

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

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

e. 20 mL

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

- a. Diazonium salts
- b. Iodoform

c. Azo dye

- d. Murexide
- e. Fluorescein

3. 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. Black precipitate
- b. Light green precipitate
- c. Blue precipitate

d. White precipitate

- e. Yellow precipitate

4. Eradication therapy must be prescribed for a patient with peptic ulcer disease of the duodenum. What antisecretory agent must be included into the eradication therapy scheme?

- a. Almagel
- b. Phosphalugel (Aluminum phosphate)

c. Omeprazole

- d. Ranitidine
- e. Famotidine

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

- a. Projective cover
- b. Model specimen

c. Permanent quadrates

- d. Geodesic
- e. By eye

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

- a. Prior homogenization
- b. Prior granulation
- c. Application of hydraulic press
- d. Formation of masses

e. No prior granulation

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

- a. Aralia mandshurica
- b. Orthosiphon stamineus
- c. Astragalus dasyanthus
- d. Panax ginseng

e. Glycyrrhiza glabra

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

- a. Sulfuric acid solution
- b. Barium hydroxide solution

c. Ninhydrin solution

- d. Sulfosalicylic acid solution
- e. Saturated sodium bicarbonate solution

9. If a pharmacy plans to temporarily close for repairs or re-equipment, the State Service of Ukraine on Medicines and Drugs Control must be notified in advance no later than:

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

10. 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. -
- b. State registration certificate
- c. Quality certificate
- d. License for production of medicines
- e. Trade patent**

11. 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. Lactulose
- d. Xylometazoline**
- e. Dexamethasone

12. A woman came to a doctor with complaints of heartburn. She has been taking diclofenac sodium for a long time due to diagnosed rheumatoid arthritis. What medicine can the doctor prescribe for the prevention of gastropathy?

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

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

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

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

15. Drugs derived from Rauwolfia serpentina roots are used in hypertension treatment. Authenticity of Rauwolfia serpentina herbal raw material can be confirmed by its content of:

- a. Vinblastine
- b. Adonitoxin
- c. Hyoscyamine
- d. Reserpine**
- e. Atropine

16. 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. Tolerance
- c. Antagonism
- d. Tachyphylaxis**
- e. Withdrawal syndrome

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

- a. Iridoids
- b. Lipids
- c. Essential oil**
- d. Vitamins
- e. Saponins

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

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

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

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

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

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

21. Nitroxoline with sodium hydroxide solution produces:

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

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

23. A pharmaceutical company plans to start selling its products abroad by transferring them into the ownership of a foreign reseller. This company will enter the foreign market by means of:

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

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

- a. Ready-made dosage forms
- b. Stock of goods
- c. Over-the-counter sales
- d. Medical cosmetics

e. Prescription and production

25. A pharmacy prepares sodium chloride solutions for injections or infusions. What are the additional requirements to the quality of sodium chloride for infusion solutions?

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

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

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

27. Collective labour agreement is concluded by a trade union committee with the business owner on behalf of the workforce. Any collective agreement is worked out in written form. Which article of the Labour Code regulates the duration of the collective agreement?

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

28. 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. Ammonia solution
- e. Chloroform

29. Senna leaves decoction is being prepared in a pharmacy. The following is characteristic of the process of making an aqueous infusion of senna leaves:

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

30. What medicine obtained from ergot is used in gynecology and has a hemostatic effect?

- a. Vinblastine
- b. Digitoxin
- c. Galantamine hydrobromide

d. Vincaton

e. Ergotamine hydrotartrate

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

a. Ceftriaxone

b. Clarithromycin

c. Levomycetin (Chloramphenicol)

d. Co-trimoxazole

e. Lincomycin

32. During a practical session in pharmaceutical chemistry, a pharmaceutical student performs quantitative determination of caffeine substance. What method according to the State Pharmacopoeia of Ukraine should be used for this purpose?

a. Bromometry

b. Cerimetry

c. Acid-base titration in nonaqueous medium

d. Permanganatometry

e. Complexometric titration

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

a. Bradycardia

b. Dysbiosis

c. Constipation

d. Osteoporosis

e. Elevated blood pressure

34. 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. 20%

b. 95%

c. 5%

d. 75%

e. 25%

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

a. Calcium chloride

b. Euphyllin (Aminophylline)

c. Sodium chloride

d. Hexamethylenetetramine

e. Sodium bicarbonate

36. 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. Potentiation

b. Dependence

c. Summation

d. Cumulation

e. Tolerance

37. *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. Fatty oil

b. Thioglycosides

c. Polysaccharides

d. Flavonoids

e. Alkaloids

38. A pharmacist has prepared a tincture from Adonis vernalis grass. What special technique was necessary in this case to extract the active substances?

