

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

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

2. 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. 40%
- b. 95%
- c. 70%**
- d. 60%
- e. 90%

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

- a. -
- b. PEST analysis
- c. VEN analysis
- d. ABC analysis
- e. SWOT analysis**

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

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

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

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

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

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

7. A pharmaceutical factory produces various types of tablets. What is the purpose of Soluble tablets?

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

8. Powder moisture content affects its:

- a. Particle shape

b. Flowability

- c. Particle size
- d. Solubility
- e. Homogeneity

9. 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

10. 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. White
- b. Turquoise

c. Red

- d. Blue
- e. Green

11. 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. Payment orders
- b. Payroll records
- c. Cash deposit and cash withdrawal receipts

d. Transactions log book

- e. Invoices

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

- a. Impurities
- b. Disintegration
- c. Dissolution

d. Abrasion resistance

- e. Uniformity of dosage

13. 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 Fehling reagent
- b. Reaction with iron(II) sulfate

c. Reaction with an alkali

- d. Reaction with ammonium iron(III) sulfate
- e. Reaction with Molisch reagent

14. What reagent is used to identify sodium sulfate?

- a. Cobalt chloride
- b. Silver nitrate

c. Barium chloride

- d. Iron(III) chloride
- e. Calcium chloride

15. 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. Ninhydrin

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

16. 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. Matrix tablet
- c. Liposome**
- d. Infusion therapeutic system
- e. Transdermal therapeutic system

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

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

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

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

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

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

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

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

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

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

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

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

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

- a. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (7:3)
- b. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (6:4)**

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

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

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

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

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

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

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

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

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

28. What medicinal substance has benzimidazole in its structure?

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

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

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

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

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

e. Distillation with inert gases

31. 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. Financial aid
- c. One-off payment

d. Basic pay

e. Bonus

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

a. 60%

b. 90%

c. 96%

d. 70%

e. 40%

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

a. Pyrrole and benzene

b. Benzene and thiazole

c. Benzene and pyridine

d. Pyrimidine and imidazole

e. Two 4-oxycoumarin residues

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

a. Selective

b. Sample

c. Bulk

d. Intensive

e. Exclusive

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

a. Sodium thiosulfate

b. 0.1 M sodium hydroxide solution

c. 0.1 M hydrochloric acid solution

d. Weibel stabilizer

e. Sodium bicarbonate with sodium sulfite

36. 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 alcohol

c. Dissolve in vaseline oil

d. Dissolve in minimal quantity of purified water

e. Dissolve in Dimexid (Dimethylsulfoxide)

37. An analytical chemist determines potassium ions admixture in a medicinal substance with sodium tetraphenylborate according to the State Pharmacopoeia of Ukraine. What analytical effect would confirm the presence of this admixture?

a. White opalescence

b. Yellow coloring

c. Blue coloring

d. Brown coloring

e. Pink coloring

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

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

39. Alkaloids are used in medical practice for treatment of various diseases. Based on its chemical composition, the following substance can be classified as a quinolizidine alkaloid:

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

40. 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. Cold
- e. Headache

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

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

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

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

43. 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. Tetracycline
- b. Norfloxacin
- c. Chloramphenicol
- d. Gentamicin
- e. Amoxicillin

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

- a. Glauicine hydrochloride
- b. Ergotamine
- c. Vinblastine
- d. Securinine nitrate
- e. Novopassit

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

- a. Suspensions

- b. Infusions
- c. Emulsions
- d. Ophthalmic dosage forms

e. Dosage forms for newborns

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

- a. Negative
- b. Hidden

c. Unsatisfied

- d. Irrational
- e. Satisfied

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

- a. Nitrofurantoin
- b. Resorcinol

c. Tyrosine

- d. Retinol acetate
- e. Sulfamethoxazole

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

- a. Nationwide, indirect
- b. Local, direct

c. Nationwide, direct

- d. Special
- e. Local, indirect

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

- a. Mixing
- b. Dosing

c. Dissolution

- d. Packing
- e. Comminution

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

- a. Fructus Hippocistidis
- b. Fructus Viburni

c. Fructus Rosae

- d. Fructus Ribis nigri
- e. Fructus Sorbi

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

a. Enzymatic hydrolysis of cardiac glycosides

- b. Volatilization of essential oils
- c. Oxidation of resins
- d. Oxidation of terpenoids
- e. Oxidation of phenolic compounds

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

- a. Yellow
- b. Blue

- c. Violet
- d. Green

e. Pink

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

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

e. Profitability

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

- a. Theophylline
- b. Theophylline ethylenediamine
- c. Theobromine

d. Caffeine

- e. Caffeine and sodium benzoate

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

- a. Lanatosides A and B

b. Purpurea glycosides A and B

- c. Atropine and hyoscyamine
- d. K-Strophanthin
- e. Convallatoxin

56. 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. Iodine

b. Perchloric acid

- c. Sodium nitrite
- d. Potassium bromate
- e. Sodium hydroxide

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

- a. Mixing in descending order, from larger to smaller volume
- b. Preliminary sifting
- c. Mixing in ascending order, from smaller to larger volume

d. The principle of <<three layers>>

- e. The dye is added last, after the mixture is prepared

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

- a. Bromphenol blue
- b. Phenolphthalein

c. Starch

- d. Murexide
- e. Diphenylcarbazone

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

e. Celecoxib

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

- a. Hydroxycoumarin esculin
- b. Furanochromon kelin
- c. Pyranocoumarin visnadin
- d. Free coumarin

e. Furocoumarin psoralen

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

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

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

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

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

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

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

- a. Yes, if approved by the head manager of the pharmacy
- b. Yes, with permit from the State Inspectorate
- c. No**
- d. Yes, with permit from the Pharmacopoeia Center
- e. Yes, it can sell all the batch that is already in its possession

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

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

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

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

67. 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. Flavonoids

- b. Atropine
- c. Papaverine
- d. Cytisine
- e. Lipids

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

- a. Papaverine
- b. Morphine

c. Caffeine

- d. Codeine
- e. Atropine

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

- a. Sulfanilamide
- b. Promedol (Trimeperidine)
- c. Papaverine hydrochloride
- d. Phenazepam

e. Epinephrine tartrate

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

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

e. Introduction as a suspension into the prepared emulsion

71. 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. Vicasol (Menadione)
- b. Streptokinase

c. Protamine sulfate

- d. Acetylsalicylic acid
- e. Clopidogrel

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

- a. Heart failure
- b. Kidney failure
- c. Pulmonary fibrosis
- d. Peptic ulcer disease

e. Angle-closure glaucoma

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

a. Tubatines

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

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

- a. Return the prescription to the pharmacy visitor
- b. Five years after the current one

c. Two months after the current one

d. Three years after the current one

e. One month after the current one

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

a. Boric acid

b. Sodium benzoate

c. Resorcin

d. Barium sulfate

e. Sodium chloride

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

a. Semina Hippocastani

b. Fructus Dauci carotae

c. Herba Meliloti

d. Fructus Ammi majoris

e. Fructus Pastinacae sativae

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

a. Declining

b. Negative

c. Satisfied

d. Excessive

e. Absent

78. What lubricants are used in tablet manufacturing?

a. Water, ethanol

b. Calcium stearate, stearic acid

c. Tween 80, Aerosil

d. Starch paste

e. Solutions of high-molecular compounds

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

a. Hydrocortisone acetate

b. Fluocinolone acetonide

c. Prednisolone

d. Dexamethasone

e. Triamcinolone acetonide

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

a. 1:20

b. 1:400

c. 1:5

d. 1:30

e. 1:10

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

a. Folia Vitis idaeae

b. Folia Cotini coggygriae

c. Folia Urticae

d. Herba Bursae pastoris

e. Folia Digitalis lanata

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

- a. Prednisolone
- b. Methylprednisolone
- c. Nimesulide
- d. Diclofenac sodium

e. Methotrexate

83. 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. -
- c. Intergroup
- d. Individual vs. group
- e. Interorganizational

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

a. Acidimetry

b. Complexometric titration

- c. Alkalimetry
- d. Nitritometric titration
- e. Bromometry

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

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

e. Motivation

86. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

a. 120^oC - 8 minutes

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

87. 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. Penicillin
- b. Ampicillin
- c. Azithromycin
- d. Ceftriaxone

e. Gentamicin

88. 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. Ongoing

- b. Preliminary
- c. Financial
- d. Final
- e. Social

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

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

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

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

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

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

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

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

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

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

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

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

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

96. The head manager of a pharmacy calls the manager of a pharmaceutical wholesaler to clarify the

terms of supply. What type of communication is it?

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

97. 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. Polysaccharides
- c. Cardiac glycosides
- d. Flavonoids
- e. Alkaloids

98. 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. Product promotion
- c. Lobbying
- d. Sponsorship**
- e. Publicity

99. 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. Unithiol (DMPS)**
- c. Methionine
- d. Naloxone
- e. Protamine

100. A patient with arterial hypertension, who takes captopril, was prescribed a potassium-sparing diuretic, spironolactone. What complication can develop in the patient due to this combination of drugs?

- a. Hypoglycemia
- b. Hyperkalemia**
- c. Hyponatremia
- d. Hypernatremia
- e. Hypocalcemia

101. 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. Urinary retention
- c. Drowsiness
- d. Headache**
- e. Increased blood pressure

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

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

103. A pharmacy has received the following formulation: Rp.: Spiritus aethylici 20 ml Resorcini 0.2

M.D.S. Wipe the affected skin areas twice a day. endtabular What is the optimal preparation technique in this case?

- a. Measure out the substance into a stand, measure out the solvent
- b. Measure out the solvent into a stand, measure out the substance
- c. Commminute the substance in a mortar, add the solvent
- d. Measure out ethyl alcohol into a vial for dispensing, measure out salicylic acid
- e. Measure out the substance into a vial for dispensing, measure out ethyl alcohol, shake the vial**

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

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

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

106. 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. Antibiotic malabsorption**
- c. Mutual potentiation
- d. Relative overdosage
- e. Acceleration of metabolism and excretion

107. 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. Potassium bromate solution
- c. Sodium nitrite solution
- d. Perchloric acid solution**
- e. Zinc sulfate solution

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

- a. Compaction (compression) coefficient**
- b. Compression value
- c. Bulk volume
- d. Flowability
- e. Porosity

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

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

110. Gastroduodenopathies are one of the most common complications of pharmacotherapy during

treatment with nonsteroidal anti-inflammatory drugs. What statement correctly describes the cause of their development?

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

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

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

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

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

113. 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. -
- b. Chief physician
- c. Pharmacy management
- d. Tax Inspectorate
- e. Local authorities

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

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

115. Money received for the goods sold are being transferred to the pharmacy from its outlet. What document must be drawn up by a cashier for the receipt of this monetary sum?

- a. Cash withdrawal order
- b. Payment order
- c. Cash receipt order
- d. Cashier's check
- e. Bank statement

116. 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. 1:10
- e. 1:30

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

- a. 1 year after the current one
- b. 2 years after the current one

c. 7 years after the current one

d. 5 years

e. 3 years

118. 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. Thiochrome test

b. Biuret test

c. Vitali-Morin reaction

d. Maltol test

e. Ninhydrin test

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

a. Radices Althaeae

b. Radices Ononidis

c. Rhizomata et radices Inulae

d. Radices Taraxaci

e. Rhizomata et radices Rubiae

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

a. Azo dye

b. Indophenol

c. Fluorescein

d. Murexide

e. Iodoform

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

a. Ferroin

b. Phenolphthalein

c. Tropeolin 00

d. Potassium chromate

e. Methyl orange

122. 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. Salbutamol

b. Oxeladin

c. Ambroxol

d. Butamirate

e. Codeine phosphate

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

a. Tender pricing

b. Cost-based pricing

c. Demand-based pricing

d. Breakeven pricing

e. Competition-based pricing

124. Analysis of work environment of a pharmaceutical company has detected there the following organizational features: dynamism, flexibility of management structure, self-checking, and

democratic communication. What type of adaptive organization structure is it?

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

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

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

126. A factory workshop producing suspensions and emulsions is going to develop the manufacture of new drugs. What mechanisms can be used for the ultrasound processing of drugs?

- a. Liquid whistle, magnetostrictive source**
- b. Centrifugal mixer with rotating housing
- c. Rotor-pulsation apparatus, dismembrator
- d. Disintegrator, electrical impulse plasmolyzer
- e. Disintegrator, liquid whistle

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

128. A pharmaceutical factory produces Thiamazole (Merkazolil) that is a medicinal substance with an antithyroid effect. Select from the list one of the initial compounds in its synthesis.

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

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

- a. Selective method**
- b. Mass sales method
- c. Integrated method
- d. -
- e. Intensive method

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

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

131. 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. Stimulating

d. Synchromarketing

e. Remarketing

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

a. Saponins

b. Polysaccharides

c. Alkaloids

d. Iridoids

e. Essential oils

133. 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. Glaucium flavum

d. Vinca minor

e. Chelidonium majus

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

a. Macleaya grass

b. Chelidonium grass

c. Vinca minor grass

d. Glaucium flavum grass

e. Belladonna grass

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

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

b. Resist changes in the organization

c. -

d. Are formed for the implementation of the manufacturing process

e. Have a clear formal structure

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

a. Glycerine

b. Dimethylsulfoxide

c. Vaseline (petroleum jelly)

d. Purified water

e. Glycerine-water solution

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

a. Monetary funds

b. Fixed assets

c. Authorized capital

d. Goods

e. Accounts receivable

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

a. Alkaloids

b. Toxic proteins

c. Cardiac glycosides

- d. Phenol-alcohols
- e. Glucosinolates

139. 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. Withdrawal syndrome
- b. Drug dependence
- c. Allergic response
- d. Dysbiosis

e. Idiosyncrasy

140. 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. Legal
- c. Medical
- d. Technological

e. Economic

141. 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. Divisional
- b. Line and staff
- c. Functional
- d. Matrix

e. Line

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

- a. Glandular hairs
- b. Secretory cells
- c. Essential oil glandules

d. Essential oil cavities

e. Glandular <<spots>>

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

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

e. To pay the salaries one day earlier

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

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

e. Cold infusion

145. 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

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

a. Nitrites

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

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

- a. Pectic materials
- b. Emulsifiers

c. Preservatives

- d. Solubilizers
- e. Thickeners

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

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

e. Ursodeoxycholic acid

149. 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. Toxic substances
- c. Narcotic substances
- d. Psychotropic substances
- e. Potent substances

150. 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. Technological
- b. Administrative
- c. Social and psychological
- d. Social and political

e. Economic

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

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

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

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

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

- a. Betula pendula
- b. Crataegus sanguinea

c. Calendula officinalis

d. Foeniculum vulgare

e. Tanacetum vulgare

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

a. Purified water

b. Chloroform

c. Peach-kernel oil

d. Ethanol

e. Vaseline

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

a. Starch

b. Methylcellulose

c. Protargol

d. Gelatine

e. Pepsin

155. 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 motivation

b. Personnel certification

c. Staff dynamics

d. Staff turnover

e. Job rotation

156. 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. Paracetamol

b. Celecoxib

c. Acetylsalicylic acid

d. Metamizole sodium

e. Ibuprofen

157. 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. 20%

b. 1%

c. 5%

d. 10%

e. 15%

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

a. $[\text{NH}_4]_2\text{C}_2\text{O}_4$

b. $\text{K}_2[\text{HgI}_4]$

c. FeCl_3

d. KMnO_4

e. K_2CrO_4

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

a. Sulfur

b. Novocaine hydrochloride

c. Starch

d. Menthol

e. Dermatol (bismuth subgallate)

160. 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. Xanthine cycle
- b. Pyridine cycle
- c. Naphthalene cycle

d. Steroid cycle

e. Imidazole cycle

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

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

b. Dry substance was dissolved in the infusion apparatus

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

d. Concentrated solution was added into the prepared extract

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

162. 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. Commercial court

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

c. Labour disputes committee (LDC)

d. The Ministry of Public Health of Ukraine

e. Trade union committee

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

a. Lyophilized

b. Hollow

c. Multi-layered

d. Porous

e. Dyed

164. A pharmacist prepares 100 ml of glucose solution. Specify the amount of Weibel's stabilizer necessary in this case:

a. 20 ml

b. 5 ml

c. 2 ml

d. 15 ml

e. 10 ml

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

a. One-level distribution channel

b. Direct distribution channel (zero channel)

c. Three-level distribution channel

d. Four-level distribution channel

e. Two-level distribution channel

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

a. Electrolyte action

b. Heating the extract

c. Dialysis

d. Extraction from one liquid using another

e. Ultrasound exposure

167. Aqueous lanolin consists of:

- a. 50 parts of anhydrous lanolin and 50 parts of water
- b. 80 parts of anhydrous lanolin and 20 parts of water
- c. 5 parts of anhydrous lanolin and 95 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**

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

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

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

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

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

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

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

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

- a. Alcoholic hydroxyl
- b. Aldehyde group**
- c. Ethoxy group
- d. Methoxy group
- e. Phenolic hydroxyl

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

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

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

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

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

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

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

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

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

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

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

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

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

180. 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

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

- a. Salt solutions based on iso- and hypotonic sodium chloride solutions**
- b. Cromoglicic acid preparations
- c. Beclomethasone preparations

- d. Essential oil-based preparations
- e. Xylometazoline preparations

182. 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. Lincomycin
- c. Ampicillin**
- d. Chloramphenicol
- e. Oxacillin

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

- a. Oak bark
- b. Thermopsis grass**
- c. Camomile grass
- d. Motherwort grass
- e. Althaea roots

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

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

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

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

186. 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. Headache**
- d. Nausea
- e. Vomiting

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

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

188. Polyethylene oxide base belongs to the following group:

- a. Emulsion
- b. Fat
- c. Hydrophobic
- d. Amphiphilic
- e. Hydrophilic**

189. 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 21.00 to 9.00
- c. From 20.00 to 9.00
- d. From 24.00 to 8.00
- e. From 22.00 to 6.00**

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

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

191. 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. Regulation
- d. Organization
- e. Planning

192. What preparation has an antacid effect?

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

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

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

194. 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 week**
- d. At least twice a month
- e. At least once a month

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

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

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

- a. Phenyl salicylate
- b. Acetylsalicylic acid
- c. Resorcinol
- d. Benzocaine**
- e. Chlorpropamide

197. The marketing department of a pharmaceutical factory determined that the demand for the echinacea syrup for kids greatly fluctuates in response to the smallest changes in its price. What type of demand is it?

