c. Nitrosorbide (Isosorbide dinitrate)

d. Heparin

**e. Propranolol**

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

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

b. -

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

d. To maximize profits

**e. To ensure business survival**

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

a. Customers ledger

**b. Transactions ledger**

c. Prescription logbook

d. Receipt book

e. Cash book

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

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

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

677. 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. -
- b. The process of distribution of duties between the technical level managers
- c. The process of salary calculation for the sales department employees
- d. Plan for improvement of the working conditions at the pharmaceutical facility**
- e. Material stimuli that include salary rates, extra pay, increments, bonuses, etc.

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

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

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

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

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

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

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

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

682. 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. Antispasmodics**
- b. Antacids

- c. Cholagogues
- d. Hepatoprotectors
- e. Antibiotics

683. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds whith the following drug:

- a. Quinocide
- b. Ofloxacin
- c. Dibazol (Bendazol)
- d. Chingamin (Chloroquine)
- e. Nitroxoline**

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

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

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

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

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

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

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

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

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

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

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

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

a. By their Anatomical Therapeutic Chemical Classification

**b. On separate shelves and in separate shopwindows**

c. By their pharmacotherapy group

d. Alongside medicines

e. By their application

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

a. Potassium permanganate

**b. Potassium pyroantimonate**

c. Potassium carbonate

d. Sodium citrate

e. Barium hydroxide

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

a. Salary payments

**b. Revenue of the pharmacy**

c. Advance salary payments

d. Transfer of the revenue to the bank account

e. Issuing cash sums to be accounted for

693. 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. Accounts ledger

b. Register of requisitions

c. Commodity report

d. Cash flow register

**e. Inventory**

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

a. Analgesic

b. Anticonvulsant

c. Expectorant

d. Antiasthmatic

**e. Antidepressant**

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

a. Solvent

b. Preservative

c. Taste correction agent

**d. Emulsifier**

e. Antioxidant

696. 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. Hypertensive crisis**

b. Angina pectoris attack

c. Meningococcal infection

d. Hemorrhagic stroke

e. Myocardial infarction

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

**a. Contains poisonous plants**

b. Contains other non-poisonous plants

- c. Contains excessive moisture
- d. Has first-degree vermin infestation
- e. Contains other parts of the target plant

698. 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. Monthly
- b. Quarterly
- c. Annually
- d. Daily
- e. -

699. 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. Papaverine hydrochloride
- d. Phenazone
- e. Metronidazole

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

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

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

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

702. When dispensing an antacid and ofloxacin in tablets, the dispensing chemist warned the customer that these drugs should be taken separately with 2-hour interval in between. Simultaneous taking of both drugs:

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

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

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

704. 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. Acetylsalicylic acid
- c. Glutaminic acid

- d. Salicylic acid
- e. Benzoic acid

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

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

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

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

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

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

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

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

709. 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. Papaverine hydrochloride
- c. Ergotamine hydrotartrate**
- d. Morphine hydrochloride
- e. Atropine sulfate

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

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

712. All the values, traditions, behavioral norms, and views that are characteristic of the employees of

a pharmaceutical company together form its:

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

713. There are several formal and informal groups among the pharmaceutical company's employees.

What feature is characteristic of formal groups?

- a. The group leader receives authority from the group
- b. They resist changes in the organization
- c. They are created to implement the production process**
- d. They form as a result of interest, sympathy
- e. They form spontaneously

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

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

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

716. Galenical preparations include:

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

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

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

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

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

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

- a. Phenolphthalein
- b. Potassium chromate

- c. Methyl orange
- d. Bromphenol blue
- e. Ferroin**

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

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

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

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

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

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

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

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

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

725. Money received for the goods sold are being transferred to the pharmacy from its outlet. What document must be drawn up by a cashier for the receipt of this monetary sum?

- a. Bank statement
- b. Cash receipt order**
- c. Payment order
- d. Cash withdrawal order
- e. Cashier's check

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

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

727. Based on the medical certificate, a patient can receive financial assistance due to temporary

disability. Financial assistance for temporary disability **CANNOT** be provided:

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

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

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

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

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

730. 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. Marketing goals of the company
- c. The stage of the product life cycle
- d. Manufacturing costs
- e. Marketing strategy of the company

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

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

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

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

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

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

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

- a. Pouring into moulds**
- b. Pressing

- c. Lyophilization
- d. Hand-rolling
- e. Stamping

735. A regional pharmaceutical market has a large number of pharmaceutical companies, none of which is able to control the market prices. The companies offer interchangeable medicines. What type of market is it?

- a. Oligopolistic market
- b. Pure monopoly market
- c. -
- d. Limited monopoly market

**e. Market with pure (free) competition**

736. 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. Retinol acetate
- b. Tyrosine**
- c. Resorcin
- d. Sulfamethoxazole
- e. Nitrofural

737. Incoming medicines inspection is performed by an authorized employee. What is NOT a part of the responsibilities of this person?

- a. To draw up conclusions regarding inspection of incoming medicines
- b. To check the pharmacy stock for low-quality or fake medicines
- c. To draw up orders for medicines and medical products, to conclude sales contracts**
- d. -
- e. To keep a roster of incoming medicines

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

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

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

740. A pharmaceutical company has launched a number of cold relief medicines in the form of syrups and lozenges for kids. What type of market segmentation was used by this company?

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

741. 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. Tolerance
- d. Potentiation
- e. Summation

742. 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. Employee turnover
- b. Mixed rotation

**c. Horizontal rotation**

- d. Diagonal rotation
- e. Vertical rotation

743. Berberis vulgaris herbal raw material is a source of medicinal substances with cholagogic and hemostatic effect. What parts of this plant are harvested as a herbal raw material?

- a. Leaves and seeds
- b. Leaves and fruits
- c. Roots and fruits
- d. Leaves and flowers

**e. Roots and leaves**

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

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

745. 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. 100 days
- b. 126 days**
- c. 50 days
- d. 115 days
- e. 70 days

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

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

747. 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. Bradycardia
- d. Withdrawal syndrome**
- e. Reduced sensitivity

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

- a. Quantitative determination
- b. Color
- c. Transparency

d. Sterility

e. Particle size

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

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

b. Anabolic steroids at the full price

c. Psychotropic drugs at the full price

d. Clophelin (clonidine) tablets at the full price

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

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

a. Calcium chloride

b. Sodium sulfate

c. Sulfuric acid

d. Potassium chloride

e. Iron(III) chloride

751. 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. Althaea officinalis

b. Taraxacum officinalis

c. Zingiber officinale

d. Inula helenium

e. Sanguisorba officinalis

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

a. K<sub>2</sub>[HgI<sub>4</sub>]

b. [NH<sub>4</sub>]<sub>2</sub>C<sub>2</sub>O<sub>4</sub>

c. K<sub>2</sub>CrO<sub>4</sub>

d. KMnO<sub>4</sub>

e. FeCl<sub>3</sub>

753. 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. Legal

b. Simulation

c. Psychosocial

d. Organizational

e. Economic

754. 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. 0.1 g

b. 0.2 g

c. 0.5 g

d. 0.25 g

e. 0.3 g

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

a. Camphor

b. Osarsolum (Acetarsol)

c. Sugar

d. Sodium chlorides

e. Talcum

756. The essential oil of which plant contains zamazali, which is formed during steam distillation from

matricin?