- a. They must be extracted in a slightly alkaline medium
- b. They must be extracted in a weakly acidic medium
- c. They must be extracted in an alkaline medium
- d. They must be extracted in an acidic medium

e. They must be extracted in a neutral medium

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

- a. Invoice
- b. Cash income order
- c. Receipt

d. Cash expense order

e. Remains unregistered documentarily

40. 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. Inhibition of histamine synthesis

b. Accumulation of residual bradykinin in the blood

- c. Gastroesophageal reflux
- d. Exacerbation of chronic bronchitis
- e. Increased tone of the cough center

41. A 28-year-old woman came to a pharmacy complaining of constipation that developed after antacid treatment. What drug could be the cause of this symptom?

- a. Calcium carbonate
- b. Simethicone
- c. Ranitidine
- d. Magnesium-containing drugs

e. Aluminium-containing drugs

42. In a pharmacy each employee is subordinate to only one manager, who makes all the management decisions. What type of organizational structure of the pharmacy's management is it?

a. Linear

- b. Functional
- c. Matrix
- d. Adaptive
- e. Productive

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

a. Piracetam

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

44. 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. Authoritarian

b. Liberal

- c. Directive
- d. Autocratic
- e. Democratic

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

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

46. What preparation has an antiemetic effect?

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

47. 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. Water solutions
- d. Alcohol solutions
- e. Chloroform solutions

48. 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 40%
- b. At least 65%**
- c. At least 20%
- d. At least 50%
- e. At least 30%

49. To replenish its fixed assets, the pharmacy made a decision to arrange a credit with the trading bank. What document must be concluded in writing between the creditor and the debtor in this case?

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

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

- a. The way in which it was obtained
- b. Absence of mechanical inclusions
- c. Apyrogenicity**
- d. pH value
- e. Absence of heavy metals

51. 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. Ester group
- b. Aliphatic amino group
- c. Phenolic hydroxyl**
- d. Primary aromatic amino group
- e. Carboxyl group

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

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

- a. 25 minutes
- b. 30 minutes
- c. 45 minutes
- d. 40 minutes**
- e. 15 minutes

54. 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. Fluconazole
- d. Levofloxacin
- e. Acyclovir**

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

- a. Berlin blue
- b. Indophenol
- c. Iron(III) hydroxamate**
- d. Diazonium salt
- e. Azo dye

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

57. 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 an employee leaves 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 a new employee joins the team

58. A patient is 20 years old. After she was stung by a bee the patient developed Quincke's disease; rash in the form of blisters and papulae appeared on her torso. First aid in this case should start with administering the following drug:

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

59. 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. Diclofenac sodium tablets
- b. Acetylsalicylic acid powder
- c. Acetylsalicylic acid tablets
- d. Paracetamol rectal suppositories**

e. Ibuprofen tablets

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

a. Anthraquinones

b. Glycosides

c. Tannins

d. Iridoids

e. Alkaloids

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

a. Crystallization

b. Heating followed by rapid cooling

c. Adsorption

d. Sedimentation

e. Filtration

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

a. -

b. Are formed for the implementation of the manufacturing process

c. Resist changes in the organization

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

e. Have a clear formal structure

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

a. Alkaloids

b. Phenolic compounds

c. Iridoids

d. Anthracene derivatives

e. Flavonoids

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

a. Dissolved in warm water

b. Dissolved during comminution

c. Dissolved in purified water in a vial for dispensing

d. Added the powder onto the water surface and waited until complete dissolution

e. Dissolved in cold water

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

a. Writing off

b. Conducting an official investigation

c. Elimination

d. Confiscation

e. Recording as received

66. 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. Riboflavin

b. Furacilin (Nitrofurazone)

c. Sulfur

d. Methylene blue

e. Brilliant green

67. 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. Seeds
- b. Roots
- c. Leaves**
- d. Fruits
- e. Rhizomes

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

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

69. Organizationally, a pharmacy is divided into separate departments: Prescription and Extemporaneous Medicines, Stock Department, and Over-the-Counter Medicines. What organizational management structure can be characterized by such a division?