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

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

199. 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. Capsules
- c. Lozenges
- d. Spray
- e. Suppositories**

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

- a. Technical regulations for the drug
- b. Extract from the State Register of Medicines
- c. Drug Quality Standard
- d. Written Control Passport
- e. Conclusion on the quality of the drug imported into Ukraine**

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

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

202. 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. Dispose of the shipment that contains questionable drugs
- b. Return the shipment to the manufacturer
- c. 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"**
- d. Allow sale of the drug shipment
- e. Draw up a Quality Assessment Report with the defects listed and allow sale of the drug shipment

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

- a. Beta-naphthol solution
- b. Cobalt nitrate solution
- c. Iron(III) sulfate solution
- d. Potassium permanganate solution
- e. Thiourea solution**

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

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

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

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

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

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

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

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

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

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

210. A thymol-containing herbal raw material is stored in the warehouse of a pharmaceutical

company. What are its proper storage conditions?

- a. Under CO₂-free conditions
- b. Under normal conditions
- c. In metal containers
- d. Under the temperature of -5 °C

e. Separate from the others

211. 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. 70% of the average salary
- c. 50% of the average salary

d. 100% of the average salary

- e. 60% of the average salary

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

- a. Paper boxes

b. Metal cylinders

- c. Packaging materials
- d. Glassware
- e. Glass-stoppered bottles

213. A herbal raw material was sent for analysis. The material consists of cylindrical pieces of roots of varying length, covered with a brown, longitudinally wrinkled bark. When peeled, the raw material externally varies in color from light yellow to brownish yellow and is light yellow and very fibrous on section. Its smell is faint. Its taste is sweet and slightly irritating. What herbal raw material is being analyzed in this case?

- a. Taraxacum roots

b. Glycyrrhiza roots

- c. Panax ginseng roots
- d. Berberis roots
- e. Aralia mandshurica roots

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

- a. Ranitidine

b. Bismuth subcitrate

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

215. 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. 750 000 UAH
- b. 3 000 000 UAH

c. 500 000 UAH

- d. 100 000 UAH
- e. 5 000 000 UAH

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

- a. 1 hour after a meal
- b. 2 hours before a meal
- c. Regardless of food intake

d. During eating

- e. 1 hour before a meal

217. What is the minimum permissible total area of a pharmaceutical sales point, according to the

current Licensing Requirements?

- a. No less than 30 m²
- b. No less than 50 m²
- c. No less than 18 m²**
- d. No less than 250 m²
- e. No less than 40 m²

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

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

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

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

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

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

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

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

223. There are certain legal requirements to the format of a prescription. Physicians that have a private practice must state the following in the upper left corner of a prescription form:

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

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

- a. Accountant
- b. Pharmacist

c. Packer

d. Head of a department

e. -

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

a. Sodium chloride solution

b. Collargol solution

c. 5% glucose solution

d. Nonaqueous solution

e. Burow's solution

226. 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. Dynamic sorption

b. Hydrodistillation

c. Enfleurage

d. Compression

e. Extraction

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

a. Oleum Persicorum

b. Oleum Cucurbitae

c. Oleum Cacao

d. Oleum Jecoris

e. Oleum Lini

228. 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. Warning that self-medication can be harmful to health

c. Comparison with other medical products

d. Reference to the drug as the most effective

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

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

a. Absence of heavy metals

b. The way in which it was obtained

c. pH value

d. Apyrogenicity

e. Absence of mechanical inclusions

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

a. *Styphnolobium japonicum*

b. *Leonurus*

c. *Hypericum*

d. *Atropa belladonna*

e. *Mentha*

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

a. Film advertising

b. Point-of-sale advertising

c. Out-of-home advertising

d. Souvenir advertising

e. Print advertising

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

- a. Fructus Sambuci nigrae
- b. Fructus Crataegi
- c. Fructus Aroniae melanocarpae**
- d. Fructus Sorbi
- e. Fructus Viburni

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

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

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

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

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

236. Each medical product that a pharmacy receives should have its quality certificate. How long should these certificates be kept by a pharmacy?

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

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

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

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

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

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

- a. Meliloti herba
- b. Tanacetii flores

- c. Crataegi flores
- d. Violae herba

e. Helichrysi arenarii flores

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

- a. Vortex filling
- b. Ultrasonic filling

c. Syringe filling

- d. Vacuum filling
- e. Chamber filling

241. 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. Polarimetry
- b. Polarography
- c. Refractometry

d. Spectrophotometry

- e. Photocolorimetry

242. 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. Pyridine
- b. Quinoline

c. beta-lactam

- d. Furan
- e. Phenothiazine

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

a. Saponins

- b. Tannins
- c. Coumarins
- d. Flavonoids
- e. Anthracene derivatives

244. 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. 40
- b. 10
- c. 30

d. 20

- e. 50

245. 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. Nephrotoxic
- b. Hepatotoxic
- c. Hematotoxic
- d. Neurotoxic

e. Chondrotoxic

246. 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. Slurring of the nuclei
- b. Polymerization
- c. Pelleting

d. Galvanization

- e. Coacervation

247. 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. -
- c. Diversification
- d. Modernization
- e. Survival

248. 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

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

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

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

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

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

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

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

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

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

254. Commercial and financial activity of the pharmacies can be measured using a system of parameters. What parameter can be described as the sum of sold goods per employee (taking the

average number of employees during the analyzed period)?

a. Labor productivity

b. Profitability

c. Price index

d. Stock of goods

e. Turnover

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

a. Dynamic viscosity

b. Angle of rotation

c. Refractive index

d. Optical density

e. Melting point

256. 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. Advertising

c. Public relations

d. Sales promotion

e. Personal selling

257. How should the rectal ointments be applied?

a. Applied to the external genitalia

b. Apply to the conjunctival mucosa

c. Apply to the nasal mucosa

d. Apply to the skin

e. Apply to the affected area of the anus

258. 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. Regional marketing

b. Functional marketing

c. Segment marketing

d. Product-based marketing

e. Combined marketing (matrix model)

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

a. Murexide test

b. Thalleioquin test

c. Ninhydrin test

d. Hydroxamate test

e. Iodoform test

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

a. Aerosil (fumed silica), polysorbate 80

b. Agar agar, alginic acid

c. Mixtures of sodium bicarbonate with tartaric or citric acid

d. Sodium bicarbonate, agar agar

e. Starch, alginic acid

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

a. Tropeolin 00

b. Phenolphthalein

c. Mordant black

- d. Ammonium iron (III) sulfate
- e. Potassium chromate

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

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

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

- a. Novocaine**
- b. Calcium chloride
- c. Sodium benzoate
- d. Potassium chloride
- e. Hexamethylenetetramine

264. 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. Magnesium
- b. Calcium
- c. Zinc
- d. Sodium**
- e. Potassium

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

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

266. Which of the plants listed below contain inulin?

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

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

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

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

269. In what capacity is benzyl alcohol used as a component of solutions for parenteral

administration?

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

270. 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. Appearance
- c. Pharmacological action
- d. Marking
- e. Trade dress

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

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

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

- a. Isoniazid**
- b. Acyclovir
- c. Doxycycline hydrochloride
- d. Benzylpenicillin (Penicillin G)
- e. Metronidazole

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

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

274. To increase its sales, the "Have a good day!" pharmacy introduced a discount system. According to this system if a customer buys 100 UAH worth of medical products, this customer receives 2% discount. What marketing communication has this pharmacy implemented?

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

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

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

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

- a. Thickeners

- b. Lubricants
- c. Antioxidants
- d. Fillers

e. Disintegrants

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

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

e. Sodium benzoate

278. 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. Acetic acid solution
- c. Hydrochloric acid solution
- d. Benzoic acid solution
- e. Nitric acid solution

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

a. 10 mL

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

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

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

e. Withdraw the medicines and send them for laboratory testing

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

a. Sugar, glucose, essential oils, menthol, fruit juice concentrates, indigo carmine, iron oxide, mannitol

- b. Starch, glucose, kaolinite, magnesium oxide, sodium bicarbonate
- c. Stearic acid, calcium and magnesium stearate, starch, talcum
- d. Purified water, starch glue, sugar syrup, gelatin, carboxymethylcellulose solution
- e. Methylcellulose, polyvinylpyrrolidone, acetylphthalylcellulose

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

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

e. On separate shelves and in separate shopwindows

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

a. Bromometry

b. Alkalimetry

c. Permanganatometry

d. Complexometric titration

e. Nitritometric titration

284. 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. Plan for improvement of the working conditions at the pharmaceutical facility

b. -

c. The process of distribution of duties between the technical level managers

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

e. The process of salary calculation for the sales department employees

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

a. After concentrated solutions

b. First

c. Before ethanol-containing liquids are added

d. Last, because of its essential oil content

e. After solid medicinal substances are dissolved

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

a. Cash cheque

b. Accounting form

c. Cash withdrawal receipt

d. Fiscal receipt for the goods sold (or services rendered)

e. Payment order

287. 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 twice in a week

c. No less than once in a shift

d. No less than once in a week

e. No less than twice in a month

288. Schedule of sanitation actions in pharmacies is regulated by the relevant regulatory acts. Cleaning day at a pharmacy must be scheduled at least once:

a. In a week

b. In 10 days

c. In a month

d. In 3 days

e. In 5 days

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

a. Cocoa butter

b. Butyrol

c. Vaseline (petroleum jelly)

d. Wax

e. Spermaceti

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

a. Phenolphthalein

b. Litmus paper

c. Phenol red

d. Eriochrome black

e. Starch

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

a. Platyphyllin

b. Papaverine

c. Drotaverine

d. Almagel (Algeltrate + magnesium hydroxide)

e. Simethicone

292. 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. Zopiklon

b. Tetracaine

c. Atropine sulfate

d. Tramadol

e. Nitrous oxide

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

a. Egg white

b. Heart of cattle

c. Lungs of cattle

d. Gastric mucosa of pigs

e. Pancreas of pigs or cattle

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

a. Dispensing medicines according to outpatient prescriptions

b. Dispensing over-the-counter medicines to the people

c. Dispensing medical products to outpatients

d. Dispensing extemporaneous medicines manufactured by a pharmacy according to the inpatient prescriptions

e. Dispensing prescription medicines to the people

295. 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. Compounding and production department

c. Department of finished dosage forms

d. Inventory department

e. Department of over-the-counter drugs

296. 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. Many-armed, two-armed, and simple hairs

c. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate

d. Simple capitate hairs

e. T-shaped hairs along the leaf margin

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

a. 0.04 g

b. 0.03 g

c. 0.05 g

d. 0.02 g

e. 0.1 g

298. According to ecological survey, a certain pharmaceutical manufacturer holds the first place among the local "green" industries. What marketing concept is chosen by this manufacturer in relations with its customers?

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

299. 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. Accounts receivable
- c. Reserves and expenses
- d. Circulating assets
- e. Equity capital**

300. 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 thiosulfate solution
- d. Sodium hydroxide solution**
- e. Potassium bromate solution

301. A pharmaceutical company produces medicinal syrups. What substances ensure the microbial stability of this dosage form?

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

302. 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. Consignees
- c. Dealers**
- d. Agents
- e. Brokers

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

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

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

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

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

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

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

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

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

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

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

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

309. 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. Sodium bromide**
- c. Potassium fluoride
- d. Sodium fluoride
- e. Sodium chloride

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

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

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

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

312. 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. Inspectorate for medicine quality control
- d. The Ministry of Health

e. Pharmacy

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

- a. 7.5 mL
- b. 10 mL**
- c. 3 mL
- d. 12.5 mL
- e. 6.25 mL

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

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

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

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

316. A regional pharmaceutical market has a large number of pharmaceutical companies, none of which is able to control the market prices. The companies offer interchangeable medicines. What type of market is it?

- a. -
- b. Pure monopoly market
- c. Oligopolistic market
- d. Limited monopoly market

e. Market with pure (free) competition

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

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

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

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

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

e. Zero-level channel

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

a. Nonsteroidal antiinflammatory drugs

b. Antimicrobial agents

c. Antiarrhythmic drugs

d. Anticholinesterase drugs

e. Glucocorticoids

321. Bank is a financial mediator in pharmacy's payments. Payment of taxes withheld from the employees' salary into the budget requires the following document:

a. Cash order

b. Payment order

c. Check payable in account

d. Accounting form

e. Cash register receipt

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

a. Nitroglycerine

b. Acetylsalicylic acid

c. Drotaverine hydrochloride

d. Propranolol

e. Dipyridamol

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

a. Direct compression without additional substances

b. Moulding

c. Direct compression with the addition of excipients

d. Wet granulation prior to compression

e. Dry granulation prior to compression

324. 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. Cash flow register

c. Commodity report

d. Inventory

e. Register of requisitions

325. 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. Supplier representative

c. Pharmacist on duty

d. Authorized person

e. Lawyer

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

a. Strict control procedure

b. Individualism

c. Focus on individual results

d. Strictly formalized management system

e. Collectivism

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

- a. Hydrocortisone acetate
- b. Prednisolone
- c. Prednisone

d. Betamethasone dipropionate

- e. Cortisone acetate

328. 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. Equity capital

c. Monetary funds

- d. Salaries payment
- e. Debt settlement with the creditors

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

- a. Paracetamol

b. Methionine

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

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

- a. Irradiation sterilization
- b. Dry-heat sterilization
- c. Sterile filtration through membrane
- d. Gas sterilization

e. Autoclave chamber with high-pressure saturated steam

331. A pharmacy has received a receipt for preparation of a dermatological ointment with a non-specified vehicle. What vehicle should be used in this case?

- a. Soap-glycerine base

b. Vaseline

- c. Lanolin
- d. Gelatin-glycerine gel
- e. Vaseline and lanolin

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

a. Hypokalemia

- b. Hypocalcemia
- c. Hyperkalemia
- d. Hypermagnesemia
- e. Hypernatremia

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

a. Decrease its melting point

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

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

- a. Lanolin: vaseline - 1:1

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. Vaseline For Eye Ointments
- e. 30 parts of lanolin - 70 parts of vaseline

335. 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. Adhesive bandage

d. Bactericidal adhesive bandage

e. Pepper plaster bandage

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

a. Organization culture

b. Staff leasing

c. Organization profitability

d. Product diversification

e. Business expansion

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

a. Infrared spectroscopy

b. Polarimetry

c. Nuclear magnetic resonance spectroscopy

d. Refractometry

e. Thin-layer chromatography

338. 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. Demarketing

b. Stimulation marketing

c. Conversion marketing

d. Remarketing

e. Synchromarketing

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

a. During the budding

b. During the shoot growth

c. Before the flowering

d. During the fruiting

e. During mass flowering

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

a. *Salvia officinalis*

b. *Calendula officinalis*

c. *Bidens tripartita*

d. *Frangula alnus*

e. *Eucalyptus globulus*

341. 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. 60%

b. 100%

c. 70%

d. 80%

e. 50%

342. The procedure for circulation of narcotic drugs, psychotropic substances, and precursors in pharmacies is regulated by law. Which one of the medicines listed below is a narcotic drug?

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

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

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

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

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

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

346. Herbal mixtures contain several types of comminuted or non-comminuted herbal raw material. What stage is NOT a part of herbal mixture production?

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

347. When analyzing the activity of the pharmacy, the pharmacy's head manager performed the following calculations: the manager subtracted the cost price of the sold goods from the proceeds from the sales of goods at retail prices. What indicator was calculated by the pharmacy's head manager?