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

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

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

758. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

- a. Ergotamine hydrotartrate
- b. Digitoxin
- c. Vincatoin
- d. Galantamine hydrobromide
- e. Vinblastine

759. 1,8-cineole is a bactericidal component of essential oil. Specify the medicinal herb that is grown in Ukraine and contains 1,8-cineole in its essential oil:

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

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

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

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

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

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

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

a. Sodium sulfite

b. 0.1 M solution of hydrochloric acid

c. Boric acid

d. 0.1 M solution of sodium hydroxide

e. Weibel stabilizer

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

a. Starch

b. Potassium chromate

c. Bromophenol blue

d. Methylene blue

e. Tropeolin 00

765. 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. Carbonate ion

b. Ammonium ion

c. Acetate ion

d. Arsenite ion

e. Nitrate ion

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

a. Intensification

b. Diversification

c. Modernization

d. Integration

e. Conglomeration

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

a. Benzoic acid

b. Phenyl salicylate

c. Sodium benzoate

d. Salicylic acid

e. Acetylsalicylic acid

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

a. Hydrocortisone acetate

b. Triamcinolone acetonide

c. Prednisolone

d. Fluocinolone acetonide

e. Dexamethasone

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

a. Caffeine and sodium benzoate

b. Ascorbic acid

c. Novocaine (Procaine)

d. Sodium bicarbonate

e. Sodium thiosulfate

770. 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. Motor waybill

c. Financial statement of the supplier

- d. All of the listed
- e. Contract of delivery

771. 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. Anthracene derivatives
- c. Coumarins
- d. Lignans
- e. Cardiac glycosides

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

- a. Bromthymol blue
- b. Methyl orange
- c. Potassium chromate
- d. Starch
- e. Eriochrome black

773. 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 Ononidis
- c. Radices Althaeae
- d. Radices Taraxaci
- e. Rhizomata et radices Inulae

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

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

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

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

- a. Mechanical dispersion
- b. Maceration
- c. Coacervation
- d. Solubilization
- e. Ultrasonic dispersion

777. The pharmacy received the goods from the supplier. In the process of acceptance by the authorized person, a discrepancy in the number of medicines was discovered. What document does the authorized person need to issue?

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

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

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

779. 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. Cerimetry
- d. Polarimetry
- e. Argentometry**

780. 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. Collegial
- d. Adaptive
- e. Rational

781. Most types of herbal raw materials are stored dry. However, for juice production the factories receive fresh herbal material. Name one such plant that is processed fresh:

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

782. 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. Synchromarketing
- d. Stimulating
- e. Remarketing

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

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

784. 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. Sodium acetate solution
- b. Potassium hydroxide solution
- c. Ammonium chloride solution
- d. Iron(III) chloride solution**

e. Sodium bicarbonate solution

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

- a. To improve their appearance
- b. They are not durable enough
- c. To avoid prolonged contact with overlaying suspension

d. To prevent them from adhesion to each other

e. To speed up the process of applying the coating

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

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

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

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

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

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

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

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

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

- a. Unsatisfied
- b. Satisfied
- c. Hidden
- d. Negative
- e. Irrational

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

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

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

793. 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<sup>o</sup> to -105<sup>o</sup>
- b. From +10<sup>o</sup> to +13<sup>o</sup>
- c. From -48<sup>o</sup> to -51<sup>o</sup>
- d. From +50<sup>o</sup> to +56<sup>o</sup>
- e. From +0,2<sup>o</sup> to -0,2<sup>o</sup>

794. Optical rotation angle of substances is determined under the temperature of 20<sup>o</sup>C, in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ( $\lambda = 589,3$  nm), and is calculated with reference to a solution containing 1 g of the substance per ml. It is called:

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

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

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

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

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

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

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

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

800. 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. Metamizole sodium
- c. Ibuprofen
- d. Celecoxib
- e. Paracetamol

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

802. 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. Labetalol
- d. Carvedilol
- e. Hydrochlorothiazide

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

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

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

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

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

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

- a. Essential oil cavities**
- b. Glandular hairs
- c. Glandular <<spots>>

- d. Secretory cells
- e. Essential oil glandules

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

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

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

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

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

810. A pharmaceutical factory produces Thiamazole (Merkazolil) that is a medicinal substance with an antithyroid effect. Select from the list one of the initial compounds in its synthesis.

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

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

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

812. An analytical pharmacist analyzes the antianginal agent glyceryl trinitrate (nitroglycerin). What solution would the pharmacist use to identify the nitrate ions that form after hydrolysis?

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

813. 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

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

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

e. Hydrophobic bases

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

816. 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. Ampicillin**
- c. Lincomycin
- d. Oxacillin
- e. Chloramphenicol

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

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

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

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

819. 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. Embryotoxic
- b. Mutagenic
- c. Fetotoxic
- d. Teratogenic**
- e. Carcinogenic

820. A 6-year-old girl has been suffering from bronchial asthma for 3 years. To stop the attacks, the pediatrician prescribed her a short-acting beta<sub>2</sub>-adrenomimetic. What medicine was prescribed by the doctor in this case?

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

e. Tiotropium bromide

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

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

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

823. 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**
- b. Gelatin-glycerine gel
- c. Vaseline and lanolin
- d. Lanolin
- e. Soap-glycerine base

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

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

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

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

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

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

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

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

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

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

829. 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. Among competitors**
- e. Doubling product facings

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

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

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

832. 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. Psychological distance
- c. Semantic barriers**
- d. Nonverbal barriers
- e. Poor feedback

833. 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. Sulfomolybdenum
- c. Hypophosphite
- d. Methoxyphenylacetic acid
- e. Aminomethyl alizarin acetic acid

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

- a. Fenoterol
- b. Nitroglycerin
- c. Propranolol**
- d. Verapamil
- e. Amlodipine

835. A pharmacist prepares suppositories by pouring. Name the coefficient for substitution of fatty

vehicle with glycerinated gelatin vehicle:

- a. 1.31
- b. 1.25
- c. 1.11
- d. 1.21**
- e. 1.20

836. Which of the plants listed below contain inulin?

- a. *Ledum palustre*, *Acorus calamus*
- b. *Inula helenium*, *Helianthus tuberosus***
- c. *Salvia officinalis*, *Artemisia absinthium*
- d. *Rhamnus cathartica*, *Sorbus aucuparia*
- e. *Juniperus communis*, *Thymus serpyllum*

837. Clonidine hydrochloride is a salt of an organic base. What method is used for the quantification of this medicinal substance?

- a. Nitritometry
- b. Bromatometry
- c. Alkalimetry**
- d. Complexonometry
- e. Iodometry

838. An analytical quality control laboratory analyzes a resorcinol substance. What method is used for its quantitative determination?

- a. Bromometry**
- b. Nitritometry
- c. Argentometry
- d. Complexometric titration
- e. Mercurimetry

839. 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. Optical density
- c. Melting point
- d. Angle of rotation**
- e. Specific gravity

840. 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. Preliminary interview
- b. Telephone interview
- c. Filling in a questionnaire
- d. Submission of a resume
- e. Targeted selection interview**

841. A 35-year-old patient has been prescribed a potassium-sparing diuretic. Select one such drug from the list:

- a. Prazosin
- b. Triamterene**
- c. Diltiazem
- d. Furosemide
- e. Bisoprolol

842. An infusion and a liquid extract used as cardiotonics are obtained from *Crataegus oxyacantha* flowers and fruits. What active substance that is a component of this herbal raw material can be determined using spectrophotometry?

- a. Atropine
- b. Cytisine**

- c. Lipids
- d. Papaverine
- e. Flavonoids**

843. Which of the following pricing factors of a manufacturing pharmaceutical enterprise is internal?

- a. Expenses**
- b. State regulation of prices
- c. Competitors
- d. Participants in sales channels
- e. Consumers

844. Pharmaceutical corporations pay great attention to the formation of a certain set of values, traditions, and behavioral norms for all their employees. What is formed as a result of this type of corporate organizational work?