- a. Divisional
- b. Linear
- c. Line and staff
- d. Functional**
- e. Matrix

70. To check the authenticity of *Helichrysum arenarium* flowers, magnesium powder and concentrated HCl were added to the extract obtained from the herbal raw material. What class of compounds is indicated in this case, if this reaction produces a red coloring?

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

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

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

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

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

- a. Vicasol (Menadione)
- b. Omeprazole
- c. Phenazepam
- d. Indometacin
- e. Dibazol (Bendazolum)**

74. Various types of glass are used in production of parenteral drugs. What type of glass is used for

photosensitive substances?

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

75. 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. Promotion
- c. Recruitment
- d. -
- e. Staff turnover**

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

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

77. 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 alpinum
- b. Polygonum bistorta**
- c. Polygonum hydropiper
- d. Polygonum persicaria
- e. Polygonum aviculare

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

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

79. A 43-year-old woman has come to a pharmacy with complaints of sharp headache in the occipital area, palpitations, "visual snow" in her eyes, nausea; her BP is 180/110 mm Hg. These symptoms correspond with:

- a. Hypertensive crisis**
- b. Exertional angina pectoris attack
- c. Migraine attack
- d. Acute conjunctivitis
- e. Cervical osteochondrosis

80. During storage, suspension instability manifests itself as:

- a. Sedimentation of particles**
- b. Caking of particles
- c. Flocculation of particles
- d. Dissolution of particles
- e. Change of particles shape

81. Standard stactometer divides 1 ml of water into:

- a. 20 drops**
- b. 15 drops

- c. 10 drops
- d. 25 drops
- e. 30 drops

82. 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

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

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

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

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

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

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

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

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

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

88. Thymus serpyllum grass is harvested in Ukraine. At what stage of plant growth is this herbal raw material harvested?

- a. When the fruits are ripe
- b. Before the formation of green fruits
- c. After harvesting the fruits
- d. During the flowering stage**
- e. Before the flowering

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

90. 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. Supply-based
- c. Cost-based**
- d. Demand-based
- e. Competitive

91. 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. Fenoterol
- c. Ipratropium bromide
- d. Acetylcysteine**
- e. Oxeladin

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

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

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

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

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

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

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

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

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

- a. Synoestrol (Hexestrol)**

- b. Prednisolone
- c. Adrenalin
- d. Progesterone
- e. Retabolil (Nandrolone)

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

- a. Anesthesin
- b. Vinilin (polyvinyl butyl ether)
- c. Streptocide
- d. Benzoic acid
- e. Camphor**

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

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

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

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

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

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

102. Phenylsalicylate can be identified by the smell of phenol that is produced when the following is added into the preparation:

- a. CuSO_4
- b. NaCl
- c. CoCl_2
- d. H_2SO_4**
- e. AgNO_3

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

- a. 60 mL
- b. 7.5 mL
- c. 30 mL

d. 120 mL

e. 90 mL

104. 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. Tramadol

d. Zopiclone

e. Ethyl alcohol

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

a. Vacuum

b. Vapor condensation

c. Syringe and vacuum

d. Syringe

e. Syringe and vapor condensation

106. 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. Alpha-adrenergic agonists

b. Calcium channel blockers

c. Beta-adrenergic antagonists

d. Nitrates

e. Antispasmodics

107. 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. Controlled price

b. Free-of-control price

c. Fixed price

d. Indicative price

e. Contract price

108. 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. Nitroglycerine solution

b. Activated carbon

c. Barium chloride

d. Calcium chloride

e. Alcoholic iodine solution

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

a. Because of high pH

b. Because of decreased surface tension between the solution and the microbial cell

c. Because of low pH

d. Only because preservatives were added into the syrup

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

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

a. 5 years

b. 3 years

c. 10 years

d. 3 months

e. 1 year

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

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

112. 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

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

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

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

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

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

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

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

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

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

118. 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 ototoxicity of aminoglycosides**
- c. Increased hepatotoxic action of aminoglycosides
- d. Increased hematotoxicity of gentamicin
- e. High risk of seizures