- a. Commodity circulation
- b. Markups**
- c. Profit
- d. Profitability
- e. Expenses

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

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

- a. Physical condensation**

b. Dispersion with stirring

- c. Continental method
- d. Chemical condensation
- e. Solvent replacement method

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

- a. Panangin
- b. Metacycline
- c. Naphthyzin (Naphazoline)

d. Nitroglycerine

- e. Riboxin (Inosine)

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

- a. Financial activity

b. Manufacturing activity

- c. -
- d. Commercial activity
- e. Financial and credit activity

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

- a. Co-trimoxazole
- b. Ofloxacin
- c. Norfloxacin

d. Amoxicillin

- e. Gentamicin

353. 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. Pure monopoly
- c. Monopolistic competition
- d. Economic planning

e. Pure competition

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

a. Indophenol dye

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

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

a. Homogenization

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

356. Standard stactometer divides 1 ml of water into:

a. 20 drops

- b. 25 drops
- c. 15 drops

- d. 10 drops
- e. 30 drops

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

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

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

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

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

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

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

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

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

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

362. 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. Potassium bromate
- d. Hydrochloric acid
- e. Sodium hydroxide

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

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

364. 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. Investment
- c. Deposit
- d. Provisional

e. Current

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

a. 30 minutes at room temperature

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

366. 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. Business opportunities
- c. Attractiveness of the industry
- d. Competitive Intensity
- e. Market segments

367. What substance forms a film coating of tablets and can be dissolved only in intestinal juice?

a. Benzylaminocellulose

b. Acetylphthalylcellulose

- c. Paraaminobenzoate of sugars
- d. Sodium carboxymethyl cellulose
- e. Diethylaminomethylcellulose

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

- a. Increased effectiveness of antacids
- b. Decreased blood pressure
- c. Increased blood pressure

d. Reduced effectiveness of iron preparations

- e. Increased risk of hepatotoxicity

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

a. Sodium sulfate

b. Iron (III) chloride

- c. Silver nitrate
- d. Potassium permanganate
- e. Sodium nitrite

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

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

e. Zero-level channel

371. 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. Optical density

- d. Viscosity

e. Solution pH

372. 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. Nitrosorbid**
- e. Amlodipine

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

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

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

375. 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. Ethyl alcohol
- c. Purified water
- d. Spiritus saponatus**
- e. Peach oil

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

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

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

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

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

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

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

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

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

381. 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. 200 mg
- b. 500 mg
- c. 300 mg
- d. 400 mg
- e. 100 mg

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

- a. Consignee
- b. Dealer
- c. Commission agent
- d. Agent
- e. Broker

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

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

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

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

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

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

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

- a. Chondrotoxicity

b. Allergic response

c. Dysbiosis

d. Nephrotoxicity

e. Photosensitization

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

a. High-molecular compound solution

b. Emulsion

c. True solution

d. Opalescent mixture

e. Colloidal solution

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

a. Folia Urticae

b. Folia Eucalypti

c. Folia Uvae-ursi

d. Folia Menthae

e. Folia Farfarae

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

a. Alkalimetry

b. Complexonometry

c. Nitritometry

d. Iodometry

e. Bromatometry

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

a. Formation of poorly soluble chelate complexes

b. Prolongation of the effect of iron preparations

c. Faster absorption of the drug

d. Increased activity of the drug

e. Accelerated elimination of the drug

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

a. Metoprolol

b. Midecamycin

c. Sodium thiopental

d. Anaesthesin (Benzocaine)

e. Suprastin (Chloropyramine)

392. 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. High (stable)

b. Subsiding

c. Sluggish

d. Low

e. Downward

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

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

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

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

396. 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. Advertisment**
- b. Trademark
- c. Supply
- d. Communications
- e. Marketing

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

- a. Hydrochlorothiazide
- b. Atorvastatin**
- c. Nitroglycerine
- d. Nifedipine
- e. Lisinopril

398. To restore the demand for a traditional medicine, the manufacturer has improved its characteristics, increased advertising costs, reduced prices, and involved new intermediaries. What type of marketing is used in this case?

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

399. 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. Thymol and carvacrol

b. Apigenin and luteolin

c. Quercetin and rutin

d. Atropine and hyoscyamine

e. Arbutin and methyl arbutin

400. A pharmacy has received a prescription, written in an incorrect format. In this case, the dispensing chemist, tasked with the incoming control of the prescriptions, must do the following:

a. Give the patient a copy of the prescription

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

c. Register the prescription in the log book and sell this medicine to the patient

d. Sell this medicine to the patient

e. Notify the head manager of the pharmacy

401. 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. Franchising

b. Tender

c. Joint venture

d. Import

e. Direct investments

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

a. Five years

b. One year

c. Three years

d. One month

e. The prescription must be returned to the patient

403. A 10-year-old child was prescribed an antibiotic to treat pneumonia, after which the mother noticed deterioration of the child's hearing. What group of antibiotics could have caused such a complication?

a. Cephalosporins

b. Fluoroquinolones

c. Penicillins

d. Macrolides

e. Aminoglycosides

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

a. Synoestrol (Hexestrol)

b. Prednisolone

c. Retabolil (Nandrolone)

d. Adrenalin

e. Progesterone

405. 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. Tweezers

b. Sieve

c. Filter

d. Mortars

e. Scalpel

406. 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. Inulin**
- c. Fatty oils
- d. Slime
- e. Pectin

407. 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. Thermal stability
- c. Poor solubility in water
- d. Low solubility in water
- e. Volatility

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

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

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

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

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

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

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

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

- a. Water
- b. Aqueous-alcoholic solutions**
- c. Dichloroethane
- d. Chloroform
- e. Ammonia solution

413. What is the purpose of injectable tablets?

- a. Sublingual use
- b. Obtaining injectable solutions**

- c. Obtaining solutions for various pharmaceutical purposes
- d. Implantation
- e. Oral use

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

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

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

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

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

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

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

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

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

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

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

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

- a. Gentamicin sulfate
- b. Hydrocortisone acetate
- c. Tramadol, tablets**

- d. Retabolil (Nandrolone)
- e. Microfollin (Ethinylestradiol), tablets

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

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

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

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

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

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

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

425. A man came to a pharmacist and asked to recommend him a herbal tonic and adaptogen. What herbal raw material has such a pharmacological effect?

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

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

- a. Flavonoids
- b. Tannins
- c. Alkaloids
- d. Anthracene derivatives**
- e. Vitamins

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

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

e. Meropenem

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

a. Financial

b. Material

c. -

d. Special

e. Labor

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

a. Filling in a questionnaire

b. Preliminary interview

c. Submission of a resume

d. Telephone interview

e. Targeted selection interview

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

a. Ammonium ion

b. Arsenite ion

c. Carbonate ion

d. Nitrate ion

e. Acetate ion

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

a. Caffeine

b. Norfloxacin

c. Phenazone

d. Ampicillin

e. Chloramphenicol

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

a. Cosmetics

b. Over-the-counter medicines

c. Prescription medicines

d. Dietary supplements

e. Disinfectants

433. 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. Geographic

b. Psychographic

c. Socioeconomic

d. Demographic

e. Behavioral

434. 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. Study of quantitative characteristics of the market

b. Market segmentation

c. Marketing research

d. Determining the need for medicines

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

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

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

e. Flowers

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

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

d. Pyrogenic substances

e. Moisture

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

- a. Buckthorn bark
- b. Mint leaves
- c. Thermopsis grass
- d. Arctostaphylos leaves

e. Marshmallow roots

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

- a. Dysfunctional conflict
- b. Intrapersonal conflict

c. Interpersonal conflict

- d. Intergroup conflict
- e. Conflict between individual and group

439. Name the optimal vehicle for soluble vaginal suppositories:

- a. Hard fat
- b. Fat
- c. Cocoa butter
- d. Glycerine

e. Polyethylene oxide

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

- a. Vinblastine
- b. Gallic acid

c. Hyoscyamine

- d. Rutin
- e. Arbutin

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

a. Iron(III) hydroxamate

- b. Azo dye
- c. Diazonium salt
- d. Indophenol
- e. Berlin blue

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

- a. Talcum
- b. Glucose

c. Lactose

- d. Starch
- e. Sucrose

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

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

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

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

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

446. 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. Flavonoids
- b. Coumarins
- c. Polysaccharides
- d. Iridoids
- e. Vitamins

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

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

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

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

449. Pharmaceutical logistics is aimed at advertising, search for customers, entering into agreements, after-sales service, and transportation. What type of logistics is it?

- a. Manufacturing
- b. Information
- c. Procurement
- d. Human resources
- e. Sales

450. What drug is used to treat hyperthyroidism?

- a. Insulin
- b. Oxytocin
- c. Mercazolil (Thiamazole)
- d. Prednisolone
- e. Metformin

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

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

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

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

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

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

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

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

455. 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. Antispasmodics
- d. Expectorants
- e. Probiotics

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

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

457. 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. Green
- b. Yellow
- c. Creamy

d. Red-brown

e. White and amorphous

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

a. Material expenses of the manufacture

b. Adjuvants

c. WHO directives

d. Drug dosing equipment

e. Compliance with GMP regulations

459. 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. Cylinder

c. Sphere

d. Torpedo

e. Ovoid

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

a. To avoid prolonged contact with overlaying suspension

b. To prevent them from adhesion to each other

c. To speed up the process of applying the coating

d. To improve their appearance

e. They are not durable enough

461. A 35-year-old patient with tachycardia has been administered propranolol. Which of the following reactions may be caused by the use of beta-blockers?

a. Constipations

b. Drug dependence

c. Blood pressure rise

d. Bronchospasm

e. Cumulation

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

a. At least 65%

b. At least 30%

c. At least 40%

d. At least 20%

e. At least 50%

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

a. Essential and fatty oils

b. Anthracene derivatives and tannins

c. Iridoids and vitamins

d. Coumarins and phenol glycosides

e. Flavonoids and essential oils

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

a. Solution decoloration

b. Ammonia production

c. Precipitation and gassing

d. Precipitation

e. Color change from yellow to black

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

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

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

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

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

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

468. Bromatometry allows quantitative analysis of the following drug:

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

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

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

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

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

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

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

- a. Nitritometry
- b. Bromatometry**

- c. Iodometry
- d. Complexometry

e. Acidimetry

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

- a. Novocaine (procaine) solution
- b. Glucose solution
- c. Diprazine (promethazine) solution

d. Hexamethylenetetramine solution

- e. Aminazine solution

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

- a. Purified water
- b. Simple syrup
- c. 20% sodium bromide solution

d. Tincture of valerian

- e. Potassium bromide

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

a. Freshly prepared purified water

- b. Ethyl alcohol
- c. Demineralized water
- d. Mint water
- e. Water for injections

476. 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. Experiment

b. Survey

- c. Panel
- d. Observation
- e. Testing

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

- a. *Olea europaea*
- b. *Rubus idaeus*
- c. *Alnus incana*
- d. *Juniperus communis*

e. *Humulus lupulus*

478. 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. Economic
- b. Administrative
- c. Technological

d. Socio-psychological

- e. -

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

- a. Sodium hydroxide
- b. Calcium chloride
- c. Potassium ferrocyanide**

- d. Iron(II) sulfate
- e. Potassium bromide

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

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

481. 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. Legal's test**
- c. Mayer's test
- d. Dragendorff's test
- e. Reaction of sublimation

482. 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. Fetotoxic
- b. Teratogenic**
- c. Mutagenic
- d. Carcinogenic
- e. Embryotoxic

483. Manufacturer's marketing department detected negative demand for a certain goods. What would be the marketing task? What type of marketing should be applied?

- a. Demand increase, remarketing
- b. Demand leveling, synchromarketing
- c. Demand making, conversion marketing**
- d. Demand stimulation, promotional marketing
- e. Demand decrease, demarketing

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

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

485. Powders are a solid dosage form for internal or external use. What stage is textbfNOT a part of powder production?

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

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

- a. Starch
- b. Streptocid**

- c. Zinc oxide
- d. Bolus alba
- e. Talcum

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

a. Potassium chromate

- b. Calcium chloride
- c. Zinc oxide
- d. Sodium chloride
- e. Magnesium sulfate

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

- a. Nitritometry
- b. Acidimetry
- c. Alkalimetry

d. Argentometry

- e. Complexonometry

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

- a. Ascorbic acid
- b. Sodium hydroxide

c. Hydrochloric acid

- d. Sodium bicarbonate
- e. Sodium metabisulfite

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

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

e. Eye lotions

491. A woman with diabetes mellitus has injected herself with 30 units of insulin. After that she developed weakness and came to the pharmacy to ask for help. In the pharmacy she lost her consciousness and developed convulsions. What should she be given immediately?

- a. Glibenclamid
- b. Insulin
- c. Metformin
- d. Butamide (Tolbutamide)

e. Glucose

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

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

e. Bismuth subcitrate

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

- a. Purine
- b. Indole
- c. Acridine

d. Benzimidazole

e. Phenothiazine

494. 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. Chemical control

d. Organoleptic control

e. Physical control

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

a. Essential oil

b. Iridoids

c. Lipids

d. Saponins

e. Vitamins

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

a. Triamterene

b. Prazosin

c. Diltiazem

d. Furosemide

e. Bisoprolol

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

a. Once every 10 days

b. Once in a shift

c. Once every 3 days

d. Once in a week

e. Once every 5 days

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

a. Debit

b. Assets

c. Liabilities

d. Credit

e. Account

499. 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 high-frequency and microwave frequency current

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

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

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

e. Sterilization with flowing steam at 100°C

500. To minimize business risks, the board of directors of a pharmaceutical company decides to expand into a market of plant protection products. Such approach to risk management is called:

a. Intensification

b. Diversification

c. Insurance

d. Consolidation

e. Integration

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

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

502. An accountable person has received a sum of money from the pharmacy cash desk to buy a calculator. What document records the cash flow in such a transaction?

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

503. Thymol and carvacrol are the main active substances of *Thymus vulgaris*. They belong to the following class of bioactive substances:

- a. Alkaloids
- b. Iridoids
- c. Anthracene derivatives
- d. Essential oils
- e. Flavonoids

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

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

505. 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. Diclofenac sodium
- c. Atropine sulfate
- d. Drotaverine hydrochloride
- e. Enterosgel

506. Adrenergic drug adrenaline tartrate contains phenolic hydroxyls in its structure. What solution should be used to conduct a reaction for their detection?

- a. Sodium nitrate solution
- b. Magnesium sulfate solution
- c. Iron (III) chloride solution
- d. Potassium bromide solution
- e. Copper (II) sulfate solution

507. 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. Withdrawing sales proceeds for the transfer to the current account
- e. Payment for the goods purchased for the business needs

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

- a. Sodium citrate

b. Sodium sulfite

- c. Sodium acetate
- d. Sodium bromide
- e. Sodium chloride

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

a. Spectrophotometry

b. Permanganatometry

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

510. 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. 10.0
- c. 18.0
- d. 15.0
- e. 2.0

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

a. Pepsin

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

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

a. Methyl cellulose

b. Boric acid

- c. Polyvinyl alcohol
- d. Sodium chloride
- e. Hydrochloric acid

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

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

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

- c. Dissolve in the water free of redox substances
- d. Add equal amount of sodium chloride
- e. Dissolve in alkaline medium

514. 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. Goods turnover
- c. Profit
- d. Markup level
- e. Profitability

515. An analyst of a chemical laboratory had received a glucose substance for analysis. To check its quality he used a polarimeter. The analyst measured:

- a. Optical density
- b. Specific gravity
- c. Melting point

d. Angle of rotation

- e. Refractive index

516. Various admixtures are possible in the process of harvesting, drying, and primary processing of herbal raw material. Organic admixtures include:

- a. Glass fragments
- b. Soil particles
- c. Sand
- d. Metallic objects
- e. Non-harvested parts of the same plant**

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

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

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

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

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

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

520. 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 Expert Center of the Ministry of Health of Ukraine
- c. National Health Service of Ukraine**
- d. State Service of Ukraine on Medicines and Drugs Control
- e. State Fiscal Service of Ukraine

521. 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. Iron(III) chloride solution**
- c. Potassium hydroxide solution
- d. Ammonium chloride solution
- e. Sodium bicarbonate solution

522. To identify acetylsalicylic acid, the substance is subjected to alkaline hydrolysis. After acidification of the reaction mixture, acetic acid is formed, which can be detected using the reaction with ethanol in the presence of concentrated sulfuric acid. What reaction product causes the characteristic odor in this case?

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

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

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

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

525. *Berberis vulgaris* herbal raw material is a source of medicinal substances with cholagogic and hemostatic effect. What parts of this plant are harvested as a herbal raw material?

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

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

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

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

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

528. 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. Aflubin
- e. Arbidol (Umifenovir)

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

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

530. 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

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

- a. Nitritometry
- b. Argentometry
- c. Mercurimetry
- d. Bromometry**
- e. Complexometric titration

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

- a. They form as a result of interest, sympathy
- b. They form spontaneously
- c. They are created to implement the production process**
- d. They resist changes in the organization
- e. The group leader receives authority from the group

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

- a. 120 mL**
- b. 7.5 mL
- c. 60 mL
- d. 30 mL
- e. 90 mL

534. Mixture is a liquid dosage form for internal use. It is obtained by mixing two or more solid or liquid dosage forms in a solvent. If a mixture contains tinctures, they should be added:

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

535. The head manager of a pharmacy has transferred to the deputy head manager the authority to select the range of products for sale and make decisions about the nomenclature and amount of medicines and medical products to be purchased from suppliers and the terms of such purchase contracts. What is this action called in the management theory?