- a. Business expansion
- b. Organization profitability
- c. Organization culture**
- d. Product diversification
- e. Staff leasing

845. Infuser apparatus is used by a pharmacy to prepare:

- a. Ointments
- b. Infusions and decoctions**
- c. Infusion solutions
- d. Emulsions
- e. Suspensions

846. To confirm the presence of sulfat ions in the medicinal preparation of magnesium sulfate an analytical chemist of a pharmacy uses the following solutions:

- a. Silver nitrate and nitric acid
- b. Barium chloride and hydrochloric acid**
- c. Ammonium chloride and ammonium hydrate
- d. Benzenesulfonic acid
- e. Diphenylamine

847. 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. Expense invoice
- c. Receipt for issuing money
- d. Cashier's check
- e. Disbursement cash order**

848. During H. pylori eradication quadrotherapy, a 25-year-old man developed black feces. What medicine provoked such a side effect in this case?

- a. Amoxicillin
- b. Tetracycline
- c. Metronidazole
- d. Omeprazole
- e. Bismuth subcitrate**

849. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

- a. 160<sup>o</sup>C - 15 minutes
- b. 110<sup>o</sup>C - 15 minutes
- c. 180<sup>o</sup>C - 30 minutes
- d. 120<sup>o</sup>C - 8 minutes**
- e. 140<sup>o</sup>C - 12 minutes

850. Identification of potassium iodide requires performing an oxidation reaction in acid medium, which produces free iodine that colors chloroform layer. What reagent is used for such a reaction?

- a. Sodium nitrite
- b. Ammonium oxalate
- c. Barium chloride
- d. Silver nitrate
- e. Sodium carbonate

851. A compound powder is being made of ingredients taken in relatively equal measure. What ingredients should be comminuted first?

- a. Colored
- b. Macrocrystalline**
- c. Volatile
- d. Coloring
- e. Microcrystalline

852. 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 Menthae
- b. Folia Uvae-ursi
- c. Folia Urticae
- d. Folia Eucalypti
- e. Folia Farfarae**

853. A pharmaceutical company produces aromatic waters. Peppermint water should be prepared in the following proportion:

- a. 1:4000
- b. 1:10
- c. 1:2000
- d. 1:1
- e. 1:1000**

854. A dispensing chemist-technologist has accepted a prescription for eye drops with adrenaline hydrochloride. What characteristic of adrenaline hydrochloride must be taken into account, when preparing the eye drops?

- a. Thermolability**
- b. Volatility
- c. Low solubility in water
- d. Poor solubility in water
- e. Thermal stability

855. 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. Settlement receipt
- b. Sales receipt
- c. Invoice
- d. Receipt
- e. Cash register fiscal receipt**

856. One of the numerical parameters of herbal raw material quality is the amount of extractive substances that can be measured using:

- a. Gravimetry**
- b. Spectrophotometry
- c. Chromatography

- d. Biological standardization
- e. Titrimetry

857. What technological method is used to prepare powders with dyes?

- a. The dye is added last, after the mixture is prepared
- b. Preliminary sifting
- c. The principle of <<three layers>>**
- d. Mixing in ascending order, from smaller to larger volume
- e. Mixing in descending order, from larger to smaller volume

858. A pharmaceutical company produces various types of tablets. Specify the structure of matrix tablets:

- a. Tablets with a dragee coating
- b. A dispersion of medicinal substances in polyethylene
- c. A reticular matrix that contains the medicinal substance**
- d. Tablets covered in a film coating
- e. Tablets covered in a fat-soluble coating

859. What variable of the internal environment of the "Provisor" pharmacy can be described as the ways of transformation of component materials (medicinal agents "an gross") into end product (various dosage forms)?

- a. Tasks
- b. Mission
- c. Technologies**
- d. Structure
- e. Human resources

860. Under the current legislation, full or partial exemption of persons and legal entities from tax payment is called:

- a. Tax rate
- b. Subject to taxation
- c. Tax
- d. Tax concession**
- e. Tax system

861. 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. Essential oils**
- b. Alkaloids
- c. Flavonoids
- d. Cardiac glycosides
- e. Polysaccharides

862. 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. Collargol (Colloidal silver)
- b. Osarsol
- c. Pepsin**
- d. Copper sulfate
- e. Tannin

863. Erythromycin belongs to the following type of antibiotics based on its chemical structure:

- a. beta-lactams
- b. Polyene antibiotics
- c. Aromatic antibiotics
- d. Macrolides**
- e. Polypeptides

864. What effect will anthracene derivatives have, if -OH- groups are located in both benzene rings of

anthraquinone?

- a. Sedative
- b. Litholytic
- c. Choleretic
- d. Diuretic
- e. Laxative

865. During limit test for aluminium admixture, the State Pharmacopoeia of Ukraine recommends to use the following solution as the basic reagent:

- a. Sodium hypophosphite
- b. Hydroxyquinoline
- c. Barium chloride
- d. Thioglycolic acid
- e. Sodium tetraphenylborate

866. 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. Sodium nitrite
- c. Potassium bromate
- d. Perchloric acid
- e. Iodine

867. A pharmacist has made a topical solution with lipophilic vehicle. Specify the substance that produces such a type of solution:

- a. Starch
- b. Menthol
- c. Dermatol (bismuth subgallate)
- d. Novocaine hydrochloride
- e. Sulfur

868. 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 5 years
- b. Once every 2 years
- c. Once every 3 years
- d. Every year
- e. Once every 10 years

869. Organizationally, a pharmacy is divided into separate departments: Prescription and Extemporaneous Medicines, Stock Department, and Over-the-Counter Medicines. What organizational management structure can be characterized by such a division?

- a. Divisional
- b. Linear
- c. Matrix
- d. Functional
- e. Line and staff

870. 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. There are no regulations regarding payment of salaries in this case
- d. To pay the salaries 10 days earlier
- e. To pay the salaries one day earlier

871. 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. Economic

b. Administrative

c. Technological

d. Social and political

e. Social and psychological

872. 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. 3 mL

c. 6.25 mL

d. 12.5 mL

e. 7.5 mL

873. 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. Levofloxacin

c. Amikacin

d. Acyclovir

e. Metronidazole

874. When obtaining individual substances, the choice of an extractant is determined mainly by its:

a. Selectivity toward active substances

b. Pharmacological inertness

c. Cost

d. Anti-hydrolysis effect

e. Thermostability

875. Phytochemical workshop of a factory manufactures pancreatin. What is the source material for obtaining pancreatin?

a. Pancreas of pigs or cattle

b. Lungs of cattle

c. Egg white

d. Heart of cattle

e. Gastric mucosa of pigs

876. 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. Hydrogen sulfide

d. Sulfur(VI) oxide

e. Formaldehyde

877. What stabilizer must the pharmacist add, when preparing an atropine sulfate solution for injections?

a. Sodium metabisulfite

b. Sodium hydroxide

c. Hydrochloric acid

d. Ascorbic acid

e. Sodium bicarbonate

878. 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. Iodoform

c. Indophenol

d. Murexide

e. Thiochrome

879. At the end of each month a pharmacy accountant draws up a balance. What indicator characterizes liabilities of a pharmaceutical company?