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

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

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

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

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

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

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

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

123. 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. Zinc oxide
- c. Xeroform (bismuth tribromphenolate and bismuth oxide complex)**
- d. Glucose
- e. Magnesium oxide

124. In the process of packing and transporting, herbal raw material often becomes partially comminuted or even powdered. Excessive comminution has negative effect on the herbal raw material appearance and its quality. What tool is used to separate these excessively comminuted particles from the rest of the herbal raw material?

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

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

- a. Has first-degree vermin infestation

- b. Contains other non-poisonous plants
- c. Contains other parts of the target plant
- d. Contains excessive moisture

e. Contains poisonous plants

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

a. -

b. Out-of-home advertising

- c. Professional-targeted advertising
- d. Postal cards and pamphlets
- e. Advertising souvenirs

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

- a. From 21.00 to 9.00
- b. From 23.00 to 7.00
- c. From 20.00 to 9.00
- d. From 24.00 to 8.00

e. From 22.00 to 6.00

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

- a. Solutions of the substances that cannot be thermally sterilized
- b. Solutions of the substances that need special purification

c. Easily oxidized solutions

- d. Solutions of the salts formed by strong bases and weak acids
- e. Solutions of the salts formed by weak bases and strong acids

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

a. Brick-red

b. Violet

- c. Yellow
- d. Red
- e. Green

130. Licorice roots contain saponins. What reaction can prove their presence in the herbal raw material?

- a. Reaction with iron(III) chloride
- b. Molisch's test
- c. Fehling's test
- d. Dragendorff's test

e. Foaming reaction

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

- a. *Capsella bursa-pastoris*
- b. *Origanum vulgare*
- c. *Mentha piperita*

d. *Urtica dioica*

e. *Atropa belladonna*

132. A pharmaceutical company focuses on selling a diverse range of products covering different customer groups and regions. What kind of organizational structure is typical for such company?

- a. Bureaucratic
- b. Decentralized

c. Divisional

d. Centralized

e. Functional

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

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

134. 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. Geographical approach
- b. -
- c. Behavioral approach
- d. Demographic approach
- e. Psychographic approach

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

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

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

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

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

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

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

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

139. 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. Incorrect
- b. Inadequate
- c. Irrational
- d. Irregular
- e. Unrealized

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

a. Propranolol

b. Fenoterol

c. Nitroglycerin

d. Amlodipine

e. Verapamil

141. A pharmacy dispenses medical products, the cost of which must be reimbursed based on electronic prescriptions. What authority reimburses the pharmacy for the cost of dispensed drugs?

a. State Fiscal Service of Ukraine

b. National Health Service of Ukraine

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

d. State Service of Ukraine on Medicines and Drugs Control

e. Ministry of Labor and Social Policy of Ukraine

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

a. Salicylic acid

b. Glutaminic acid

c. Boric acid

d. Benzoic acid

e. Acetylsalicylic acid

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

a. Five years, not counting the current one

b. Three years, not counting the current one

c. One year, not counting the current one

d. One month, not counting the current one

e. The receipt form is not kept by the pharmacy

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

a. Loperamide

b. Papaverine

c. Domperidone

d. Platyphyllin

e. Ursodeoxycholic acid

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

a. Ethyl alcohol

b. Peach oil

c. Mint oil

d. Glycerin

e. Purified water

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

a. 30 parts of lanolin - 70 parts of vaseline

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

c. Vaseline For Eye Ointments

d. Lanolin: vaseline - 1:1

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

147. 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. Diclofenac sodium

b. Enterosgel

- c. Drotaverine hydrochloride
- d. Cyanocobalamin
- e. Atropine sulfate

148. 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. Glucose
- b. Butamide (Tolbutamide)
- c. Insulin
- d. Metformin
- e. Glibenclamid

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

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

150. A pharmaceutical factory prepares syrups for taste-masking of medicines. What substance must be removed from such syrups to prevent jellification of the end product?