- a. Planning
- b. Control
- c. Motivation
- d. Delegation**
- e. Organization

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

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

537. 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. Lignin test**

- b. <<Silver mirror>> reaction
- c. Iodoform test
- d. Azo dye formation
- e. Hydroxamic reaction

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

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

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

540. 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. Goods report (Inventory change report)
- c. Goods received record book by item and supplier
- d. Cash receipt order**
- e. Goods received record book by groups of goods

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

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

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

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

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

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

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

- a. Make an insulin injection
- b. Give nitroglycerine sublingually
- c. Make an intramuscular injection of caffeine
- d. Introduce 0.1% adrenaline solution subcutaneously

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

545. 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. Cash cheque

b. Payment summary

c. Payment order

d. Cheque payable

e. Payment request and order

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

a. Reparative

b. Sedative

c. Hepatoprotective

d. Tonic

e. Antitumor

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

a. Steeping

b. Rolling

c. Dispersion

d. Pressing

e. Pouring

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

a. Cyclopentane iridoids

b. Complex iridoid alkaloids

c. Valepotriates

d. Secoiridoids

e. Common iridoids

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

a. Purification methods

b. Particle size

c. Dry residue

d. Acid value and peroxide value

e. Moisture content

550. 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. Social

b. Administrative

c. Personal

d. Legal

e. Criminal

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

a. Taste improvement

b. Improvement of the granulation process

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

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

e. Obtaining tablets of the required weight

552. The <<Violet>> pharmacy chain operates in the pharmaceutical market for over 20 years. In

difficult market environment, the company's management actively uses elements of crisis management, diversification, and attraction of investments. What component of the successful activity of the pharmaceutical organization does the company provide?

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

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

- a. Financial activity
- b. Commercial activity
- c. -
- d. Social responsibility**
- e. Manufacturing activity

554. 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

555. A 63-year-old man suffering from ischemic heart disease was diagnosed with angle closure glaucoma. What group of drugs is contraindicated in this case?

- a. beta-adrenergic blockers
- b. Nitrates**
- c. Anticoagulants
- d. Statins
- e. Calcium antagonists

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

- a. Behavioral approach
- b. Psychographic approach
- c. Geographical approach
- d. Demographic approach**
- e. -

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

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

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

- a. Streptocide
- b. Camphor**
- c. Vinilin (polyvinyl butyl ether)
- d. Anesthesin
- e. Benzoic acid

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

- a. Suspensions
- b. Infusion solutions

c. Ointments

d. Infusions and decoctions

e. Emulsions

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

a. Bromatometry

b. Photocolorimetry

c. Acidimetry in a non-aqueous medium

d. Nitritometry after alkaline hydrolysis

e. Alkalimetry

561. 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. 0.01 g

c. 0.05 g

d. 0.03 g

e. 0.04 g

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

a. Murexide

b. Indophenol

c. Thiochrome

d. Azo dye

e. Iodoform

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

a. Once every 10 years

b. Once every 5 years

c. Once every 2 years

d. Once every 3 years

e. Every year

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

a. Fluticasone

b. Salbutamol

c. Tiotropium bromide

d. Ipratropium bromide

e. Budesonide

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

a. Willow bark

b. Buckthorn bark

c. Oak bark

d. Ash bark

e. Birch bark

566. 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. Dormancy

b. Defoliation

c. Flowering

d. Sap flow

e. Fruiting

567. 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. Hydrochloric acid

b. Sodium metabisulfite

c. Sodium bicarbonate

d. Sodium hydroxide

e. Ascorbic acid

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

a. Omeprazole

b. Amoxicillin

c. Metronidazole

d. Bismuth subcitrate

e. Clarithromycin

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

a. Thermopsis grass, sodium bicarbonate, purified water

b. Thermopsis grass, purified water

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

d. Thermopsis tincture, purified water

e. Thermopsis grass, sodium chloride, purified water

570. 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. Summation

b. Cumulation

c. Potentiation

d. Tolerance

e. Dependence

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

a. Folia Menthae piperitae

b. Folia Salviae

c. Folia Eucalypti

d. Folia Absinthii

e. Folia Uvae ursi

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

a. Mixed

b. Combined

c. -

d. Vertical

e. Horizontal

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

a. Ninhydrin solution

b. Sulfosalicylic acid solution

c. Saturated sodium bicarbonate solution

d. Sulfuric acid solution

e. Barium hydroxide solution

574. A patient came to a pharmacy to buy a herbal antidepressant containing condensed anthracene

derivatives and flavonoids. What herbal raw material is used to make this drug?

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

e. *Hyperici herba*

575. 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. Ginkgosides
- b. Lanatosides
- c. *Purpurea* glycosides

d. Glucofrangulins

- e. Panaxosides

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

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

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

- a. Calcium chloride
- b. Potassium chloride
- c. Sodium sulfate

d. Iron(III) chloride

- e. Sulfuric acid

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

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

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

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

a. Osmolality

- b. Apyrogenicity
- c. Isotonicity
- d. Isoviscosity
- e. Isohydricity

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

- a. To create necessary adhesive force between particles

b. To make pills of a certain weight

- c. To improve the flowability of granular material
- d. To improve the taste
- e. To improve disintegration

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

- a. Stoichiometric coefficient
- b. Coefficient of viscosity
- c. Correction factor

d. Distribution coefficient

- e. Coefficient of surface tension

583. The personal qualities of the head of a pharmaceutical company are attractive to the subordinates who want to emulate their boss in everything. What form of power of the manager is observed in this situation?

a. Referent power

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

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

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

e. Supply department

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

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

e. 3 years

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

- a. Ammonia spirit-anise spirit drops
- b. Elixir pectoralis
- c. 1% citral alcohol solution
- d. Leonurus tincture

e. 30% hydrogen peroxide (Perhydrol)

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

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

- b. Medicine is available only for in-patient treatment
- c. Medicine is available only by prescription
- d. Medicine has entered the pharmaceutical market only recently and actual experience with its practical application is limited
- e. Medicine contains substances that require additional research into their activity and side-effects

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

- a. Management

- b. Marketing
- c. Sales
- d. Agreement

e. Market

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

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

e. Amoxicillin

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

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

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

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

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

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

e. Culture

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

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

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

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

595. 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. Alcoholic iodine solution
- c. Ciprofloxacin
- d. Isoniazid
- e. Rifampicin**

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

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

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

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

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

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

599. 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. Authoritarian**
- b. Collective
- c. Democratic
- d. Direct
- e. Liberal

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

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

601. 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. Direct marketing
- d. Merchandising
- e. Personal selling

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

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

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

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

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

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

605. *Thymus serpyllum* grass is harvested in Ukraine. At what stage of plant growth is this herbal raw material harvested?

- a. Before the flowering
- b. When the fruits are ripe
- c. During the flowering stage**
- d. Before the formation of green fruits
- e. After harvesting the fruits

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

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

607. 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. Complexometric titration
- b. Bromometry
- c. Cerimetry
- d. Acid-base titration in nonaqueous medium**
- e. Permanganatometry

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

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

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

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

610. A pharmaceutical company wants to strengthen its position in the competitive market environment. It decides to use brand names as a part of its trade policy. What is the purpose of a brand name?

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

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

- a. Marketing
- b. Intensification of commercial efforts
- c. Socio-ethical marketing**
- d. Production improvement
- e. Product improvement

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

- a. Basic bismuth nitrate**
- b. Camphor
- c. Streptocide (Sulfanilamide)
- d. Ethazole
- e. Sulfur

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

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

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

615. A dispensing chemist was hired to work a night shift at a pharmacy. What time is considered to be a night time according to the Ukrainian legislation currently in force?

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

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

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

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

a. Anthraquinones

b. Tannins

c. Iridoids

d. Glycosides

e. Alkaloids

618. What document is used during transactions with consumers, confirming the fact of sale or return of goods and the fact of receiving a payment or making a refund?

a. Cash book

b. Accompanying statement to the bag with cash

c. Request for a cash transfer

d. Transactions ledger

e. Fiscal cash receipt for the goods/services

619. 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. 1/40 of the percolator's volume per hour

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

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

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

620. 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. Saponins

b. Anthracene derivatives

c. Alkaloids

d. Slime

e. Flavonoids

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

a. 10

b. 5

c. 25

d. 20

e. 15

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

a. Herba Equiseti arvensis

b. Flores Tanacetii

c. Semina Sylibi

d. Flores Centaureae cyani

e. Flores Crataegi

623. 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. Retinol acetate

b. Ergocalciferol

c. Vicasol (Menadione)

d. Tocopherol acetate

e. Ascorbic acid

624. A pharmacy has been licensed for wholesale distribution of medicinal products. What sales operation belongs to a wholesale distribution?

a. Sale of over-the-counter drugs

b. Sale of ready-to-use drugs

c. Sale to other organizations for commercial use

- d. Sale of drugs to chronically ill patients
- e. Sale of extemporal dosage forms

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

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

626. 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. Hyoscyamine
- c. Reserpine**
- d. Vinblastine
- e. Atropine

627. 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. 50 days
- c. 126 days**
- d. 115 days
- e. 70 days

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

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

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

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

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

- a. Employees under 30
- b. Employees of retirement age
- c. Employees under 25
- d. -
- e. Employees under 18 (underage)**

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

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

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

made?

a. Seeds

b. Roots

c. Flowers

d. Leaves

e. Grass

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

a. Corriginents

b. Leavening agents

c. Antioxidants

d. Fillers

e. Thickeners

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

a. Because of low pH

b. Only because preservatives were added into the syrup

c. Because of high pH

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

e. Because of decreased surface tension between the solution and the microbial cell

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

a. Lyophilization

b. Ultraviolet radiation

c. Filtration

d. Hydrolysis

e. Boiling

636. 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. Phosphalugel (Aluminum phosphate)

b. Famotidine

c. Ranitidine

d. Almagel

e. Omeprazole

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

a. Sterility

b. Particle size

c. Transparency

d. Quantitative determination

e. Color

638. Suspension stability increases, when the substances that increase the viscosity of a continuous medium are introduced to a suspension. Specify a substance that has such a property:

a. Dimexide (dimethyl sulfoxide)

b. Purified water

c. Glycerine

d. Atropa belladonna tincture

e. Ethyl alcohol

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

a. Hypotension

b. Hypoglycemia

c. Constipation

d. Osteoporosis

e. Jaundice

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

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

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

- a. When 25% of employees from the original team leave the team
- b. Whenever a new employee joins the team
- c. When 50% of employees from the original team leave the team**
- d. When 30% of employees from the original team leave the team
- e. Whenever an employee leaves the team

642. Incoming medicines inspection is performed by an authorized employee. What is NOT a part of the responsibilities of this person?

- a. To check the pharmacy stock for low-quality or fake medicines
- b. To draw up orders for medicines and medical products, to conclude sales contracts**
- c. To draw up conclusions regarding inspection of incoming medicines
- d. To keep a roster of incoming medicines
- e. -

643. 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. Business planning
- d. Operational planning**
- e. -

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

- a. Hydrochlorothiazide
- b. Carvedilol
- c. Labetalol
- d. Lisinopril**
- e. Atenolol

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

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

646. 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. Economic management methods**
- c. Indirect control methods
- d. Legal management methods
- e. Psychosocial management methods

647. Which one of the listed drugs is a glycoside antibiotic?

- a. Cephalexin
- b. Polymyxin
- c. Erythromycin**
- d. Tetracycline
- e. Levomycetin (Chloramphenicol)

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

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

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

650. The marketing department of a pharmaceutical company conducts a field research of the pharmaceutical market. What method of information collection belongs to the field research?

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

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

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

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

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

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

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

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

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

c. Riboflavin powder should be sifted in advance

d. "Three layers" method

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

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

a. Public relations

b. Merchandising

c. Advertising

d. Lobbying

e. Personal sale

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

a. Thiopental sodium

b. Menthol

c. Polyvinylpyrrolidone

d. Midantan (Amantadine)

e. Piracetam

657. 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. Colchicine

b. Inulin

c. Ephedrine

d. Schisandrin

e. Capsaicin

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

a. Concentrated solutions for burette systems

b. Liquid ingestible antibiotics

c. Injection solutions with thermostable substances

d. 2% collargol solution for infants

e. Injection solutions with thermolabile substances

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

a. Directive

b. Authoritarian

c. Autocratic

d. Liberal

e. Democratic

660. 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. Coumarins

d. Iridoids

e. Flavonoids

661. 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. Economic analysis**
- c. Generation of the ideas
- d. Commercial manufacturing
- e. Test marketing

662. 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. Political
- d. Legal
- e. Technological

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

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

664. Nitroxoline with sodium hydroxide solution produces:

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

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

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

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

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

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

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

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

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

e. Controlled price

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

- a. Suspensions
- b. Emulsions

c. Powders

- d. Tablets
- e. Dried extract

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

- a. 90 000 UAH
- b. 2 000 UAH
- c. 60 000 UAH

d. 32 000 UAH

- e. 62 000 UAH

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

a. Violet

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

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

- a. Omeprazole

b. Dibazol (Bendazolum)

- c. Indometacin
- d. Phenazepam
- e. Vicasol (Menadione)

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

- a. Reaction with Fehling's reagent
- b. Reaction with iron sulfate

c. Reaction with an alkali

- d. Reaction with ammonium iron(III) sulfate
- e. Reaction with Dragendorff's reagent

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

- a. 54 mL
- b. 5 mL
- c. 10 mL

d. 20 mL

- e. 30 mL

675. 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. Matrix

b. Linear

- c. Productive
- d. Functional
- e. Adaptive

676. A doctor prescribed the drug simvastatin to the patient to correct hyperlipidemia. Why should

the selected daily dose be taken once in the evening?

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

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

678. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

- a. Galantamine hydrobromide
- b. Vincaton
- c. Digitoxin
- d. Vinblastine
- e. Ergotamine hydrotartrate**

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

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

680. 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

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

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

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

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

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

- a. Carbocysteine
- b. Bromhexine
- c. Ambroxol

d. Trypsin

e. Acetylcysteine

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

a. From -102° to -105°

b. From $+10^{\circ}$ to $+13^{\circ}$

c. From -48° to -51°

d. From $+50^{\circ}$ to $+56^{\circ}$

e. From $+0,2^{\circ}$ to $-0,2^{\circ}$

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

a. Anthraquinones

b. Flavonoids

c. Saponins

d. Vitamins

e. Tannins

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

a. Tax rate

b. Tax

c. Tax system

d. Tax concession

e. Subject to taxation

687. 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. Non-current assets

b. Current liabilities

c. Assets

d. Equity capital

e. Long-term liabilities

688. A pharmacy owner starts a business in the retail sale of medicines. What document allows the pharmacy owner to trade for cash in his pharmacy?

a. License for production of medicines

b. Quality certificate

c. -

d. Trade patent

e. State registration certificate

689. What variable of the internal environment of the "Provisor" pharmacy can be described as the ways of transformation of component materials (medicinal agents "an gross") into end product (various dosage forms)?

a. Human resources

b. Structure

c. Tasks

d. Technologies

e. Mission

690. 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. Ambroxol

b. Doxycycline

- c. Codeine phosphate
- d. Acetylcysteine
- e. Ascorbic acid

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

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

c. Metronidazole

- d. Dibazol (Bendazol)
- e. Camphor

692. A system of indicators characterizes financial and business activity of an organization and the state of its assets and sources on the certain day in the monetary unit. Name this system:

- a. Turnover balance sheet
- b. Receipts and expenditures report
- c. Business transactions log book

d. Balance sheet

- e. Double entry

693. 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. Meta-analysis

b. SWOT analysis

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

694. Pharmacy workers can receive an extra pay, if they combine several professions or positions, take upon themselves the duties of a temporarily absent employee, or have to manage an increased workload. In this case, the maximum possible bonus constitutes the following percentage of the employee's salary:

- a. 40%
- b. 10%

c. 50%

- d. 20%
- e. 30%

695. 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. Flax seeds
- b. Nigella seeds
- c. Plantago psyllium seeds
- d. Fenugreek seeds

e. Mustard seeds

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

- a. Advertising souvenirs
- b. -

c. Out-of-home advertising

- d. Postal cards and pamphlets
- e. Professional-targeted advertising

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

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

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

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

699. 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. High risk of allergic reactions
- b. Increased hepatotoxic action of aminoglycosides
- c. Increased ototoxicity of aminoglycosides**
- d. High risk of seizures
- e. Increased hematotoxicity of gentamicin

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

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

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

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

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

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

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

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

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

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

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

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

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

707. A doctor has prescribed a mixture containing several types of herbal raw material. Extracts of the following raw materials can be obtained in one infusion apparatus:

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

708. 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. Hydrogen sulfide
- c. Carbon(IV) oxide
- d. Sulfur(VI) oxide
- e. Formaldehyde

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

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

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

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

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

- a. To obtain tablets of a certain mass**
- b. To improve tablet breakup
- c. To improve the taste
- d. To improve granulate flowability

e. To improve adhesion of particles to each other

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

- a. Send the medicines back to the manufacturer
- b. Send the medicines to the nearest compounding pharmacy that employs a dispensing chemist
- c. Send the medicines back to the supplier

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

- e. Send the medicines to the Ministry of Health of Ukraine

713. 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. Phosphorylation

- b. Oxidation
- c. Hydroxylation
- d. Reduction
- e. Hydrolysis

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

- a. Corticosteroids
- b. Vicasol (Menadione)
- c. Heparin

d. Ferroplex

- e. Furagin (Furazidinum)

715. 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

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

a. Glutamic

b. Glutaconic

- c. Gluconic
- d. Hexanic
- e. Glyoxylic

717. Most types of herbal raw materials are stored dry. However, for juice production the factories receive fresh herbal material. Name one such plant that is processed fresh:

- a. Capsella bursa-pastoris
- b. Rosa canina
- c. Althaea officinalis

d. Plantago major

- e. Urtica dioica

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

a. 0.05

- b. 0.25
- c. 0.5
- d. 5.0

e. 0.025

719. What preparation has an antiemetic effect?

a. Metoclopramide

b. Aluminum phosphate

c. Sodium bicarbonate

d. Clarithromycin

e. Loperamide

720. 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 ofloxacin absorption

b. Increases antacid effectiveness

c. Decreases ofloxacin absorption

d. Increases risk of dysbiosis

e. Decreases antacid effectiveness

721. 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 ascending

b. Intra-level

c. Horizontal

d. Vertical descending

e. External

722. 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 white precipitate forms, which is insoluble in a diluted hydrochloric acid

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. An intense blue coloring appears

e. A pale yellow ether-soluble precipitate forms

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

a. In autoclave chamber with high-pressure saturated steam

b. Addition of buffer solutions

c. Filtration through membrane

d. Ultrasound

e. High frequency current

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

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

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

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

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

e. -

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

a. Mixed it with hot water and added cold water

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

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

d. Dissolved it in boiling water

e. Dissolved it in cold water and heated

726. 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. Pyridine
- e. Dimethyl formamide

727. A pharmacy has received a prescription written on an F-3 form. The dispensing chemist, tasked with the incoming control of the prescription, noted that it was missing certain mandatory details. Such prescription forms must always have the following:

- a. Doctor's personal seal and signature
- b. Signature of the head manager of the medical facility or signature of the deputy head manager for medical work
- c. Medical facility stamp, signature of the head manager of the medical facility, seal of the medical facility
- d. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility
- e. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility, seal of the medical facility

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

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

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

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

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

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

731. An analytical chemist during the identification of phenylephrine hydrochloride (mesaton) performed a reaction with a solution of iron(III) chloride, which resulted in a purple coloring. The presence of what functional group in the structure of the drug was confirmed as a result?