- a. Work-in-process inventory
- b. Reserves and expenses
- c. Accounts receivable
- d. Circulating assets

**e. Equity capital**

880. What method is used to prepare a suspension with basic bismuth nitrate?

- a. Continental method
- b. Chemical condensation
- c. Dispersion with turbidization**
- d. Physical condensation
- e. Solvent substitution

881. How long can vasoconstrictors for symptomatic treatment of rhinitis be used?

- a. 3 weeks
- b. 1 month
- c. 2 weeks
- d. 5 weeks
- e. 5-7 days**

882. What drug facilitates dissolution of cholesterol stones in the gallbladder?

- a. Ursodeoxycholic acid**
- b. Magnesium sulfate
- c. Silybum dry extract
- d. Cynara dry extract
- e. Ademethionine

883. A medicinal plant contains hydroxycoumarins and is used in production of venotonic agents.

Name the herbal raw material harvested from this plant:

- a. Herba Meliloti
- b. Fructus Ammi majoris
- c. Fructus Pastinacae sativae
- d. Semina Hippocastani**
- e. Fructus Dauci carotae

884. A 53-year-old patient diagnosed with arterial hypertension is undergoing inpatient treatment. After the examinations, the urologist diagnosed the patient with a prostate adenoma. What can be the drug of choice in this case?

- a. Propranolol
- b. Verapamil
- c. Doxazosin**
- d. Enalapril
- e. Bisoprolol

885. What preservative did the pharmacist use to ensure the stability of eye drops?

- a. Methyl cellulose
- b. Boric acid**
- c. Sodium chloride
- d. Hydrochloric acid
- e. Polyvinyl alcohol

886. A patient measures out a necessary dose of a mixture, using a tablespoon. How many milliliters of liquid does one tablespoon contain?

- a. 5
- b. 15**

- c. 10
- d. 20
- e. 25

887. Snake venom-based drugs are widely applied in treatment of locomotor apparatus diseases.

Main components of these venoms are:

- a. Cardiac glycosides

**b. Toxic proteins**

- c. Phenol-alcohols

- d. Alkaloids

- e. Glucosinolates

888. What medicines should be listed at the beginning of an extemporaneous drug formulation according to the regulations?

- a. Solutions

- b. Medicines included in the Essential Medicines List

**c. Narcotic substances**

- d. Substances that are hard to comminute

- e. All medicines are written in a random order

889. What preparation has an antiemetic effect?

- a. Sodium bicarbonate

- b. Aluminum phosphate

- c. Loperamide

**d. Metoclopramide**

- e. Clarithromycin

890. During visual inspection of a product, the authorized person developed doubts about the quality of the received medicines. What should the authorized person do, to initiate the laboratory testing of the medicine quality?

- a. Send the medicines back to the manufacturer

- b. Send the medicines to the Ministry of Health of Ukraine

**c. Send the medicines to a local laboratory of the State Drugs and Medications Control Service**

- d. Send the medicines to the nearest compounding pharmacy that employs a dispensing chemist

- e. Send the medicines back to the supplier

891. 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. Anthraquinone reduction

- d. Oxidation of anthracene derivatives

- e. Salt precipitation

892. 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. Bisoprolol

**b. Nitroglycerine**

- c. Nifedipine

- d. Digoxin

- e. Isosorbide dinitrate

893. Paracetamol reaction with hydrochloric acid, followed by addition of potassium dichromate, produces the following:

- a. Azo dye

- b. Triphenylmethane dye

- c. Aurin dye

**d. Indophenol dye**

e. Schiff base

894. 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. Receipt of funds for advance salary payments

- b. Issuing a cash sum to be accounted for
- c. Salary payments
- d. Payment for the goods purchased for the business needs
- e. Withdrawing sales proceeds for the transfer to the current account

895. What drug should be used first in case of anaphylactic shock?

a. Prednisolone

- b. Euphyllin (Aminophylline)
- c. Dibazol (Bendazol)
- d. Loratadine
- e. Fexofenadine

896. According to the State Pharmacopoeia of Ukraine, cerimetry should be used to determine the quantitative content of paracetamol. What solution is used as a titrant in this case?

a. Cerium sulfate

- b. Potassium permanganate
- c. Silver nitrate
- d. Iodine monochloride
- e. Hydrochloric acid

897. 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 valerenic valepotriates, - valtrate, acevaltrate, and dihydrovaltrate:

a. Saponins

b. Polysaccharides

c. Iridoids

d. Alkaloids

e. Essential oils

898. A doctor prescribed the drug simvastatin to the patient to correct hyperlipidemia. Why should the selected daily dose be taken once in the evening?

a. Absorption of the drug increases at night

b. Cholesterol biosynthesis occurs mainly at night

c. Receptor sensitivity to low-density lipoproteins increases

d. Risk of myopathy decreases

e. Catabolism rate of low-density lipoproteins increases

899. 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. Reduced sensitivity

b. Withdrawal syndrome

c. Bradycardia

d. Bronchospasm

e. Dysbacteriosis

900. Inorganic medicines are identified by their cations and anions. What should be used by an analytical chemist for identification of medicinal substances that contain potassium?

a. Tartaric acid solution

b. Nitric acid solution

c. Acetic acid solution

d. Hydrochloric acid solution

e. Benzoic acid solution

901. Pharmaceutical analysis of glutamic acid requires the determination of nitrogen after mineralization with concentrated sulfuric acid. Ammonia that forms during the test is pumped away into the receiving flask. What solution should the receiving flask contain during this test?

- a. Titrated sodium edetate solution
- b. Iodized potassium iodide solution
- c. **Titrated hydrochloric acid solution**
- d. Saturated sodium chloride solution
- e. Freshly prepared tannin solution

902. 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. Papaverine
- b. **Scopolamine**
- c. Platiphyllin
- d. Codeine
- e. Morphine

903. 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. Quantity and vehicle of the suppositories
- b. **Diameter, length, and quantity of the suppositories**
- c. Diameter and quantity of the suppositories
- d. Diameter and vehicle of the suppositories
- e. Length and quantity of the suppositories

904. Limit cash balance is the maximum amount of monetary funds that can remain in the cash desk of an organization at the end of a workday. This limit is established by the following authorities:

- a. **Pharmacy management**
- b. Chief physician
- c. Local authorities
- d. -
- e. Tax Inspectorate

905. The market can be characterized by the following conditions: there are many sellers and buyers, who have no influence over current prices; similar and interchangeable competing goods are available; there are no price limits. What type of market is it?

- a. Oligopoly
- b. Monopolistic competition
- c. **Pure competition**
- d. Pure monopoly
- e. Economic planning

906. An accountant conducts necessary calculations for remuneration of labor. Name the type of remuneration that is due for labor carried out according to the work standards and is paid within the amount determined by basic or piece wages for factory workers and salaries for office workers:

- a. Increment
- b. Bonus
- c. **Basic pay**
- d. Financial aid
- e. One-off payment

907. What packaging should the pharmacist use for a baby powder?

- a. Container with a lid that has holes in it
- b. Wax paper
- c. Ordinary paper capsules
- d. Gelatin capsules
- e. Parchment

908. When selling iron preparations that are to be taken orally, a dispensing chemist should warn the patients that these drugs cannot be taken with milk or dairy products, because it leads to:

a. Prolonged action of iron preparations

b. Formation of chelate complexes that cannot be assimilated into the body

c. Increased activity of iron preparations

d. Accelerated absorption of iron preparations

e. Accelerated clearance of iron preparations

909. What medicine is simultaneously a mucolytic and an antidote against a paracetamol overdose?

a. Carbocysteine

b. Ambroxol

c. Trypsin

d. Bromhexine

e. Acetylcysteine

910. What imidazole derivative affects anaerobic microorganisms and protozoa and is effective against mixed infections?

a. Camphor

b. Caffeine

c. Metronidazole

d. Asparcam (Potassium aspartate and magnesium aspartate)

e. Dibazol (Bendazol)