- a. Sucrose
- b. Starch
- c. Glucose
- d. Fructose
- e. Pectin

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

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

152. A doctor has prescribed a mixture containing several types of herbal raw material. Extracts of the following raw materials can be obtained in one infusion apparatus:

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

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

- a. Legal's test
- b. Mayer's test
- c. Dragendorff's test
- d. Reaction of sublimation
- e. Stahl's reaction

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

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

e. Nimesulide

155. What activity of a pharmaceutical company includes improvement of employees' working and living conditions, healthcare and medical insurance and other means of social development?

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

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

- a. Menthol
- b. Zinc oxide**
- c. Streptocide (Sulfanilamide)
- d. Thymol
- e. Camphor

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

- a. Glass-stoppered bottles
- b. Metal cylinders**
- c. Packaging materials
- d. Glassware
- e. Paper boxes

158. 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. Market development**
- c. Consolidation
- d. Market penetration
- e. Product development

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

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

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

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

161. 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. Omeprazole**
- c. Ceftriaxone
- d. Spironolactone
- e. Metamizole sodium

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

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

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

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

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

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

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

166. 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. Glycerine**
- b. Ethyl alcohol
- c. Dimexide (dimethyl sulfoxide)
- d. Atropa belladonna tincture
- e. Purified water

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

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

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

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

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

- a. Ofloxacin
- b. Norfloxacin
- c. Gentamicin

d. Amoxicillin

e. Co-trimoxazole

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

a. No more than 14 days

b. No more than 6 days

c. No more than 10 days

d. No more than 7 days

e. No more than 3 days

171. 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. Glycerine, dimethyl sulfoxide

d. Citric acid, sodium phosphate salts

e. Paraffin, spermaceti

172. 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. Iridoids

d. Polysaccharides

e. Vitamins

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

a. Introduce 0.1% adrenaline solution subcutaneously

b. Make an insulin injection

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

d. Make an intramuscular injection of caffeine

e. Give nitroglycerine sublingually

174. 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. Budesonide

b. Fluticasone

c. Salbutamol

d. Tiotropium bromide

e. Ipratropium bromide

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

a. Thalleioquin test

b. Hydroxamate test

c. Murexide test

d. Ninhydrin test

e. Iodoform test

176. 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. Economic

c. Legal

d. Medical

e. Technological

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

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

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

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

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

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

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

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

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

182. Representatives of two pharmaceutical companies - partners from Ukraine and China - for some time had communication problems due to the use of words and verbal symbols with different meanings. What caused the deformation of the communication process and hindered the exchange of information in this case?

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

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

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

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

a. Paracetamol

b. Nimesulide

c. Acetylsalicylic acid

d. Diclofenac sodium

e. Indomethacin

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

a. Magnesium sulfate

b. Ammonium oxalate

c. Sodium hydroxide

d. Sodium cobaltinitrite

e. Barium chloride

186. Which one of the listed drugs is a glycoside antibiotic?

a. Tetracycline

b. Levomycetin (Chloramphenicol)

c. Erythromycin

d. Cephalexin

e. Polymyxin

187. The management of a pharmaceutical company uses F. Herzberg's two-factor theory of motivation. What is this theory based on?

a. The need for protection

b. The need for existence, connection, growth

c. The need for safety

d. Hygienic and motivational factors

e. The need for power, success, and affiliation

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

a. Tanacetii flores

b. Helichrysi arenarii flores

c. Meliloti herba

d. Viola herba

e. Crataegi flores

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

a. Norsulfazole

b. Sulfadimezinum (Sulfadimine)

c. Streptocide

d. Soluble streptocide

e. Sulfacil sodium

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

a. 59 working days

b. 56 calendar days

c. 90 calendar days

d. 126 calendar days

e. 70 working days

191. 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 nitrite solution

b. Zinc sulfate solution

c. Potassium bromate solution

d. Perchloric acid solution

e. Sodium edetate solution

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

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

193. What variable of the internal environment of the "Provisor" pharmacy can be described as the ways of transformation of component materials (medicinal agents "an gross") into end product (various dosage forms)?