- a. Primary aromatic amino group
- b. Aliphatic amino group
- c. Carboxyl group
- d. Phenolic hydroxyl
- e. Ester group

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

- a. Lyophilization
- b. Extraction

- c. Rectification
- d. Sublimation

e. Recuperation

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

- a. Pharmacy head manager
- b. Dispensing chemist
- c. Analyst
- d. Supplier pharmacist

e. Authorized representative

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

- a. Ciprofloxacin
- b. Cefazolin

c. Gentamicin

- d. Clarithromycin
- e. Amoxicillin/clavulanate

735. Marketing department of the Public Company "Lugansk Chemical Pharmaceutical Factory" determined that the demand for a herbal cough remedy, manufactured for children as a syrup, fluctuates significantly within a year. Such demand is considered to be:

- a. Unrealized
- b. Irrational
- c. Incorrect
- d. Inadequate

e. Irregular

736. 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. Commercial activity

b. Social responsibility

- c. Charity
- d. Industrial activity
- e. Financial activity

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

a. Tannins

- b. Alkaloids
- c. Polysaccharides
- d. Flavonoids
- e. Iridoids

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

- a. Magnesium-containing drugs
- b. Simethicone

c. Aluminium-containing drugs

- d. Calcium carbonate
- e. Ranitidine

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

a. Residual

- b. External
- c. Equilibrium
- d. Free
- e. Osmotic

740. 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

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

- a. Preservative
- b. Solvent
- c. Plasticizer
- d. Emollient
- e. Solubilizer

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

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

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

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

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

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

745. A pharmacist prepares suppositories by pouring. Name the coefficient for substitution of fatty vehicle with glycerinated gelatin vehicle:

- a. 1.25
- b. 1.11
- c. 1.20
- d. 1.31
- e. 1.21

746. 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. Dispersible tablets
- b. Chewable tablets
- c. Modified-release tablets
- d. Effervescent tablets
- e. Soluble tablets

747. A pharmaceutical factory uses dragee machines to apply multiple layers of active substances and adjuvants to sugar granules. The end product of this process is the following dosage form:

- a. Dragee
- b. Microcapsules

- c. Dragee tablets
- d. Granules
- e. Spansules with polymer coating

748. 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. Complexonometry

b. Iodometry

- c. Nitritometry
- d. Permanganatometry
- e. Iodochlorometry

749. 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. Indophenol dye

d. Azo dye

e. Iron(III) hydroxamate

750. Xycaine quantitative content can be determined by means of argentometry (back titration). What indicator is required by this method?

a. Iron (III) ammonium sulphate

- b. Starch
- c. Bromphenol blue
- d. Sodium eosinate
- e. Potassium chromate

751. In the process of inpatient treatment of bronchial asthma, the patient was prescribed Euphylline (Theophylline) intravenously. What side effect of this drug must be managed first?

a. Cardiotoxicity

- b. Chondrotoxicity
- c. Hematotoxicity
- d. Hepatotoxicity
- e. Nephrotoxicity

752. The head manager of the "Ecopharm" pharmacy has entrusted the deputy head manager with some of his duties. The process when an executive partially transfers the authority to perform certain tasks to his or her subordinates is called:

a. Delegation of authority

- b. Dissolution of authority
- c. -
- d. Reduction of authority
- e. Withdrawal of authority

753. 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. Haemodes

b. Prednisolone

- c. Rheopolyglukin (Dextran)
- d. Penicillin
- e. Fresh frozen plasma

754. What property of the tablet mass determines the most how fast a matrix hole of the tablet press machine is filled?

- a. Humidity
- b. Relative density
- c. Bulk density

d. Porosity

e. Fluidity (flowability)

755. A pharmaceutical company produces a medicine under the brand name "Corglyconum". What herbal raw material is used in preparation of this drug?

a. Wormwood grass

b. Lily-of-the-valley grass

c. Buckthorn bark

d. Dandelion roots

e. Plantain foliage

756. Pharmacies can prepare medicines based on individual formulations. What makes up the retail price of such medicines?

a. Cost of ingredients and package

b. Cost of ingredients

c. Cost of the ingredients that make up this dosage form

d. Cost of labor and price markup

e. Cost of ingredients, package, and labor

757. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds with the following drug:

a. Quinocide

b. Nitroxoline

c. Dibazol (Bendazol)

d. Chingamin (Chloroquine)

e. Ofloxacin

758. 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. Solubility in fats

b. Ability to sublime

c. Amorphous state

d. Alcohol precipitation

e. Ability to change color depending on the pH of the medium

759. 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. Growth

c. Decline

d. Saturation

e. Introduction

760. 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. Idiosyncrasy

b. Sensitization

c. Withdrawal syndrome

d. Cumulation

e. Tolerance

761. A manager of a wholesale pharmaceutical company is responsible for relaying various tasks to the employees and supervises the fulfillment of assigned tasks. What management level corresponds with these duties?

a. Middle-level

b. Institutional

c. Technical

d. Top-level

e. Administrative

762. What pathological condition can develop during a long-term treatment with prednisolone?

- a. Myocarditis
- b. Pneumonia
- c. Pyelonephritis
- d. Gastrointestinal bleeding**
- e. Salivation

763. Local anesthetic benzocaine can be identified using the reaction of iron(III) hydroxamate formation. What functional group makes it possible to conduct this reaction?

- a. Esther group**
- b. Sulfamide group
- c. Aldehyde group
- d. Carboxylic group
- e. Ketone group

764. The extraction process consists of several stages. What is the final stage of the extraction process?

- a. Extraction of primary juice
- b. Mass transfer**
- c. Washing the herbal raw material with an extractant
- d. Maceration
- e. Dissolution

765. 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. Anthracene derivatives
- c. Flavonoids
- d. Essential oils
- e. Tannins**

766. Tween-80 is being introduced into an emulsion system. What is the role of Tween-80 in emulsions?

- a. Emulsifier**
- b. Antioxidant
- c. Preservative
- d. Taste correction agent
- e. Solvent

767. What amount of toxic substance and vehicle is contained in 10.0 of trituration (1:10)?

- a. 0.1 and 9.9
- b. 0.01 and 9.99
- c. 1.0 and 9.0**
- d. 0.5 and 9.5
- e. 0.05 and 9.95

768. The doctor prescribed a patient 100 ml of thermopsis grass infusion. How much of the dry concentrate of thermopsis grass (1:1) should the pharmacist measure out for this patient?

- a. 0.25 g**
- b. 0.5 g
- c. 0.2 g
- d. 0.1 g
- e. 0.3 g

769. A pharmacist needs to prepare eyedrops with pilocarpine hydrochloride. Specify the optimal isotonic agent in this case:

- a. Boric acid
- b. Glucose

- c. Sodium sulfate
- d. Sodium chloride**
- e. Sodium nitrite

770. Profitability is an economic parameter that characterizes the effectiveness of the pharmacy's commercial, financial, and manufacturing activity. What parameters are used to determine the profitability of sales?

- a. Profit turnover of goods**
- b. Turnover of goods wages
- c. Turnover of goods cost price of products
- d. Cost price of products liquidity
- e. Liquidity solvency

771. A dispensing chemist specifies the name of a herbal raw material, its mass, the area where it has been harvested, and the date of harvest. Name this procedure:

- a. Sorting of herbal raw material
- b. Harvesting of herbal raw material
- c. Standardization of herbal raw material
- d. Packing of herbal raw material
- e. Marking of herbal raw material**

772. *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. Grass
- b. Seeds
- c. Fruits
- d. Leaves and flower heads**
- e. Roots

773. Hydrogen sulfide is being produced in the process of dry pyrolysis of a certain sulfanilamide drug. Name this drug:

- a. Norsulfazole**
- b. Streptocide
- c. Sulfacil sodium
- d. Sulfadimezinum (Sulfadimine)
- e. Soluble streptocide

774. What type of loan does the pharmacy receive in the form of goods, and returns mainly in monetary form?

- a. Bank loan
- b. Term loan
- c. Commercial loan**
- d. Prolonged loan
- e. State loan

775. Direct argentometric titration using the Mohr method can be used for quantification of sulfathiazole (norsulfazole). What indicator is used in such analysis?

- a. Bromophenol blue
- b. Starch
- c. Methylene blue
- d. Potassium chromate**
- e. Tropeolin 00

776. 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. *Datura Stramonium*
- b. *Atropa belladonna*
- c. *Hyoscyamus niger*

d. *Solanum tuberosum*

e. *Solanum laciniatum*

777. 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. Polysaccharides

b. Alkaloids

c. Vitamins

d. Tannins

e. Flavonoids

778. What medicine would be most advisable for symptomatic treatment of constipation in pregnant women?

a. Bisacodyl

b. Ononis herbal medicine

c. Lactulose

d. Senadexine (sennosides A and B)

e. Macrogol

779. During the two years of working in his position, the pharmacist proved to be a responsible and efficient specialist. The pharmacy's head manager appointed him to the position of the head of the Extemporaneous Compounding Department. What is this type of personnel movement called?

a. Spiral (horizontal) rotation

b. Helical (vertical) rotation

c. Employee turnover

d. Mixed rotation

e. Recruitment

780. 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. Polarimeter

c. Refractometer

d. Viscometer

e. Spectrophotometer

781. A pharmacist prepares a suspension with a hydrophobic substance. What stabilizer is necessary for this dispersion system?

a. Sodium chloride

b. Nipagin (Methylparaben)

c. Boric acid

d. Methyl cellulose

e. Glucose

782. A pharmaceutical company produces liquid dosage forms. What principle is used in rotary pulsation apparatus to obtain an emulsion?

a. Ultrasonic dispersion

b. Mechanical dispersion

c. Solubilization

d. Coacervation

e. Maceration

783. 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. Tolerance

c. Psychological dependence

- d. Sensitization
- e. Physical dependence

784. When preparing a solution, the pharmacist used an additional technique - grinding in a mortar with water. What substance typically requires this technique?

- a. Calcium gluconate
- b. Boric acid
- c. Furacilin (Nitrofurantoin)
- d. Copper sulfate**
- e. Silver nitrate

785. What is the duration of the leave due to pregnancy and childbirth?

- a. 70 working days
- b. 59 working days
- c. 56 calendar days
- d. 126 calendar days**
- e. 90 calendar days

786. 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. Ketamine, 5% infusion solution, 2 ml №10
- b. Clonidine, ampoules, 1 ml of 0,01% solution №10
- c. Tramadol, capsules, 0,05 №10
- d. Phenobarbital, tablets, 100 mg №6
- e. Ascorbic acid, 500 mg №30**

787. A woman came to a doctor with complaints of heartburn. She has been taking diclofenac sodium for a long time due to diagnosed rheumatoid arthritis. What medicine can the doctor prescribe for the prevention of gastropathy?

- a. Omeprazole**
- b. Papaverine hydrochloride
- c. Metoclopramide
- d. Acetylsalicylic acid
- e. Clarithromycin

788. Powders made with a certain medicinal substance need to be prepared at a separate workplace, using separate scales and mortar. Name this substance:

- a. Ascorbic acid
- b. Glucose
- c. Zinc oxide
- d. Xeroform (bismuth tribromphenolate and bismuth oxide complex)**
- e. Magnesium oxide

789. To improve structural and mechanical properties of capsule shells, to ensure their proper elasticity and reduce their brittleness, the following substances are introduced into the gelatin mass:

- a. Thickeners
- b. Plasticizers**
- c. Pigments
- d. Stabilizers
- e. Preservatives

790. Medicinal dyes should be stored in a special cabinet. Which of the listed medical products is a dye:

- a. Ascorbic acid
- b. Ethyl alcohol
- c. Glucose
- d. Hydrogen peroxide
- e. Brilliant green**

791. How long can vasoconstrictors for symptomatic treatment of rhinitis be used?

- a. 5 weeks
- b. 1 month
- c. 3 weeks
- d. 5-7 days**
- e. 2 weeks

792. 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. Enzymatic agents
- b. Probiotics**
- c. Antacids
- d. Immunosuppressants
- e. Sorbents

793. A process dealing with drawing the documents, their processing, circulation and storage is called records management. If all documents circulate through one organization center, - the Office Desk, - then such system of records management is called:

- a. Specialized
- b. Decentralized
- c. Centralized**
- d. Mixed
- e. Referent

794. What type of marketing should be used if the demand for some medicines in the pharmaceutical market is negative?

- a. Remarketing
- b. Synchromarketing
- c. Incentive marketing
- d. Conversion marketing**
- e. Demarketing

795. What medicinal substance has an imidazole fragment in its structure?

- a. Phenazone
- b. Nicotinic acid
- c. Pilocarpine hydrochloride**
- d. Thiamine bromide
- e. Nitrofurantoin

796. The amount of temporary disability benefits to be paid is calculated taking into account the insured record of service of an employee. What percentage of temporary disability benefits will be paid to an employee with a disability certificate and more than 8-year-long insured record of service?

- a. 75% of salary
- b. 100% of salary**
- c. 50% of salary
- d. 60% of salary
- e. 90% of salary

797. At a pharmacy, the pharmacist makes vaginal suppositories. What is the permissible range of the average weight of such suppositories?

- a. 1.0-4.0 g
- b. 1.5-6.0 g**
- c. 3.0-7.0 g
- d. 4.0-7.5 g
- e. 2.0-6.5 g

798. What semi-synthetic antibiotic can be synthesized in the process of reaction between 6-aminopenicillanic acid and phenylaminoacetic acid chloranhydride?

- a. Amikacin
- b. Rifampicin
- c. Cephalexin
- d. Methacycline
- e. Ampicillin**

799. The following substance is used as an extractant in production of liquid extracts:

- a. Dichloroethane
- b. Chloroform
- c. Acetone
- d. Glycerine
- e. Ethanol**

800. Chemical analysis of *Helichrysum* flowers shows positive results of the cyanidin test. This reaction indicates the presence of the following class of compounds:

- a. Saponins
- b. Flavonoids**
- c. Polysaccharides
- d. Alkaloids
- e. Coumarins

801. 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. Insurance
- b. Liquidation
- c. Diversification**
- d. Indexation
- e. Bankruptcy

802. A pharmaceutical company develops the manufacture of new products. What part of the production procedures contains the description of the end product and lists its physical and chemical properties?

- a. Information materials
- b. Characteristics of the raw stock, materials, and intermediate products
- c. Characteristics of the end product**
- d. Description of the manufacturing process
- e. Characteristics of the auxiliary raw stock and materials

803. 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. Alkaloids
- b. Tannins
- c. Saponins**
- d. Fatty oil
- e. Anthracene derivatives

804. To determine the quantity of wild-growing medicinal plants, it is necessary to know their area of vegetation and yield per unit area. Yield of *Thymus serpyllum* grass can be determined by the following method:

- a. Permanent quadrat method
- b. Visually
- c. Projective cover method**
- d. Model sample method
- e. Geodesically

805. What method is used to prepare a suspension with basic bismuth nitrate?

a. Dispersion with turbidization

- b. Solvent substitution
- c. Chemical condensation
- d. Continental method
- e. Physical condensation

806. A pharmaceutical factory prepares syrups for taste-masking of medicines. What substance must be removed from such syrups to prevent jellification of the end product?

- a. Fructose
- b. Sucrose

c. Pectin

- d. Glucose
- e. Starch

807. 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. Goods
- b. Packaging

c. Buildings

- d. Monetary funds
- e. Herbal raw materials

808. 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. Poor feedback
- d. Nonverbal barriers

e. Semantic barriers

809. 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. McClelland's theory of needs

b. Vroom's expectancy theory

- c. Maslow's hierarchy of needs
- d. McGregor's Theory X and Theory Y
- e. Herzberg's two-factor theory

810. 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. Erythromycin
- b. Streptomycin sulfate

c. Levomycetin (Chloramphenicol)

- d. Sodium benzylpenicillin
- e. Biomycin

811. 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. Cashier's check
- b. Profit invoice
- c. Receipt for issuing money

d. Disbursement cash order

- e. Expense invoice

812. The head manager of Pharmacy №5 that belongs to the <<Hippocrates>> company was

transferred to be the head manager of Pharmacy №1 within the same network. What type of human resources movement is it?