911. What economic parameter characterizes the effectiveness of the pharmacy's commercial, financial, and manufacturing activity?

a. Circulation of goods

b. Stock of goods

c. Inventory turnover

d. Work productivity

e. Profitability

912. 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. Urtica dioica folium

b. Gnaphalium uliginosum herba

c. Hyoscyamus niger folium

d. Digitalis purpurea folium

e. Althaea officinalis herba

913. Mixture is a liquid dosage form for internal use. It is obtained by mixing two or more solid or liquid dosage forms in a solvent. If a mixture contains tinctures, they should be added:

a. After poisonous and narcotic substances are dissolved (before concentrates)

b. Last in the order of decreasing ethanol concentration

c. First

d. In the same order in which they are listed in the formulation

e. Last in the order of increasing ethanol concentration

914. A pharmacist prepares 100 ml of glucose solution. Specify the amount of Weibel's stabilizer necessary in this case:

a. 15 ml

b. 20 ml

c. 10 ml

d. 2 ml

e. 5 ml

915. Prescriptions for psychotropic drugs remain in the pharmacy after the sale. How long must they

be kept?

- a. One month
- b. The prescription must be returned to the patient
- c. One year
- d. Three years
- e. Five years**

916. Indometacine is a nonsteroidal antiinflammatory drug. A condensed heterocyclic system is contained within the structure of this drug. What cycles compose the system?

- a. Pyrrole and benzene**
- b. Benzene and pyridine
- c. Benzene and thiazole
- d. Pyrimidine and imidazole
- e. Two 4-oxycoumarin residues

917. Xycaine quantitative content can be determined by means of argentometry (back titration).

What indicator is required by this method?

- a. Starch
- b. Sodium eosinate
- c. Iron (III) ammonium sulphate**
- d. Bromphenol blue
- e. Potassium chromate

918. A pharmaceutical wholesaler has suffered commercial losses because of unpaid debts of a pharmacy network. What type of commercial losses is it?

- a. Labor
- b. Material
- c. Financial**
- d. Special
- e. -

919. A pharmacist makes powders by grinding one of the formulation components with ethyl alcohol. This technology is typically applied when working with the following substance:

- a. Starch
- b. Zinc oxide
- c. Talcum
- d. Streptocid**
- e. Bolus alba

920. A pharmacist has prepared a liquid mixture. What component was added last into the vial?

- a. 20% sodium bromide solution
- b. Tincture of valerian**
- c. Simple syrup
- d. Potassium bromide
- e. Purified water

921. 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. Oxeladin
- c. Butamirate
- d. Salbutamol
- e. Codeine phosphate

922. The tablet workshop at a pharmaceutical factory manufactures tablets adding adjuvants into the tablet mass. What substances belong to taste correctors?

- a. Stearic acid, calcium and magnesium stearate, starch, talcum
- b. Methylcellulose, polyvinylpyrrolidone, acetylphthalylcellulose
- c. Starch, glucose, kaolinite, magnesium oxide, sodium bicarbonate

- d. Purified water, starch glue, sugar syrup, gelatin, carboxymethylcellulose solution
- e. Sugar, glucose, essential oils, menthol, fruit juice concentrates, indigo carmine, iron oxide, mannitol

923. A pharmacy has received a prescription for tincture. What herbal raw material can be used to make this dosage form?

- a. Buckthorn bark
- b. Oak bark
- c. Rhubarb roots
- d. Arrow-wood bark
- e. Valerian rootstock**

924. A pregnant woman complains of elevated blood pressure up to 160/100. What hypotensive drug should she use in this case?

- a. Reserpine
- b. Losartan
- c. Bisoprolol
- d. Methyldopa**
- e. Enalapril

925. 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. Payment order**
- b. Accounting form
- c. Cash register receipt
- d. Cash order
- e. Check payable in account

926. Camomile flowers are a popular medicinal substance in scientific medicine. What plant is the source of this herbal raw material?

- a. Leucanthemum vulgare
- b. Tripleurospermum inodorum
- c. Chamomilla recutita**
- d. Anthemis arvensis
- e. Anthemis cotula

927. Which of the following antibiotics can be identified by means of maltol test?

- a. Doxycycline hydrochloride
- b. Streptomycin sulfate**
- c. Amoxicillin
- d. Kanamycin monosulfate
- e. Lincomycin hydrochloride

928. 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. 5.0-8.0
- c. 2.0-5.0
- d. 1.0-4.0**
- e. 4.0-7.0

929. 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. Magnesium oxide
- d. Ephedrine hydrochloride
- e. Streptomycin sulfate**

930. 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. Amorphous state
- b. Ability to change color depending on the pH of the medium**
- c. Alcohol precipitation
- d. Ability to sublime
- e. Solubility in fats

931. What is the function of anhydrous lanolin in the suppository mass used for suppositories prepared via hand rolling?

- a. Solubilizer
- b. Emollient
- c. Preservative
- d. Plasticizer**
- e. Solvent

932. What adjuvants improve the wettability and water permeability of the components during the tablet production?

- a. Solvents
- b. Leaveners**
- c. Thickeners
- d. Antifriction materials
- e. Film formers

933. A patient with exertional angina pectoris had been taking isosorbide mononitrate orally for 2 months, when this drug lost its effectiveness. What is the likely cause of isosorbide mononitrate being no longer effective in this case?

- a. Cumulation
- b. Psychological dependence
- c. Sensitization
- d. Tolerance**
- e. Physical dependence

934. Difference between the retail price of products sold and the margin determines:

- a. Production cost**
- b. Margin
- c. Markup
- d. Income
- e. Breakeven

935. A substance was received for analysis. The substance is a round seed 1-1,8 mm in diameter, yellow with bluish tint. When mashed with water, emits characteristic irritant odor; is sharp and acrid to taste. The raw material can be identified as:

- a. Mustard seeds**
- b. Plantago psyllium seeds
- c. Flax seeds
- d. Nigella seeds
- e. Fenugreek seeds

936. 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, doctor's seal and signature, signature of the head manager of the medical facility, seal of the medical facility**
- b. Signature of the head manager of the medical facility or signature of the deputy head manager for medical work
- c. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility

- d. Medical facility stamp, signature of the head manager of the medical facility, seal of the medical facility
- e. Doctor's personal seal and signature

937. What parameter characterizes the ratio of the height of the powder in the matrix to the height of the obtained tablet?

- a. Bulk volume
- b. Flowability
- c. Compression value
- d. Porosity
- e. Compaction (compression) coefficient**

938. A woman at the third trimester of her pregnancy fell ill with pneumonia. A doctor prescribed her a fluoroquinolone. What negative effect can it have on the fetus?