- a. Tasks
- b. Mission
- c. Structure
- d. Human resources

e. Technologies

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

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

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

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

- a. Codeine
- b. Papaverine
- c. Morphine
- d. Atropine

e. Caffeine

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

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

e. No less than once in a shift

198. 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. At full cost
- b. Free of charge
- c. With 70% discount
- d. With 30% discount
- e. With 50% discount

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

a. Diversification

- b. Insurance
- c. Integration
- d. Consolidation
- e. Intensification

200. 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. Gluconic
- c. Hexanic
- d. Glutaconic**
- e. Glyoxylic

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

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

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

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

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

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

204. 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. Hydroxamic reaction
- b. <<Silver mirror>> reaction
- c. Lignin test**
- d. Azo dye formation
- e. Iodoform test

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

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

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

- a. Point-of-sale advertising**

b. Out-of-home advertising

c. Souvenir advertising

d. Print advertising

e. Film advertising

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

a. Dismembrator, electrical impulse plasmolyzer

b. Rotor-pulsation apparatus, dismembrator

c. Liquid whistle, magnetostrictive source

d. Centrifugal mixer with rotating housing

e. Disintegrator, liquid whistle

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

a. Menthol should be comminuted in a mortar with ethanol

b. Menthol should be dissolved in the purified water

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

d. Menthol should be comminuted with the emulsifier

e. Menthol should be dissolved in oil

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

a. Herba Selaginis

b. Folia Berberidis

c. Herba Vincae minoris

d. Rhizomata Nupharis lutei

e. Folia Catharanthi rosei

210. 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. Sodium carbonate

c. Sodium nitrite

d. Barium chloride

e. Silver nitrate

211. Oblong tablets are called:

a. Capsules

b. Pellets

c. Forte tablets

d. Dragee

e. Caplets

212. 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. Potent substances

b. Toxic substances

c. Psychotropic substances

d. Precursors

e. Narcotic substances

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

a. Alkaloids

b. Essential oils

c. Iridoids

d. Anthracene derivatives

e. Flavonoids

214. 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. Criminal
- d. Personal
- e. Legal

215. A 63-year-old man suffering from ischemic heart disease was diagnosed with angle closure glaucoma. What group of drugs is CONTRAINDICATED in this case?

- a. Anticoagulants
- b. Statins
- c. beta-adrenergic blockers
- d. Nitrates
- e. Calcium antagonists

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

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

217. What document is used during transactions with consumers, confirming the fact of sale or return of goods and the fact of receiving a payment or making a refund?

- a. Transactions ledger
- b. Request for a cash transfer
- c. Cash book
- d. Accompanying statement to the bag with cash
- e. Fiscal cash receipt for the goods/services

218. A 45-year-old man has been taking long-acting nitrates twice a day for a year. Currently the decrease in effectiveness of the pharmacotherapy is being observed. What side-effect can be suspected in the first place?

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

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

220. 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. 0.04 g
- b. 0.02 g
- c. 0.01 g
- d. 0.05 g
- e. 0.03 g

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

hormones?

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

222. 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. Diversification**
- c. Modernization
- d. Survival
- e. -

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

224. 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. Agent
- d. Commission agent
- e. Broker

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

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

226. The doctor has discontinued captopril for a 58-year-old patient diagnosed with arterial hypertension, because the patient has developed a complication. What side effect is the most likely cause for the discontinuation of this drug?

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

227. 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. Administered
- b. Multichannel**
- c. Corporate

- d. Contractual
- e. Horizontal

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

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

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

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

- a. Ratio of the sum of profits to the sum of expenses $\times 100\%$
- b. -
- c. Ratio of the sum of profits to the sum of turnover $\times 100\%$**
- d. Ratio of the sum of profits to the total cost of fixed assets $\times 100\%$
- e. Ratio of the sum of profits to the sum of cost price of the goods $\times 100\%$

231. 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. Zinc
- c. Sodium**
- d. Potassium
- e. Calcium