- a. Horizontal rotation
- b. Diagonal rotation
- c. Mixed rotation
- d. Vertical rotation
- e. Employee turnover

813. A 12-year-old girl has been diagnosed with acute pyelonephritis. What antibacterial agent has an age limit for its prescription to a patient?

- a. Clarithromycin
- b. Amoxicillin
- c. Cefuroxime
- d. Benzylpenicillin sodium salt
- e. Levofloxacin

814. A doctor has prescribed pessaries of unspecified mass. What mass should be chosen when pessaries are being prepared in a pharmacy?

- a. 0,5
- b. 6,0
- c. 3,0
- d. 4,0
- e. 1,5

815. The management of a pharmaceutical company uses F. Herzberg's two-factor theory of motivation. What is this theory based on?

- a. The need for protection
- b. The need for existence, connection, growth
- c. Hygienic and motivational factors
- d. The need for safety
- e. The need for power, success, and affiliation

816. Pharmacy premises can be divided into service rooms and workrooms. Name the workroom for storage of medical products:

- a. Distillation room
- b. Material storage room
- c. Aseptic block
- d. Shop floor
- e. Washing room

817. Essential oil of a certain plant contains up to 80% of cineole. Specify the herbal raw material that is collected from this plant:

- a. Folia Absinthii
- b. Folia Melissa
- c. Folia Eucalypti
- d. Folia Menthae piperitae
- e. Folia Betulae

818. When activated charcoal is included into the combined therapy, the sorption of other medicines:

- a. Decreases
- b. Remains unchanged
- c. Accelerates
- d. Increases
- e. Activates

819. The tableting department of a pharmaceutical company begins to produce "fizzy" vitamin tablets. Name the groups of gas-producing leavening agents:

- a. Citric acid and aerosil (fumed silica)
- b. Ascorbic acid and aerosil (fumed silica)

- c. Tartaric acid and magnesium stearate
- d. Citric acid and magnesium stearate
- e. Tartaric acid and sodium bicarbonate**

820. 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. alpha-adrenergic blockers
- b. Ganglionic blockers
- c. Diuretics
- d. Calcium antagonists
- e. beta-adrenergic blockers**

821. According to the State Pharmacopoeia of Ukraine regulations, valine amino acid should be identified by means of thin-layer chromatography. To develop a chromatogram, the following reagent should be used:

- a. 2,4-Dinitrochlorobenzene
- b. 2,4-Dinitrophenylhydrazine
- c. Cyanogen bromide
- d. Ninhydrin**
- e. Concentrated ammonia

822. Name the document where the actual hours worked by the pharmacy employees are recorded:

- a. Medical certificate
- b. Payroll
- c. Work schedule
- d. Employee time sheet**
- e. Material aid log book

823. What drug, due to beta-lactam ring in its structure, has positive reaction with hydroxylamine hydrochloride solution in the presence of sodium hydroxide with subsequent addition of iron (III) chloride solution?

- a. Papaverine hydrochloride
- b. Dibazol (Bendazol)
- c. Phenazone
- d. Metronidazole
- e. Amoxicillin trihydrate**

824. 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. Direct investments
- b. Franchise
- c. Joint venture
- d. Licensing
- e. Export**

825. What medicinal substance is a derivative of morphinan?

- a. Pachycarpine hydroiodide
- b. Codeine**
- c. Quinine sulfate
- d. Cocaine hydrochloride
- e. Caffeine

826. 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. Budesonide
- b. Oxeladin
- c. Ipratropium bromide

d. Acetylcysteine

e. Fenoterol

827. 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. 10%

c. 2%

d. 20%

e. 30%

828. When obtaining individual substances, the choice of an extractant is determined mainly by its:

a. Pharmacological inertness

b. Thermostability

c. Cost

d. Anti-hydrolysis effect

e. Selectivity toward active substances

829. 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. Potassium permanganate solution

e. Iron(III) chloride solution

830. A woman suddenly developed an angina pectoris attack. To arrest the attack, she took a medicine that caused her a severe headache, facial hyperemia, and tachycardia. Such side effects are characteristic of the following group of drugs:

a. Calcium channel blockers

b. Nitrates

c. Antispasmodics

d. Alpha-adrenergic agonists

e. Beta-adrenergic antagonists

831. 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. Mucaltin

b. Ambroxol syrup

c. Infusion of Thermopsis grass

d. Ammonium chloride

e. Potassium iodide

832. What factor enables the extraction of maximum amount of alkaloids from the herbal raw material?

a. Certain value of the solution pH

b. Slight heating

c. Herbal raw material should be fresh

d. Preliminary processing of raw materials for their saturation with 96% alcohol

e. Intense heating

833. A 45-year-old man has been taking long-acting nitrates twice a day for a year. Currently the decrease in effectiveness of the pharmacotherapy is being observed. What side-effect can be suspected in the first place?

a. Progressing coronary atherosclerosis

b. Development of nitrate tolerance

c. Myocardial infarction

d. Progressing ischemic heart disease

e. Impairment of coronary circulation

834. 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. Atropine
- b. Acorone
- c. Azulene
- d. Acteoside

e. Aucubin

835. How long should the pharmacy keep a receipt for Morphin-ZN tablets, package №50?

- a. One year, not counting the current one
- b. One month, not counting the current one
- c. Five years, not counting the current one**
- d. Three years, not counting the current one
- e. The receipt form is not kept by the pharmacy

836. What packaging should the pharmacist use for a baby powder?

- a. Ordinary paper capsules
- b. Container with a lid that has holes in it**
- c. Wax paper
- d. Parchment
- e. Gelatin capsules

837. What should be used by an analytical chemist in the pharmacopoeial analysis of medicinal substances that contain iron(III)?

- a. Ammonium chloride solution
- b. Potassium permanganate solution
- c. Sodium nitrite solution
- d. Ammonia solution

e. Potassium thiocyanate solution

838. Name the official document on audit results, which is drawn under the standard procedure and contains conclusions about reporting credibility and integrity of financial statements of an organization:

- a. Balance sheet
- b. Income statement
- c. Statement of changes in equity
- d. Cash flow statement

e. Auditor's conclusion

839. A marketing consultancy was comparing various drugs containing salbutamol. It was using such parameters as the cost of a treatment course, width of a distribution channel, frequency of medications, etc. The consultancy was determining the:

- a. Market stability
- b. Quality of the drugs
- c. Competitiveness of the drugs**
- d. Life cycle stage of the drugs
- e. Novelty of the drugs

840. Several cholesterol gallstones are detected in the gallbladder of a woman. Choose the drug to dissolve and excrete the stones:

- a. Loperamide
- b. Ursodeoxycholic acid**
- c. Domperidone
- d. Papaverine
- e. Platyphyllin

841. During storage, suspension instability manifests itself as:

- a. Change of particles shape
- b. Dissolution of particles
- c. Sedimentation of particles
- d. Caking of particles
- e. Flocculation of particles

842. After a surgery, a man was receiving promedol (trimeperidine) for a long time. When this drug was discontinued, the patient developed psychic and somatic disturbances. What phenomenon is it?

- a. Steal syndrome
- b. Idiosyncrasy
- c. Tachyphylaxis
- d. Rebound effect
- e. Withdrawal syndrome

843. 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. Saturated sodium chloride solution
- d. Titrated hydrochloric acid solution
- e. Freshly prepared tannin solution

844. 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. Seasonal accumulation
- b. Single delivery
- c. Prior delivery
- d. Specific demand
- e. Current demand

845. Glucose substance was received for analysis. When heated with copper tartrate reagent (Fehling reagent), it produced a red precipitate, which indicates that its structure contains:

- a. Alcoholic hydroxyl
- b. Amide group
- c. Phenolic hydroxyl
- d. Ester group
- e. Aldehyde group

846. 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. Preliminary
- b. Financial
- c. Final
- d. -
- e. Current

847. 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. Testing phase
- b. Decline phase
- c. Market entry
- d. Maturity phase
- e. Saturation phase

848. A decoction of Bidens grass has an anti-allergic effect and is often used in pediatrics. What species of this plant is pharmacopoeial?

a. *Bidens tripartita*

b. *Bidens frondosa*

c. *Bidens cernua*

d. *Bidens aurea*

e. *Bidens radiata*

849. 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. Verapamil

b. Doxazosin

c. Bisoprolol

d. Enalapril

e. Propranolol

850. Calendula Ointment is placed on the shelf next to Dr. Theiss Calendula Ointment. What approach to the shelf layout is used in this pharmacy?

a. Seasonality

b. Among competitors

c. Doubling product facings

d. Corporate block layout

e. By package size

851. The essential oil of which plant contains chamazulene, which is formed during steam distillation from matricin?

a. *Arnica montana*

b. *Chamomila recutita*

c. *Inula helenium*

d. *Melissa officinalis*

e. *Valeriana officinalis*

852. One of the substances listed below is textbfNOT a vitamin:

a. Calcium pangamate

b. Calcium gluconate

c. Calcium pantothenate

d. Nicotinic acid

e. Ergocalciferol

853. A certain drug can be quantitatively assessed by means of direct alkalimetry in glycerine, mannitol, or other polyhydric alcohol medium. This drug is:

a. Benzoic acid

b. Glutaminic acid

c. Salicylic acid

d. Boric acid

e. Acetylsalicylic acid

854. 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. Calcium channel blockers

b. Angiotensin-converting-enzyme inhibitors

c. Imidazoline receptor blockers

d. Ganglionic blockers

e. Diuretics

855. Injection solutions are being produced in an ampoule workshop. Injection solution of ascorbic acid belongs to the following group of solutions:

a. Solutions of the salts formed by weak bases and strong acids

b. Solutions of the substances that need special purification

c. Easily oxidized solutions

- d. Solutions of the substances that cannot be thermally sterilized
- e. Solutions of the salts formed by strong bases and weak acids

856. What pharmacological group of drugs **CANNOT** be combined with expectorants?

- a. Antibacterial drugs
- b. Mucolytic agents

c. Antitussive drugs

- d. Decongestants
- e. Polyvitamins

857. Purpurea glycoside A and purpurea glycoside B are the main active substances of Digitalis purpurea. They belong to the following class of bioactive substances:

- a. Alkaloids
- b. Anthracene derivatives

c. Cardiac glycosides

- d. Phenolic compounds
- e. Flavonoids

858. At what cost will protargol nasal drops be dispensed at a pharmacy if a pediatrician prescribes it for treatment of a 2-year-old child?

a. Free of charge

- b. With 30% discount
- c. With 50% discount
- d. At full cost
- e. With 70% discount

859. During stock-taking at a pharmacy, a surplus of material goods was discovered. What should the inventory committee do with the discovered surplus?

- a. Elimination
- b. Confiscation
- c. Conducting an official investigation

d. Recording as received

- e. Writing off

860. 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. Acceleration of bioactive substances extraction
- b. Extending the shelf life of raw materials
- c. Reducing the content of ballast substances
- d. Prevention of hydrolysis of bioactive substances

e. Formation of biostimulants

861. A certain medicinal plant belongs to the Papaveraceae family. It produces a characteristic yellow milky sap and has choleretic, antiseptic, and diuretic properties. The main active substance contained in this plant is alkaloid chelidonine. Name this plant:

- a. Hyoscyamus niger
- b. Berberis vulgaris
- c. Atropa belladonna

d. Chelidonium majus

- e. Papaver somniferum

862. 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. Vertical integration

e. Growth strategy

863. Local anesthetics can fall into different chemical classes. Benzocaine is a drug that belongs to:

- a. Aromatic sulfo acid amides
- b. Aromatic amino acid amides
- c. Aromatic ketones

d. Aromatic amino acid esters

- e. Aromatic amino-aldehydes

864. What group of ointment bases vaseline (petroleum jelly) belongs to?

a. Hydrophobic bases

- b. Hydrophilic bases
- c. Adsorption bases
- d. Silicone bases
- e. Diphylic (amphiphilic) emulsion bases

865. The phytochemical workshop of a factory produces extraction preparations. For what purpose are concentrated extracts used?

- a. For preparation of dry extracts
- b. For preparation of tinctures

c. For quick preparation of infusions and decoctions in pharmacy practice

- d. To be used as ready-made medicines
- e. For preparation of thick extracts

866. A pharmaceutical company provides its employees with free lunches. What needs does it try to satisfy according to Maslow's theory of motivation?

- a. Esteem

b. Physiological

- c. Safety and protection
- d. Self-actualisation
- e. Social (involvement in the events)

867. A 60-year-old patient, who had suffered a myocardial infarction, was prescribed acetylsalicylic acid as an antiaggregant. Specify the optimal daily dosage of acetylsalicylic acid for antiaggregatory effect:

- a. 400 mg
- b. 500 mg

c. 100 mg

- d. 200 mg
- e. 300 mg

868. A dispensing chemist performs quantitative determination of nifedipine substance, using the method of cerimetry. What indicator should be used in this method, according to the State Pharmacopoeia of Ukraine?

- a. Bromphenol blue
- b. Methyl orange
- c. Potassium chromate
- d. Phenolphthalein

e. Ferroin

869. A pharmaceutical factory produces soft dosage forms. What soft dosage form melts at the body temperature?

a. Liniment

- b. Ointment
- c. Cream
- d. Gel
- e. Paste

870. To ensure the quality of medicines the pharmacy devotes much attention to quality control. The

following document is the quality assurance of a drug:

- a. Sanitary-epidemiological certificate
- b. Quality certificate**
- c. Certificate of compliance with hygiene regulations
- d. Registration certificate
- e. Sanitary passport

871. What herbal raw material is used for the industrial production of Quercetin medicine?

- a. Herba Violae tricoloris
- b. Fructus Hippophaes rhamnoides
- c. Fructus Sophorae japonicae**
- d. Flores Helichrysi arenarii
- e. Herba Polygonii avicularis

872. A certain pharmaceutical company is focused on the manufacture of medicines, while the sales play only a secondary role. What is the company's main type of business activity in this case?

- a. Leasing
- b. Manufacture**
- c. Insurance
- d. Finances
- e. Consulting services

873. A 67-year-old man with chronic heart failure takes digoxin. To reduce the side effects of digoxin, his doctor recommended him to combine this drug with:

- a. Potassium aspartate and magnesium aspartate**
- b. Euphyllin (Aminophylline)
- c. Hydrochlorothiazide
- d. Calcium chloride
- e. Calcium gluconate

874. 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. Reye syndrome
- c. Withdrawal syndrome
- d. Idiosyncrasy
- e. Anaphylactic reaction

875. Various types of glass are used in production of parenteral drugs. What type of glass is used for photosensitive substances?

- a. Neutral glass "HC-2A"
- b. Borosilicate neutral glass "УСП -1"
- c. Alkaline glass "АБ-1"
- d. Neutral glass "HC-2"
- e. Light-resistant neutral glass "CHC-1"**

876. 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. Bromination of the pyridine ring
- b. Oxidation of the hydrazine residue with potassium bromide
- c. Opening of the pyridine ring
- d. Reduction of the hydrazine residue with bromine
- e. Oxidation of the hydrazine group with bromine**

877. All business transactions at a pharmacy must be documented. What type of cash operation must be recorded with a receipt cash order?

- a. Advance salary payments
- b. Revenue of the pharmacy**

- c. Issuing cash sums to be accounted for
- d. Transfer of the revenue to the bank account
- e. Salary payments

878. The doctor has discontinued captopril for a 58-year-old patient diagnosed with arterial hypertension, because the patient has developed a complication. What side effect is the most likely cause for the discontinuation of this drug?

- a. Nausea
- b. Cough**
- c. Tinnitus
- d. Abdominal pain
- e. Vomiting

879. A patient needs eye drops with riboflavin. What substance should the pharmacist add to the solution to ensure its isotonicity, if there are no specific instructions in the doctor's prescription?

- a. Sodium chloride**
- b. Sodium sulfate
- c. Glucose
- d. Boric acid
- e. Sodium nitrate

880. Licorice roots contain saponins. What reaction can prove their presence in the herbal raw material?

- a. Molisch's test
- b. Foaming reaction**
- c. Fehling's test
- d. Reaction with iron(III) chloride
- e. Dragendorff's test

881. 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. Red coloring of urine
- c. Vomiting
- d. Ototoxicity**
- e. Decreased blood pressure

882. What group of antibacterial agents is used as first-line drugs in treatment of uncomplicated community-acquired pneumonia in young people?

- a. Aminoglycosides
- b. Oxyquinolines
- c. Semisynthetic penicillins**
- d. Tetracyclines
- e. Nitrofurans

883. 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. Diversification
- b. Consolidation
- c. Market penetration
- d. Product development
- e. Market development**

884. 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

885. 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. Thermopsis preparations
- b. Proteolytic enzymes
- c. Licorice root
- d. Ambroxol**
- e. Potassium iodide

886. Pyridoxine hydrochloride and cyanocobalamin are not recommended to be administered in the same syringe due to their chemical incompatibility. What type of chemical reaction occurs between these compounds?