- a. Chondrotoxic**
- b. Nephrotoxic
- c. Neurotoxic
- d. Hematotoxic
- e. Hepatotoxic

939. 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. Drug dependence
- b. Blood pressure rise
- c. Constipations
- d. Cumulation
- e. Bronchospasm**

940. 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. Adonis vernalis
- d. Digitalis lanata**
- e. Erysimum canescens

941. What means of demand stimulation can be applied by pharmacy management among its employees?

- a. Coupons
- b. -
- c. In-store advertising
- d. Layout of medical products in shop-windows and on shelves
- e. Bonuses**

942. 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. 100%
- b. 50%
- c. 80%**
- d. 60%
- e. 70%

943. Licorice roots contain saponins. What reaction can prove their presence in the herbal raw material?

- a. Molisch's test
- b. Dragendorff's test
- c. Reaction with iron(III) chloride
- d. Foaming reaction**
- e. Fehling's test

944. A pharmacy opens a bank account to store funds and conduct ongoing business transactions.

What kind of account should be opened?

a. Letter of credit

**b. Current**

c. Provisional

d. Investment

e. Deposit

945. A herbal raw material (fruits) was sent for analysis. This material consists of glossy black drupes 8 mm in diameter with one large spherical light-brown seed that is very firm. Its chemical analysis showed the presence of condensed tannins. What plant is the source of this herbal raw material?

a. Schisandra chinensis

b. Rhamnus cathartica

c. Vaccinium myrtillus

d. Ribes nigrum

**e. Prunus padus**

946. 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. 40%

c. 20%

**d. 50%**

e. 10%

947. A 36-year-old patient developed acute pyelonephritis. What antibacterial agents has a nephrotoxic effect?

a. Erythromycin

b. Penicillin

c. Ampicillin

**d. Gentamicin**

e. Tetracycline

948. 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. Quality certificate**

c. Registration certificate

d. Sanitary-epidemiological certificate

e. Certificate of compliance with hygiene regulations

949. The cholagogue derived from Rosa canina fruit is used in treatment of liver and gallbladder diseases. Name this drug:

**a. Cholosas**

b. Allochol

c. Phytolyt

d. Altan

e. Chophytol

950. A pharmacist has prepared an aqueous extract using the cold infusion method. What herbal raw material was it?

a. Thermopsis grass

b. Mint leaves

c. Buckthorn bark

**d. Marshmallow roots**

e. Arctostaphylos leaves

951. What department of a wholesale firm is tasked with search for and analysis of potential suppliers' commercial offers, as well as concluding supply contracts and supervision of contract fulfillment?

- a. Marketing department
- b. Shipping department
- c. Supply department**
- d. Stores development
- e. Finance department

952. Complex drug product Urolesan is a litholytic, antispasmodic, and diuretic agent. It contains ethanolic extract of:

- a. Rhododendron tomentosum
- b. Origanum vulgare**
- c. -
- d. Thymus serpyllum
- e. Matricaria chamomilla

953. Schisandra chinensis seeds contain lignans. What pharmacological effect will the preparations made of Schisandra chinensis have?

- a. Hepatoprotective
- b. Antitumor
- c. Reparative
- d. Tonic**
- e. Sedative

954. During identification these active substances form precipitates in gelatin and alkaloid solutions and produce precipitates with heavy metal salts. These active substances are:

- a. Iridoids
- b. Lipids
- c. Tannins**
- d. Carbohydrates
- e. Glycosides

955. A doctor has prescribed a mixture containing several types of herbal raw material. Extracts of the following raw materials can be obtained in one infusion apparatus:

- a. Mint leaves, buckthorn bark
- b. Mint leaves, Althaea roots
- c. Mint leaves, chamomile flowers**
- d. Mint leaves, Arctostaphylos leaves
- e. Mint leaves, flax seeds

956. The management of a pharmaceutical company performs an internal audit to check the compliance with proper work practices. What management function is used by the company's management in this case?

- a. Control**
- b. Motivation
- c. Planning
- d. Regulation
- e. Organization

957. In the process of phytochemical examination of buckthorn bark, the reaction with alkaline solution resulted in red coloring, which indicates the presence of the following:

- a. Slime
- b. Alkaloids
- c. Flavonoids
- d. Saponins
- e. Anthracene derivatives**

958. A pharmacy sells various medicines. What medicine is a subject to strict accounting in a special

inventory log?

a. Tramadol, tablets

b. Retabolil (Nandrolone)

c. Gentamicin sulfate

d. Hydrocortisone acetate

e. Microfollin (Ethinylestradiol), tablets

959. 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 shift**

c. No less than twice in a month

d. No less than once in a week

e. No less than twice in a week

960. 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. Intensive

**d. Exclusive**

e. Bulk

961. 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. Specialty goods

d. Unsought goods

**e. Service**

962. Name the optimal vehicle for soluble vaginal suppositories:

a. Cocoa butter

b. Glycerine

**c. Polyethylene oxide**

d. Hard fat

e. Fat

963. Infusions of herbal raw material rich in essential oils should be:

**a. Prepared in a tightly closed vessel**

b. Immediately filtered

c. Acidated with hydrochloric acid

d. Infused cold

e. Filtered without wringing of the solid residue

964. As a result of heparin overdose, a patient developed bleeding. What medicine must be used as an antidote in this case?

a. Naloxone

**b. Protamine sulfate**

c. Thiosulfate

d. Unithiol (Dimercaptopropansulfonate sodium)

e. Methionine

965. In the process of inpatient treatment of bronchial asthma, the patient was prescribed Euphylline (Theophylline) intravenously. What side effect of this drug must be managed first?

**a. Cardiotoxicity**

b. Nephrotoxicity

c. Hematotoxicity

d. Chondrotoxicity

e. Hepatotoxicity

966. Veratrum water is used as an antiparasitic agent and is very toxic, which is why it can be used only externally. What class of bioactive substances causes this effect?

- a. Steroidal saponins
- b. Thioglycosides
- c. Cardiac glycosides

**d. Alkaloids**

- e. Fatty oils

967. What prescription form is used to prescribe psychotropic drugs in their pure form or in a mixture with indifferent substances for the dispensation free of charge or at a discount?

- a. Two copies of prescription form f-3
- b. Two prescription forms f-1 and f-3**
- c. Prescription form f-3
- d. Two copies of prescription form f-1
- e. Prescription form f-1

968. Presence of phenolic hydroxyl in the structure of pyridoxine hydrochloride can be confirmed by application of the following solution:

- a. Sodium sulfate
- b. Sodium nitrite
- c. Iron (III) chloride**
- d. Potassium permanganate
- e. Silver nitrate

969. A 60-year-old man has come to a pharmacy with complaints of impaired twilight vision, dry sclera, cracked and peeling skin. The dispensing chemist suspected hypovitaminosis and recommended the customer to take the following drug after consultation with the physician:

- a. Vicasol (Menadione)
- b. Ascorbic acid
- c. Ergocalciferol
- d. Tocopherol acetate
- e. Retinol acetate**

970. 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. Licorice root
- b. Thermopsis preparations
- c. Potassium iodide
- d. Ambroxol**
- e. Proteolytic enzymes

971. What fatty oil is nondrying due to its oleic acid glyceride content?

- a. Helianthi oleum
- b. Maydis oleum
- c. Ricini oleum**
- d. Cucurbitae oleum
- e. Lini oleum

972. 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. Coumarins
- b. Flavonoids
- c. Anthracene derivatives
- d. Tannins**
- e. Essential oils

973. 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. Glucofrangulins**
- e. Ginkgosides

974. 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. Thymol and carvacrol**
- d. Atropine and hyoscyamine
- e. Quercetin and rutin

975. What substance forms a film coating of tablets and can be dissolved only in intestinal juice?

- a. Sodium carboxymethyl cellulose
- b. Benzylaminocellulose
- c. Diethylaminomethylcellulose
- d. Acetylphthalylcellulose**
- e. Paraaminobenzoate of sugars

976. A group of independent intermediaries operates on a regional market. They sell medicines on their own behalf and at their own cost. Such intermediaries are called:

- a. Commission agents
- b. Agents
- c. Consignees
- d. Brokers
- e. Dealers**

977. The chemical name of 2,2-(diphenylmethoxy)-N,N-dimethyl-ethanamine hydrochloride corresponds with the following medicinal substance:

- a. Ethylmorphine hydrochloride
- b. Ciprofloxacin hydrochloride
- c. Diphenhydramine hydrochloride**
- d. Papaverine hydrochloride
- e. Lidocaine hydrochloride

978. 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. Glycyrhizae radices
- b. Araliae mandshuricae radices**
- c. Tormentillae radices
- d. Taraxaci radices
- e. Calami radices

979. 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. Inhaled glucocorticoids
- b. Antibiotics
- c. Nonsteroidal anti-inflammatory drugs
- d. Cardiac glycosides**
- e. Mucolytics

980. What oral hypoglycemic agent should be prescribed for a 47-year-old overweight patient with type 2 diabetes mellitus, if diet therapy is ineffective?

- a. Metronidazole
- b. Metoprolol
- c. Metoclopramide
- d. Metformin**
- e. Meloxicam

981. 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. Furosemide**
- b. Propranolol
- c. Nifedipine
- d. Lisinopril
- e. Spironolactone

982. A pharmacist uses Vitepsol to prepare rectal suppositories. What fluid should be used in this case to lubricate the suppository form?

- a. Vaseline oil (liquid paraffin)
- b. Purified water
- c. Spiritus saponatus**
- d. Ethyl alcohol
- e. Peach oil

983. 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 heating the extract
- b. The process of extraction from one liquid using another liquid
- c. The process of gas absorption
- d. The characteristic of biopolymer molecules that does not allow them to pass through semi-permeable membranes**
- e. The process of electrolyte action

984. 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

985. 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. Expenses
- b. Markups**
- c. Commodity circulation
- d. Profitability
- e. Profit

986. The introduction of fluorine atoms into a glucocorticosteroid molecule results in a significant increase of the anti-inflammatory effect. What drug is a fluorine-derivative glucocorticoid?

- a. Prednisolone
- b. Cortisone acetate
- c. Betamethasone dipropionate**

- d. Hydrocortisone acetate
- e. Prednisone

987. The extraction process consists of several stages. What is the final stage of the extraction process?

- a. Maceration
- b. Washing the herbal raw material with an extractant
- c. Dissolution
- d. Extraction of primary juice

**e. Mass transfer**

988. An employee of an analytical and quality control laboratory performs a rapid analysis of morphine hydrochloride. In this case, the presence of phenolic hydroxyl can be confirmed by a reaction with a solution of:

- a. K<sub>3</sub>[FeCN]<sub>6</sub>
- b. NH<sub>3</sub>
- c. Concentrated HNO<sub>3</sub>
- d. FeCl<sub>3</sub>**
- e. AgNO<sub>3</sub>

989. How should the tablets of pancreatin enzyme preparation be taken?

- a. During eating**
- b. 1 hour after a meal
- c. 1 hour before a meal
- d. Regardless of food intake
- e. 2 hours before a meal

990. What antibiotic has beta-lactam cycle in its structure?

- a. Lincomycin hydrochloride
- b. Doxycycline hyclate
- c. Chloramphenicol
- d. Benzylpenicillin potassium salt**
- e. Streptomycin sulfate

991. When preparing a solution, the pharmacist used an additional technique - grinding in a mortar with water. What substance typically requires this technique?

- a. Calcium gluconate
- b. Silver nitrate
- c. Boric acid
- d. Furacilin (Nitrofural)
- e. Copper sulfate**

992. One of the substances listed below is NOT a vitamin:

- a. Calcium pangamate
- b. Calcium gluconate**
- c. Ergocalciferol
- d. Nicotinic acid
- e. Calcium pantothenate

993. 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. Lansoprazole
- d. Famotidine
- e. Omeprazole

994. What document must be added to the foreign-made medical products?

a. Technical regulations for the drug

b. Drug Quality Standard

c. Written Control Passport

**d. Conclusion on the quality of the drug imported into Ukraine**

e. Extract from the State Register of Medicines

995. When dispensing an iron supplement to be taken orally, the pharmacist must warn the patient that this preparation should not be taken with milk or dairy products. What might happen otherwise, if the patient is not warned?

a. Increased activity of the drug

b. Accelerated elimination of the drug

**c. Formation of poorly soluble chelate complexes**

d. Faster absorption of the drug

e. Prolongation of the effect of iron preparations

996. 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. Nitrites**

d. Iodides

e. Sulfates

997. Alkaloids are used in medical practice for treatment of various diseases. Based on its chemical composition, the following substance can be classified as a quinolizidine alkaloid:

a. Scopolamine hydrobromide

**b. Pachycarpine hydroiodide**

c. Codeine phosphate

d. Quinine sulfate

e. Caffeine monohydrate

998. 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 the company's annual report

b. Published in statistical reference books

c. Published in mass media

d. Obtained from publications in scientific magazines

**e. Collected for the first time for a specific purpose**

999. The Income Statement of a pharmacy for the first quarter of 20XX contains the following entries: goods turnover - 45 000 UAH, production cost of products sold - 30 000 UAH, turnover costs - 10 000 UAH. Determine the income:

**a. 5 000 UAH**

b. 35 000 UAH

c. 15 000 UAH

d. 40 000 UAH

e. 30 000 UAH

1000. Specify the fluid used to coat the forms for pouring of the suppositories with hydrophilic vehicles:

a. Glycerine

b. Purified water

c. Dimethylsulfoxide

d. Glycerine-water solution

**e. Vaseline (petroleum jelly)**

1001. 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. Anhydrous acetic acid
- b. Sulfanilic acid
- c. Concentrated sulfuric acid
- d. Dimethyl formamide
- e. Pyridine

1002. The marketing team of a pharmaceutical company has performed a comparative analysis of internal environment and external conditions. They have analyzed strengths and weaknesses, opportunities and threats. The marketing team has performed:

- a. -
- b. ABC analysis
- c. SWOT analysis
- d. VEN analysis
- e. PEST analysis

1003. 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. Tannins
- b. Alkaloids
- c. Fatty oil
- d. Saponins
- e. Anthracene derivatives

1004. 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. Over-the-counter drugs
- b. Essential drugs
- c. Precursors
- d. Substandard drugs
- e. Drugs subject to strict accounting in a special inventory log

1005. Bilitrast is an X-ray contrast substance. What reagent can confirm the presence of phenolic hydroxyl in its molecule?

- a. Silver nitrate solution
- b. Iron(III) chloride solution
- c. Iodine dissolved in potassium iodide
- d. Hydrochloric acid solution
- e. Alcoholic iodine solution

1006. A patient is 20 years old. After she was stung by a bee the patient developed Quincke's disease; rash in the form of blisters and papulae appeared on her torso. First aid in this case should start with administering the following drug:

- a. Fresh frozen plasma
- b. Haemodes
- c. Rheopolyglukin (Dextran)
- d. Penicillin
- e. Prednisolone

1007. A pharmacist prepares a chamomile flowers infusion. Specify the proportion of raw material to infusion:

- a. 1:50
- b. 1:400
- c. 1:20
- d. 1:30
- e. 1:10

1008. Alkalimetry is used to determine the quantitative content of diphenhydramine hydrochloride antihistamine. What solution is used as a titrant in this analysis?

- a. Hydrochloric acid solution
- b. Potassium permanganate solution
- c. Sodium hydroxide solution
- d. Sodium thiosulfate solution
- e. Potassium bromate solution

1009. To prepare an ointment, a pharmacist has additionally used paraffin. What is the role of paraffin in the technology?