- a. Complexation**
- b. Neutralization
- c. Reduction
- d. Hydrolysis
- e. Oxidation

887. 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. 41
- c. 40
- d. 17**
- e. 36

888. The ampoule workshop of a factory produces a 5% oil-based solution of tocopherol acetate for injections. What filling technique should be used to fill the ampoules with this solution?

- a. Syringe and vapor condensation
- b. Syringe**
- c. Syringe and vacuum
- d. Vapor condensation
- e. Vacuum

889. 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. Tetracycline
- b. Tinidazole
- c. Metronidazole
- d. Omeprazole
- e. Bismuth subcitrate**

890. Phospholipids are used in medicine in production of hepatoprotectors. What oil is a source of phospholipids?

- a. Oleum Ricini
- b. Oleum Amygdalarum
- c. Oleum Sojae**
- d. Oleum Cucurbitae
- e. Oleum Lini

891. 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. Reimbursement
- c. Pension benefit

d. Additional salary

e. Base salary

892. 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. Behavioral

d. Social and economic

e. Demographic

893. 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

894. What solution should be used by an expert at the laboratory of the pharmaceutical product certification center to identify the medicines that contain potassium ions?

a. Sodium hydroxide

b. Ammonium oxalate

c. Magnesium sulfate

d. Barium chloride

e. Sodium cobaltinitrite

895. What is the amount of the value added tax (VAT) on the medical products sold by a pharmacy.

a. 25%

b. 15%

c. 5%

d. 10%

e. 7%

896. Inulin improves digestion and has a positive effect on carbohydrate metabolism. What plant is used as a source of inulin?

a. *Althaea officinalis*

b. *Hypericum maculatum*

c. *Brassica juncea*

d. *Astragalus dasyanthus*

e. *Helianthus tuberosus*

897. What type of marketing should be used by a pharmaceutical company in a situation, when the demand for medicines declines?

a. Remarketing

b. Synchromarketing

c. Stimulational marketing

d. Conversion marketing

e. Evolving marketing

898. A patient with arterial hypertension has been taking a beta-blocker (bisoprolol) for a long time. After his condition improved, he suddenly stopped taking this drug, which caused a sharp increase in the blood pressure. What complication of the therapy has occurred in this case?

a. Dysbacteriosis

b. Reduced sensitivity

c. Bronchospasm

d. Bradycardia

e. Withdrawal syndrome

899. Capsaicin is the main active substance of *Capsicum annuum*. It belongs to the following class of bioactive substances:

- a. Alkaloids
- b. Anthracene derivatives
- c. Iridoids
- d. Phenolic compounds
- e. Flavonoids

900. Herbal raw material quality depends on the period when it was harvested. Subterranean organs - roots, rhizomes, subterranean tubers - should be harvested:

- a. During the period of vegetation
- b. Before the bloom
- c. In early spring or autumn
- d. During the bloom
- e. At the end of the bloom

901. 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. Tannin
- b. Copper sulfate
- c. Osarsol
- d. Pepsin
- e. Collargol (Colloidal silver)

902. In what order must alcohol-containing solutions be added into aqueous solutions during the preparation of liquid dosage forms?

- a. In the order of increasing volume of alcohol-containing solutions
- b. In the order of decreasing alcohol concentration
- c. In the order of increasing alcohol concentration
- d. In any order
- e. First into the vial for dispensing

903. According to the State Pharmacopoeia of Ukraine monograph, alkalimetry should be used for the quantitative determination of the nicotinic acid. What is used as an indicator in this case?

- a. Methylene blue
- b. Potassium chromate
- c. Calconcarbonic acid
- d. Phenolphthalein
- e. Sodium eosinate

904. 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. All of the listed
- d. Financial statement of the supplier
- e. Contract of delivery

905. A pharmaceutical company produces mint tincture. Technological process of making this tincture requires it to be made:

- a. With 48% alcohol in 1:2 proportion
- b. With 90% alcohol in 1:20 proportion
- c. With 70% alcohol in 1:5 proportion
- d. With 70% alcohol in 1:15 proportion
- e. With 70% alcohol in 1:10 proportion

906. 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. Fruits

- b. Rhizomes
- c. Roots
- d. Seeds

e. Leaves

907. 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. 0.25 g and 100 mL
- b. 10.0 g and 120 mL**
- c. 20.0 g and 140 mL
- d. 5.0 g and 110 mL
- e. 10.0 g and 100 mL

908. A pharmaceutical company has launched a number of cold relief medicines in the form of syrups and lozenges for kids. What type of market segmentation was used by this company?

- a. -
- b. Demographic**
- c. Psychographic
- d. Behavioral
- e. Geographical

909. 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. Furosemide
- b. Hypothiazide (Hydrochlorothiazide)
- c. Captopril**
- d. Amlodipine
- e. -

910. 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. Citric acid
- b. Salicylic acid
- c. Nicotinic acid**
- d. Benzoic acid
- e. Ascorbic acid

911. 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

912. A pharmacist has prepared a tincture from Adonis vernalis grass. What special technique was necessary in this case to extract the active substances?

- a. They must be extracted in a neutral medium**
- b. They must be extracted in an acidic medium
- c. They must be extracted in an alkaline medium
- d. They must be extracted in a weakly acidic medium
- e. They must be extracted in a slightly alkaline medium

913. 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. Papaverine hydrochloride
- b. Ambroxol
- c. Euphylline (Aminophylline)**
- d. Prednisolone
- e. Suprastin (Chloropyramine)

914. To identify a drug, an analytical chemist used the reaction of azo dye formation. What drug was being analyzed in this case?

- a. Pilocarpine hydrochloride
- b. Procaine hydrochloride**
- c. Papaverine hydrochloride
- d. Clonidine hydrochloride
- e. Morphine hydrochloride

915. A pharmacy has decided to obtain a license to make extemporaneous preparations. For this purpose it purchased a refrigerator, a cabinet dryer, and other industrial equipment. The purchased equipment belongs to the following type of assets:

- a. Non-negotiable tangible assets
- b. Fixed assets**
- c. Package
- d. Not accounted as assets
- e. Goods

916. Brassica juncea seeds are the raw material for the production of drugs with a distracting and warming effect. What class of bioactive substances causes such effect of the drugs?

- a. Polysaccharides
- b. Fatty oil
- c. Flavonoids
- d. Thioglycosides**
- e. Alkaloids

917. 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 other parts of the target plant
- d. Has first-degree vermin infestation
- e. Contains excessive moisture

918. The cholagogue derived from Rosa canina fruit is used in treatment of liver and gallbladder diseases. Name this drug:

- a. Chophtol
- b. Cholasas**
- c. Altan
- d. Phytolyt
- e. Allochol

919. A 43-year-old woman has come to a pharmacy with complaints of sharp headache in the occipital area, palpitations, "visual snow" in her eyes, nausea; her BP is 180/110 mm Hg. These symptoms correspond with:

- a. Cervical osteochondrosis
- b. Hypertensive crisis**
- c. Exertional angina pectoris attack
- d. Migraine attack
- e. Acute conjunctivitis

920. Every pharmacy as a business has its income and expenditure operations. What business transaction will result in a summary increase of stocked goods?

- a. Issuing money to be accounted for
- b. Goods receipt from the supplier**

- c. Debt recovery from a person accountable
- d. Money transfer from a bank to the cash desk
- e. Receipt of low-value wearing goods

921. 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. Survey
- c. -
- d. Panel
- e. Observation

922. How long must a pharmacy keep the documents that confirm the fact of sale of medicines and medical products?

- a. 3 years**
- b. 10 years
- c. 1 year
- d. 5 years
- e. 3 months

923. A pharmaceutical company lowered its price for a certain drug due to strong competition and decreasing demand for this drug. What is the purpose of such price policy?

- a. -
- b. To create the image of high-quality medicine manufacturer
- c. To gain leadership due to high quality of manufactured medicines
- d. To ensure business survival**
- e. To maximize profits

924. In the process of making an aqueous solution of protargol the pharmacist has used the following technology:

- a. Added the powder onto the water surface and waited until complete dissolution**
- b. Dissolved in cold water
- c. Dissolved during comminution
- d. Dissolved in purified water in a vial for dispensing
- e. Dissolved in warm water

925. 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. Proton pump inhibitors**
- c. Alpha-blockers
- d. Beta-blockers
- e. Glucocorticosteroids

926. A pharmacy customer complains of constricting, sometimes burning pain behind the sternum, with irradiation to the neck and left arm. The pain lasts for 5-10 minutes. What drug should be given to this customer for emergency aid?

- a. Isosorbide dinitrate
- b. Digoxin
- c. Nifedipine
- d. Nitroglycerine**
- e. Bisoprolol

927. To prepare decoctions with the volume of 1000-3000 ml, they should be infused in a boiling water bath for:

- a. 30 minutes
- b. 45 minutes
- c. 40 minutes**

- d. 15 minutes
- e. 25 minutes

928. *Helichrysum arenarium* herbal raw material has anti-inflammatory and choleretic effect. What parts of this plant are harvested?

- a. Fruits
- b. Grass
- c. Rhizomes
- d. Flowers**
- e. Roots

929. A pharmacist at the extemporaneous compounding department of a pharmacy has received a prescription for an infusion marked "Cito". How long such an aqueous extract must be infused in a water bath?

- a. 45 minutes
- b. 10 minutes
- c. 15 minutes
- d. 25 minutes**
- e. 30 minutes

930. Specify the control methods aimed at detecting mechanical impurities in parenteral solutions:

- a. Visual optical**
- b. NMR and UV-visible spectroscopy
- c. Limulus test
- d. Gravitational
- e. Amperometric

931. Who is responsible for the patient's condition in case of self-treatment?

- a. Patient**
- b. Drug manufacturer
- c. Head manager of the retail pharmacy
- d. Pharmacist
- e. Physician

932. 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. Paracetamol
- c. Dexamethasone
- d. Xylometazoline**
- e. Lactulose

933. Difference between the retail price of products sold and the margin determines:

- a. Breakeven
- b. Markup
- c. Income
- d. Production cost**
- e. Margin

934. 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. 40 000 UAH
- d. 15 000 UAH
- e. 30 000 UAH

935. A patient with atrophic hypoacid gastritis type A has been diagnosed with a complication in the

blood system - the development of B₁₂-deficiency anemia. What medicine is pathogenetically justified in this case?

- a. Pyridoxine
- b. Riboflavin
- c. Thiamine
- d. Cyanocobalamin**
- e. Nicotinic acid

936. An analytical chemist should use the following solution to identify sodium-containing substances:

- a. Potassium carbonate
- b. Sodium citrate
- c. Barium hydroxide
- d. Potassium pyroantimonate**
- e. Potassium permanganate

937. 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. Salicylic acid
- d. Acetylsalicylic acid**
- e. Sodium benzoate

938. A 36-year-old woman with herpetic rash on her lips has come to a pharmacy. Recommend her a drug for topical treatment:

- a. Amikacin
- b. Metronidazole
- c. Levofloxacin
- d. Acyclovir**
- e. Fluconazole

939. A pharmacist needs to prepare a trituration of platyphylline hydrotartrate (1:10). What filler would be optimal for making this trituration?

- a. Mannitol
- b. Rice starch
- c. Refined sugar
- d. Corn starch
- e. Lactose**

940. A pharmaceutical company produces Lugol's iodine solution. By type of solvent this solution belongs to the following group:

- a. Oil solutions
- b. Glycerine solutions**
- c. Alcohol solutions
- d. Chloroform solutions
- e. Water solutions

941. Identification of potassium iodide requires performing an oxidation reaction in acid medium, which produces free iodine that colors chloroform layer. What reagent is used for such a reaction?

- a. Ammonium oxalate
- b. Barium chloride
- c. Sodium carbonate
- d. Sodium nitrite**
- e. Silver nitrate

942. When a pharmacy restocks its medical products, the incoming products must undergo quality assessment. Who conducts the assessment in this case?

- a. An authorized person**
- b. A representative of the laboratory

- c. A financially accountable person
- d. A pharmacist
- e. The head manager of the pharmacy

943. A pregnant woman complains of elevated blood pressure up to 160/100. What hypotensive drug should she use in this case?

- a. Methyldopa**
- b. Enalapril
- c. Losartan
- d. Reserpine
- e. Bisoprolol

944. Optical rotation angle of substances is determined under the temperature of 20°C , in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ($\lambda = 589,3 \text{ nm}$), and is calculated with reference to a solution containing 1 g of the substance per ml. It is called:

- a. Specific optical rotation**
- b. Optical density
- c. Refractive index
- d. Distribution coefficient
- e. Relative density

945. What five-membered heterocycle is the basis of the structural formula of antiprotozoal and antibacterial drug metronidazole?

- a. Thiazole
- b. Imidazole**
- c. Furan
- d. Pyrazole
- e. Pyrrole

946. What is present in the structure of procaine hydrochloride, making its alkalimetric titration possible?

- a. Unsubstituted aromatic cycle
- b. Residue of n-aminobenzoic acid
- c. Ester bond
- d. Bound hydrochloric acid**
- e. Diethylamino group

947. A pharmacist prepares a compound powder. What medicinal substance must be comminuted without adding an adjuvant liquid (alcohol or ether)?

- a. Menthol
- b. Thymol
- c. Zinc oxide**
- d. Camphor
- e. Streptocide (Sulfanilamide)

948. 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. Verapamil
- c. Amlodipine
- d. Propranolol**
- e. Nitroglycerin

949. A pharmacy supplies with medicines various groups of patients. Children of what age group receive drugs for free during their outpatient treatment?

- a. From 3 to 6 years of age
- b. Under 3 years of age**
- c. Under 6 years of age
- d. Under 16 years of age

e. Under 10 years of age

950. Organizationally, a pharmacy is divided into separate departments: Prescription and Extemporaneous Medicines, Stock Department, and Over-the-Counter Medicines. What organizational management structure can be characterized by such a division?

a. Line and staff

b. Matrix

c. Linear

d. Functional

e. Divisional

951. Chromatographic methods are used in pharmaceutical analysis. What type of chromatography is based on reversible chemisorption of the ions of the analyte solution by the ionogenic groups of the sorbent?

a. Gas chromatography

b. Thin layer chromatography

c. Paper chromatography

d. Adsorption chromatography

e. Ion-exchange chromatography

952. 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. Economic

c. Psychosocial

d. Organizational

e. Simulation

953. 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. Ammonium hydroxide

b. Silver nitrate

c. Calcium chloride

d. Sodium carbonate

e. Sodium nitrite

954. 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. Yellow precipitate

b. Blue precipitate

c. Light green precipitate

d. White precipitate

e. Black precipitate

955. Passiflora incarnata grass contains a complex of indole alkaloids. What pharmacological group do Passiflora preparations belong to?

a. Wound healing agents

b. Antibacterial agents

c. Laxatives

d. Diuretics

e. Sedatives

956. What medicinal substance can be mixed with the powder mass without an additional comminution?

a. Camphor

b. Salicylic acid

c. Menthol

d. Streptocide (Sulfanilamide)

e. Starch

957. 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. Modernization

c. Diversification

- d. Integration
- e. Conglomeration

958. 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. Flavonoids
- c. Alkaloids
- d. Saponins
- e. Simple phenols

959. An analytical pharmacist quantifies the ascorbic acid substance using the iodometric method. What indicator must be used in the process?

- a. Bromophenol blue
- b. Murexide

c. Starch

- d. Phenolphthalein
- e. Methyl orange

960. When preparing compound powders, a pharmacist used the "three-layer" method. Which one of the listed substances is a dye?

- a. Camphor
- b. Protargol
- c. Streptocide (Sulfanilamide)

d. Ethacridine lactate

e. Sulfur

961. Benzocaine is a substance with local anesthetic activity. According to its chemical structure, it is a derivative of:

- a. n-Aminophthalic acid
- b. n-Chlorobenzoic acid
- c. n-Aminobenzene sulfonic acid

d. n-Aminobenzoic acid

e. n-Aminosalicylic acid

962. A 60-year-old patient diagnosed with ischemic heart disease developed bradycardia of 50 min. What drug will be contraindicated in this case?

a. Heparin

b. Propranolol

- c. Nifedipine
- d. Nitroglycerin
- e. Nitrosorbide (Isosorbide dinitrate)

963. 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. Concluding

- b. Concurrent
- c. -
- d. Financial
- e. Preliminary

964. 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. **Digitalis lanata**
- b. Strophanthus kombe
- c. Convallaria majalis
- d. Erysimum canescens
- e. Adonis vernalis

965. Name the drug of choice for treatment of arterial hypertension during pregnancy:

- a. Furosemide
- b. **Alpha-methyldopa**
- c. Captopril
- d. Propranolol
- e. Sodium nitroprusside

966. If a pharmacy plans to temporarily close for repairs or re-equipment, the State Service of Ukraine on Medicines and Drugs Control must be notified in advance no later than:

- a. Notification is optional
- b. **10 working days before the closure**
- c. 3 months before the closure
- d. 20 working days before the closure
- e. 1 month before the closure

967. 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. Indomethacin
- b. Nimesulide
- c. Acetylsalicylic acid
- d. Diclofenac sodium
- e. **Paracetamol**

968. 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. **Only the drugs from the list of approved procurements for budget-financed healthcare facilities**
- c. Any drugs registered for distribution in Ukraine
- d. Only vital drugs
- e. Only drugs produced domestically

969. 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. Methylene group
- e. Chloride ions

970. What oral hypoglycemic agent should be prescribed for a 47-year-old overweight patient with type 2 diabetes mellitus, if diet therapy is ineffective?