- a. Vehicle
- b. Dispersing agent for powders
- c. Densifier
- d. Preservative
- e. Emulsifier

1010. Which one of the listed drugs is a glycoside antibiotic?

- a. Levomycetin (Chloramphenicol)
- b. Tetracycline
- c. Cephalexin
- d. Erythromycin
- e. Polymyxin

1011. What drug is used to treat hyperthyroidism?

- a. Metformin
- b. Prednisolone
- c. Insulin
- d. Oxytocin
- e. Mercazolil (Thiamazole)

1012. 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. Complexometry
- b. Bromatometry
- c. Acidimetry
- d. Iodometry
- e. Nitritometry

1013. Buckthorn bark is used as a laxative. This herbal raw material colors red if an alkaline solution is added, which indicates the presence of the following substances:

- a. Vitamins
- b. Tannins
- c. Anthracene derivatives
- d. Alkaloids
- e. Flavonoids

1014. A pharmacist prepared a 5% glucose solution and added 5 mL of Weibel's stabilizer. What is the volume of the prepared solution?

- a. 50 mL
- b. 1000 mL
- c. 300 mL
- d. 500 mL
- e. 100 mL

1015. 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 lotions

d. Eye ointments

e. Eye sprays

1016. Choose the solvent necessary to prepare concentrated solution of sodium bicarbonate in a pharmacy:

a. Vaseline

b. Purified water

c. Peach-kernel oil

d. Ethanol

e. Chloroform

1017. A pharmaceutical factory produces tablets of sodium chloride. What is the method of their production?

a. Wet granulation prior to compression

b. Direct compression with the addition of excipients

c. Direct compression without additional substances

d. Moulding

e. Dry granulation prior to compression

1018. A pharmacist-analyst of a control-analytical laboratory performs identification of a drug substance in accordance with the State Pharmacopoeia of Ukraine regulations. What result is observed during the test for benzoates with a solution of iron(III) chloride?

a. A pale yellow ether-soluble precipitate forms

b. A black precipitate forms, which dissolves if a diluted sodium hydroxide solution is added

c. The solution colors blue and becomes colorless after the addition of ammonia solution

d. A white precipitate forms, which is insoluble in a diluted hydrochloric acid

e. An intense blue coloring appears

1019. 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

1020. To work properly, a pharmacy needs sufficient staff. What job position belongs to the auxiliary staff of a pharmacy?

a. Packer

b. -

c. Pharmacist

d. Head of a department

e. Accountant

1021. Doctor's prescription fulfills several functions. What function indicates that the doctor bears responsibility for correct prescription of medicines to the patient?

a. Social

b. Economic

c. Legal

d. Technological

e. Informational

1022. 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 chelidoneine. Name this plant:

a. Berberis vulgaris

b. Chelidonium majus

c. Atropa belladonna

- d. Papaver somniferum
- e. Hyoscyamus niger

1023. 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. Trimetazidine
- b. Nifedipine
- c. Metoprolol
- d. Amlodipine
- e. Nitrosorbid**

1024. Weibel's liquid is necessary to stabilize the solution of a certain substance. Name this substance:

- a. Glucose**
- b. Novocaine
- c. Potassium chloride
- d. Magnesium sulfate
- e. Sodium chloride

1025. What herbal raw material is used as an industrial source of tannins?

- a. Nettle leaves
- b. Cotinus coggygria leaves**
- c. Solidago canadensis grass
- d. Persicaria hydropiper grass
- e. Rose hips

1026. Hydrogen sulfide is being produced in the process of dry pyrolysis of a certain sulfanilamide drug. Name this drug:

- a. Sulfacil sodium
- b. Streptocide
- c. Sulfadimezinum (Sulfadimine)
- d. Soluble streptocide
- e. Norsulfazole**

1027. 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 expences or demand for the products?

- a. Demand-based pricing
- b. Breakeven pricing
- c. Competition-based pricing**
- d. Cost-based pricing
- e. Tender pricing

1028. 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. Simple lead bandage**
- c. Bactericidal adhesive bandage
- d. Adhesive bandage
- e. Pepper plaster bandage

1029. What structure is authorized to issue permits for individual or collective provision of audit services in Ukraine?

- a. The State Service of Ukraine for Medicines
- b. The Control and Revision Office
- c. The Audit Chamber of Ukraine**
- d. The State Service of Ukraine for Drug Control
- e. The State Regulatory Service of Ukraine

1030. 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. Written control
- b. Survey control
- c. Physical control**
- d. Chemical control
- e. Organoleptic control

1031. Select from the list a medical substance that is an indole derivative:

- a. Diazepam
- b. Dibazol (Bendazol)
- c. Glaucine hydrochloride
- d. Isoniazid
- e. Indometacin**

1032. 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. Glucose**
- c. Insulin
- d. Glibenclamid
- e. Metformin

1033. Benzocaine is a substance with local anesthetic activity. According to its chemical structure, it is a derivative of:

- a. n-Aminobenzene sulfonic acid
- b. n-Aminosalicylic acid
- c. n-Chlorobenzoic acid
- d. n-Aminophthalic acid
- e. n-Aminobenzoic acid**

1034. 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. Customer preferences
- b. Pricing policy of the competitors
- c. Manufacturing costs**
- d. Demand for the product
- e. Middleman markup

1035. What group of antibacterial agents is used as first-line drugs in treatment of uncomplicated community-acquired pneumonia in young people?

- a. Oxyquinolines
- b. Aminoglycosides
- c. Tetracyclines
- d. Nitrofurans
- e. Semisynthetic penicillins**

1036. 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

1037. A certain type of herbal raw material is being collected in spring during sap flow. Specify this

**material:**

- a. Flowers
- b. Buds
- c. Bark**
- d. Roots
- e. Infructescences

1038. A system of indicators characterizes financial and businesss activity of an organization and the state of its assets and sources on the certain day in the monetary unit. Name this system:

- a. Business transactions log book
- b. Receipts and expenditures report
- c. Balance sheet**
- d. Turnover balance sheet
- e. Double entry

1039. 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. Dilute the tincture with extractant to normal concentration**
- b. This kind of deviation is not important
- c. The tincture is a non-recoverable reject material
- d. Filter the tincture through adsorbent
- e. Precipitate excessive active substances

1040. A pharmaceutical company, wanting to strengthen its market position in a competitive environment, decided to use trademarks during the implementation of its product policy. What is the purpose of a trademark?

- a. Marketing research
- b. Determining the need for medicines
- c. Study of quantitative characteristics of the market
- d. Market segmentation
- e. Differentiation and protection of the company-produced medicines on the market**

1041. A man has bought nitroglycerine for sublingual administration in a pharmacy. He wants to know, what side effect might develop after taking this medicine:

- a. Dry cough
- b. Increased blood pressure
- c. Urinary retention
- d. Headache**
- e. Drowsiness

1042. What quality indicator is subject to additional control during the production of eye drops in the form of suspensions?

- a. Particle size**
- b. Dry residue
- c. Acid value and peroxide value
- d. Purification methods
- e. Moisture content

1043. An analytical pharmacist is testing a thiamine hydrobromide substance. What solution would the pharmacist use to determine sulfate impurities?

- a. Ammonium oxalate solution
- b. Barium chloride solution**
- c. Sodium benzoate solution
- d. Sodium nitrite solution
- e. Calcium chloride solution

1044. A pharmacy has received a batch of drugs according to the invoice. Who is authorized to conduct intake quality control when the goods arrive to the pharmacy?

- a. Employee appointed to this task by the head manager**

- b. Head manager
- c. Tax officer
- d. Officer of a local division of the state inspectorate for drug quality control
- e. Pharmacist