- a. Metoclopramide
- b. Metronidazole
- c. Meloxicam
- d. Metoprolol
- e. **Metformin**

971. To increase the tone and specific rhythmic activity of the uterus, a certain ergot alkaloids-based herbal drug is used. Name this drug:

- a. Atropine sulfate

- b. Papaverine hydrochloride
- c. Morphine hydrochloride
- d. Ergotamine hydrotartrate**
- e. Codeine phosphate

972. Oblong tablets are called:

- a. Pellets
- b. Forte tablets
- c. Caplets**
- d. Capsules
- e. Dragee

973. A pharmacy offers to its customers a chance to measure their blood pressure. What type of goods is it?

- a. Convenience goods
- b. Unsought goods
- c. Service**
- d. Specialty goods
- e. Nondurable goods

974. A pharmaceutical company produces tablets. Tableting by means of direct compression requires:

- a. No prior granulation**
- b. Formation of masses
- c. Application of hydraulic press
- d. Prior homogenization
- e. Prior granulation

975. 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. Material reward (bonuses, increments, pay rise)
- d. Meeting the cultural and social needs of employees
- e. -

976. 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 after complete cooling**
- b. Decoction is made and filtered immediately without cooling
- c. Infusion is made by means of cold maceration
- d. Infusion is made and acidated with hydrochloric acid
- e. Infusion is made in a slightly alkaline medium

977. Propellants are used in aerosols production. Specify the function of propellants:

- a. Dispersion
- b. Emulsification
- c. Create pressure in the package**
- d. Stabilization
- e. Action prolongation

978. During identification these active substances form precipitates in gelatin and alkaloid solutions and produce precipitates with heavy metal salts. These active substances are:

- a. Carbohydrates
- b. Tannins**
- c. Iridoids
- d. Glycosides
- e. Lipids

979. The presence of a primary aromatic amino group in sulfanilamide structure can be confirmed with a reaction that produces:

- a. Murexide
- b. Iodoform
- c. Azo dye**
- d. Fluorescein
- e. Diazonium salts

980. A pharmaceutical company produces belladonna tincture. In the process of standardization, excessive content of active substances was detected. How can this situation be remedied?

- a. Precipitate excessive active substances
- b. Filter the tincture through adsorbent
- c. Dilute the tincture with extractant to normal concentration**
- d. The tincture is a non-recoverable reject material
- e. This kind of deviation is not important

981. 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. Brilliant green
- b. Riboflavin
- c. Sulfur**
- d. Methylene blue
- e. Furacilin (Nitrofuril)

982. Solutions of protected forms of colloids are used in medical practice. What substance is a protected colloid?

- a. Potassium iodide
- b. Basic bismuth nitrate
- c. Camphor
- d. Sodium chloride
- e. Protargol**

983. Vinblastine and Vincristine demonstrate antitumor activity. Name the herbal raw material used in production of these medicines:

- a. Rhizomata Nupharis lutei
- b. Folia Catharanthi rosei**
- c. Herba Vincae minoris
- d. Folia Berberidis
- e. Herba Selaginis

984. The "Pharmastar" pharmaceutical company develops new dosage forms for its medicines. What type of product policy in marketing is it?

- a. Reduction
- b. Product modification**
- c. Diversification
- d. Modernization
- e. Differentiation

985. Cross-section of the leaf of a medicinal plant shows cystoliths and stinging hairs with a multicellular base and a large cell on the apex that ends in a widened tip that breaks off. What herbal raw material has such microscopic characteristics?

- a. Mentha piperita
- b. Urtica dioica**
- c. Origanum vulgare
- d. Atropa belladonna
- e. Capsella bursa-pastoris

986. Because of dissatisfaction with working conditions, a dispensing chemist has resigned of his own

free will from the pharmacy and found a job as a medical representative of a pharmaceutical company. Such movement of the personnel corresponds with the following concept:

- a. Staff rotation
- b. Recruitment
- c. -
- d. Staff turnover**
- e. Promotion

987. Camomile flowers are a popular medicinal substance in scientific medicine. What plant is the source of this herbal raw material?

- a. *Anthemis cotula*
- b. *Chamomilla recutita***
- c. *Tripleurospermum inodorum*
- d. *Leucanthemum vulgare*
- e. *Anthemis arvensis*

988. What indicator is used in iodometry for quantitative determination of caffeine in caffeine and sodium benzoate?

- a. Methyl orange
- b. Potassium chromate
- c. Starch**
- d. Eriochrome black
- e. Bromthymol blue

989. 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. Bronchospasm
- b. Dysbacteriosis
- c. Withdrawal syndrome**
- d. Reduced sensitivity
- e. Bradycardia

990. A pharmaceutical company focuses on selling a diverse range of products covering different customer groups and regions. What kind of organizational structure is typical for such company?

- a. Centralized
- b. Bureaucratic
- c. Decentralized
- d. Functional
- e. Divisional**

991. Quality of dried extracts is assessed according to several criteria. Specify the highest acceptable amount of moisture in dried extracts according to the State Pharmacopoeia of Ukraine:

- a. 95%
- b. 20%
- c. 25%
- d. 75%
- e. 5%**

992. Production of tablets requires stage-to-stage quality control. What devices are used to determine the particle size distribution (fraction) of granules?

- a. Friabilators
- b. Microscope
- c. Standard set of sieves**
- d. Various vibrosieves
- e. Laboratory identifiers

993. What antacid can cause constipations, osteoporosis, and encephalopathy when taken for a long period of time?

- a. Sodium alginate
- b. Sodium bicarbonate
- c. Aluminium hydroxide**
- d. Calcium carbonate
- e. Magnesium oxide

994. When preparing dermatological ointments the following substance should be introduced by suspending:

- a. Ephedrine hydrochloride
- b. Xeroform**
- c. Menthol
- d. Protargol (silver proteinate)
- e. Camphor

995. What is the name of the ability to restore the properties of a heterogenous system by perturbation?

- a. Granulation
- b. Resuspension**
- c. Extraction
- d. Emulsification
- e. Dispersion

996. Phenyl salicylas can be identified by the smell of phenol that is produced when the following is added into the preparation:

- a. AgNO₃
- b. NaCl
- c. CuSO₄
- d. H₂SO₄**
- e. CoCl₂

997. A pharmaceutical factory produces suppositories with hydrophilic bases. What parameter is measured during standardization of such suppositories?

- a. Dissolution time**
- b. Resuspension
- c. Mechanical strength
- d. Dry residue
- e. Boiling point

998. What effect will anthracene derivatives have, if -OH- groups are located in both benzene rings of anthraquinone?

- a. Litholytic
- b. Sedative
- c. Diuretic
- d. Choloretic
- e. Laxative**

999. A pharmacist prepares an oil emulsion with menthol. How should menthol be introduced in this case?

- a. Menthol should be dissolved in oil**
- b. Menthol should be comminuted with the emulsifier
- c. Menthol should be dissolved in the purified water
- d. Menthol should be introduced as a suspension into the prepared emulsion
- e. Menthol should be comminuted in a mortar with ethanol

1000. A 43-year-old patient was delivered to an admission room with renal colic attack. What group of drugs would be the most effective during the attack?

- a. Hepatoprotectors
- b. Antacids
- c. Antispasmodics**

- d. Antibiotics
- e. Chologogues

1001. Genetically induced adverse reaction to a certain drug is caused by various enzyme defects. Name this reaction:

- a. Idiosyncrasy**
- b. Withdrawal syndrome
- c. Rebound effect
- d. Steal syndrome
- e. Dysbiosis

1002. 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. Overtime**
- e. Nightshift

1003. A folic acid molecule has a heterocyclic system, consisting of two condensed heterocycles - pyrimidine and pyrazine. Name this system:

- a. Purine
- b. Phenothiazine
- c. Pteridine**
- d. Corrin
- e. Isoalloxazine

1004. 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. Diphenylamine solution**
- b. Glyoxal-hydroxyanil solution
- c. Lanthanum(III) nitrate solution
- d. Chloramine solution
- e. Thiourea solution

1005. A pharmacist has prepared a compound ointment. What is the correct sequence of its preparation?

- a. Solution - emulsion - suspension
- b. Solution - suspension - emulsion
- c. Suspension - solution - emulsion**
- d. Emulsion - solution - suspension
- e. Emulsion - suspension - solution

1006. Galenical preparations include:

- a. Spansules
- b. Tinctures**
- c. Granules
- d. Capsules
- e. Aerosols

1007. 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 aviculare
- b. Polygonum bistorta**
- c. Polygonum hydropiper
- d. Polygonum alpinum
- e. Polygonum persicaria

1008. 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 beta₂-adrenergic agonists
- b. Inhaled glucocorticosteroids**
- c. Inhaled muscarinic antagonists
- d. Mucolytics
- e. Herbal antiseptics

1009. According to the State Pharmacopoeia of Ukraine, an analytical chemist can determine sulfate admixtures in sodium tetraborate by the effect of white opalescence that results from its reaction with the following solution:

- a. Magnesium sulfate
- b. Barium chloride**
- c. Ammonium oxalate
- d. Sodium sulfide
- e. Silver nitrate

1010. A certain drug explodes when heated to 180°C or upon impact and, therefore, must be handled carefully during receipt and storage. This drug is:

- a. Calcium chloride
- b. Nitroglycerine solution**
- c. Barium chloride
- d. Activated carbon
- e. Alcoholic iodine solution

1011. What substance can be synthesized as a result of the condensation of 5-nitrofurfural with semicarbazide?

- a. Metronidazole
- b. Nitroxoline
- c. Nitrofural (Nitrofurazone)**
- d. Norfloxacin
- e. Phthalazole (Phthalylsulfathiazole)

1012. Various types of dryers can be used for granule dehumidification. Specify the type of "СП-30" dryer:

- a. Infrared dryer
- b. Forced air dryer
- c. Silica gel dryer
- d. Freeze dryer
- e. Fluidized bed dryer**

1013. What is the name of the settlement document printed by the registrar of settlement operations, when making settlements for the goods sold or services provided?

- a. Receipt
- b. Sales receipt
- c. Invoice
- d. Cash register fiscal receipt**
- e. Settlement receipt

1014. A pharmaceutical manufacturer sets the price for a drug basing on its prime cost with premium. What model of pricing is it?

- a. Breakeven
- b. Demand-based
- c. Cost-based**
- d. Competitive
- e. Supply-based

1015. A pharmaceutical company produces animal-derived biostimulants. Solcoseryl preparation is obtained from the following raw material:

- a. Bovine blood
- b. Human blood
- c. Bovine spleen
- d. Velvet antlers
- e. Bovine trachea

1016. A patient diagnosed with acute rhinitis was using xylometazoline drops. After 7 days of treatment, the patient notes that the effect of the medicine decreased and was not restored after an increase in the dosage. What medical term characterizes a sudden decrease in the sensitivity to a medicine?

- a. Synergism
- b. Withdrawal syndrome
- c. Antagonism

d. Tachyphylaxis

- e. Tolerance

1017. The medicinal plants of the Fabaceae family contain various groups of bioactive substances. What representative of this family contains flavonoids and is used as an industrial source of rutin?

- a. *Ononis arvensis*

b. *Styphnolobium japonicum*

- c. *Bidens tripartita*
- d. *Glycyrrhiza glabra*
- e. *Thermopsis alterniflora*

1018. What antibacterial drug is most effective against chronic gastritis associated with *Helicobacter pylori* infection?

a. Clarithromycin

- b. Levomycetin (Chloramphenicol)
- c. Co-trimoxazole
- d. Lincomycin
- e. Ceftriaxone

1019. A powder with a hard to disintegrate substance has been made in a pharmacy. Specify this substance:

a. Camphor

- b. Talcum
- c. Sodium chlorides
- d. Osarsolum (Acetarsol)
- e. Sugar

1020. A pharmacy must be closed during inventory-taking. How long can this process take?

a. No more than 3 days

- b. No more than 6 days
- c. No more than 14 days
- d. No more than 10 days
- e. No more than 7 days

1021. Who determines the amount of cash that may remain in the cash register at the end of a workday?

- a. The Ministry of Finance
- b. A statistics authority
- c. A revenue and duties authority

d. The company itself

- e. The National Bank of Ukraine

1022. Which of the following antibiotics can be identified by means of maltol test?

- a. Lincomycin hydrochloride

b. Streptomycin sulfate

- c. Amoxicillin

- d. Doxycycline hydrochloride
- e. Kanamycin monosulfate

1023. Batches of several fatty oils were sent to the analytical quality control laboratory. One of the criteria for the study of fatty oils is determining their solubility. What oil is well soluble in ethyl alcohol?

- a. Cocoa butter
- b. Sunflower oil
- c. Castor oil**
- d. Olive oil
- e. Flaxseed oil

1024. 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. Functional**
- b. Product-oriented
- c. Regional
- d. Market-oriented
- e. Segment-oriented

1025. General sedimentation reagents are used to identify alkaloids in an extract obtained from herbal raw materials. Select from the list one such reagent.

- a. Marquis reagent
- b. Dragendorff reagent**
- c. Froehde reagent
- d. Erdman reagent
- e. Vitali-Morin reagent

1026. 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. Amlodipine
- b. Hydrochlorothiazide**
- c. Losartan
- d. Metoprolol
- e. Enalapril

1027. A pharmacy has received a prescription for tincture. What herbal raw material can be used to make this dosage form?

- a. Rhubarb roots
- b. Oak bark
- c. Valerian rootstock**
- d. Arrow-wood bark
- e. Buckthorn bark

1028. Atropa belladonna grass extract is a component of compound antispasmodic drugs. Select such drug from the list:

- a. Olimetinum
- b. Bellasthesin**
- c. Herbogastrine
- d. Urolesan
- e. Solutan

1029. A 36-year-old patient developed acute pyelonephritis. What antibacterial agents has a nephrotoxic effect?

- a. Gentamicin**
- b. Penicillin
- c. Erythromycin

- d. Tetracycline
- e. Ampicillin

1030. In the course of its development a pharmaceutical company forms its culture. Culture of a pharmaceutical company is typically based on:

- a. Specifics of manufacturing process
- b. Legislation in force
- c. Relevant pharmaceutical practices
- d. License agreement
- e. Values, traditions, and behavioral norms characteristic of company employees**

1031. 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. Phenylhydrazine sulfate
- b. Acetic anhydride
- c. Concentrated sulfuric acid**
- d. Copper tartrate reagent
- e. Hydroxylamine hydrochloride

1032. Which of the following pricing factors of a manufacturing pharmaceutical enterprise is internal?

- a. Competitors
- b. Participants in sales channels
- c. Consumers
- d. Expenses**
- e. State regulation of prices

1033. What device is used to disperse medicinal substances and homogenize ointments?

- a. Disintegrator
- b. Three-roll ointment mill**
- c. Excelsior
- d. Double-slide tablet press machine
- e. Dismembrator

1034. What substance can be determined using the Beilstein test during rapid analysis of drugs?

- a. Oxygen
- b. Nitrogen
- c. Fluoride
- d. Chlorine**
- e. Hydrogen

1035. What pharmacy department carries out the individual production of extemporaneous medicines, their quality control, and their dispensing to consumers?

- a. Medical cosmetics
- b. Ready-made dosage forms
- c. Prescription and production**
- d. Stock of goods
- e. Over-the-counter sales

1036. Pharmacies use cash registers during the sales of medicines. Name the document for the accounting of Z-reports:

- a. Customers ledger
- b. Prescription logbook
- c. Transactions ledger**
- d. Cash book
- e. Receipt book

1037. A pharmacist prepares rectal suppositories in the pharmacy. Name the acceptable range, within which the average weight of such suppositories may vary:

- a. 5.0-8.0

b. 2.0-5.0

c. 1.0-4.0

d. 4.0-7.0

e. 3.0-6.0

1038. Merchandising is a complex of communication techniques that aim to increase the sales in the pharmacies. The main goal of merchandising is:

a. Expanding the range of pharmaceutical goods

b. -

c. Price-cutting for unpopular medicines

d. Quick sales of the whole range of goods on offer in the pharmacies and an overall increase of sales

e. Decrease of the competition between the drug analogues

1039. There are several indirect taxes in the Ukrainian taxation system. What indirect tax is paid by the consumer as a surcharge to the value of goods?

a. Individual income tax

b. Income tax

c. Excise tax

d. Single tax

e. Commercial patent

1040. A pharmacist has prepared an ascorbic acid solution for injections. What stabilizer was used in this case?

a. 0.1 M solution of sodium hydroxide

b. Weibel stabilizer

c. 0.1 M solution of hydrochloric acid

d. Sodium sulfite

e. Boric acid

1041. 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. Benzenesulfonic acid

b. Ammonium chloride and ammonium hydrate

c. Diphenylamine

d. Silver nitrate and nitric acid

e. Barium chloride and hydrochloric acid

1042. 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 25% discount

b. 100% free

c. For 50% of the cost

d. With a 10% discount

e. For the full cost

1043. 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. Digoxin

b. Novocaine

c. Phenobarbital

d. Solpadeine

e. Analgin (Metamizole)

1044. Infusions of herbal raw material rich in essential oils should be:

a. Immediately filtered

b. Infused cold

c. Acidated with hydrochloric acid

d. Filtered without wringing of the solid residue

e. Prepared in a tightly closed vessel