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

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

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

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

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

- a. Phenothiazine
- b. Purine
- c. Indole

d. Acridine

e. Benzimidazole

235. 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. Glucose

c. Sodium chloride

d. Gelatin

e. Calcium chloride

236. 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. Institutional

b. Administrative

c. Technical

d. Middle-level

e. Top-level

237. 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. Reduced sensitivity

b. Bradycardia

c. Withdrawal syndrome

d. Bronchospasm

e. Dysbacteriosis

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

a. Streptocide (Sulfanilamide)

b. Ethazole

c. Basic bismuth nitrate

d. Camphor

e. Sulfur

239. 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. Allergic response

c. Drug dependence

d. Idiosyncrasy

e. Dysbiosis

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

a. Microcapsules

b. Dragee

c. Granules

d. Spansules with polymer coating

e. Dragee tablets

241. 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. Hyperkalemia

c. Thrombus formation

d. Dysbacteriosis

e. Hemorrhages

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

a. Diversification

b. Etiquette

c. -

d. Culture

e. Integration

243. A pharmaceutical company plans to launch the production of a new medicine. What stage of product development includes making the cost estimates for its manufacturing and sales and preliminary calculations of the price and planned profits?

a. Generation of the ideas

b. Test marketing

c. Commercial manufacturing

d. Filtration of the ideas

e. Economic analysis

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

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

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

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

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

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

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

a. 3.9 g

b. 1.4 g

c. 2.4 g

d. 1.9 g

e. 2.9 g

246. 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. Lanthanum(III) nitrate solution

b. Diphenylamine solution

c. Thiourea solution

d. Glyoxal-hydroxyanil solution

e. Chloramine solution

247. 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. Dialysis

b. Heating the extract

c. Extraction from one liquid using another

d. Electrolyte action

e. Ultrasound exposure

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

a. Supplier pharmacist

b. Dispensing chemist

c. Authorized representative

d. Analyst

e. Pharmacy head manager

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

- a. 15 ml
- b. 2 ml
- c. 10 ml
- d. 20 ml

e. 5 ml

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

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

e. Potassium pyroantimonate

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

- a. 2 weeks
- b. 1 month
- c. 5 weeks

d. 5-7 days

e. 3 weeks

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

- a. Camphor
- b. Dibazol (Bendazol)
- c. Caffeine

d. Metronidazole

e. Asparcam (Potassium aspartate and magnesium aspartate)

253. 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. Glucofrangulins

- b. Purpurea glycosides
- c. Panaxosides
- d. Lanatosides
- e. Ginkgosides

254. 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. Combined
- b. Mechanistic

c. Organic

- d. -
- e. Informal

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

- a. Phenazone
- b. Nicotinic acid
- c. Thiamine bromide
- d. Nitrofurantoin

e. Pilocarpine hydrochloride

256. 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. -

c. Preliminary

d. Concurrent

e. Financial

257. During identification of a herbal raw material, an analytical chemist prepared water-based extractions and shook the test tube, which resulted in the formation of a large amount of stable foam. What bioactive substances are present in the material?

a. Tannins

b. Saponins

c. Alkaloids

d. Fatty oil

e. Anthracene derivatives

258. A large pharmaceutical company produces a homogeneous selection of medicinal products and sells them on the domestic market. What model of marketing service organization was chosen by this company?

a. Market-oriented

b. Functional

c. Regional

d. Product-oriented

e. Segment-oriented

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

a. Anthraquinones

b. Flavonoids

c. Tannins

d. Saponins

e. Vitamins

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

a. Yes, with permit from the State Inspectorate

b. Yes, it can sell all the batch that is already in its possession

c. Yes, with permit from the Pharmacopoeia Center

d. Yes, if approved by the head manager of the pharmacy

e. No

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

a. Consumers

b. Expenses

c. Participants in sales channels

d. Competitors

e. State regulation of prices

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

a. Flores Crataegi

b. Semina Sylibi

c. Flores Centaureae cyani

d. Herba Equiseti arvensis

e. Flores Tanaceti

263. 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. Flowability
- d. Porosity
- e. Bulk volume

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

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

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

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

266. 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. Rebound effect
- b. Withdrawal syndrome**
- c. Idiosyncrasy
- d. Tachyphylaxis
- e. Steal syndrome

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

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

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

269. A pharmacy receives centralized deliveries of goods from the warehouse. Specify the document that is textbfNOT NECESSARY for accounting of goods receipt by the pharmacy:

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

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

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

e. A white precipitate forms, which is insoluble in a diluted hydrochloric acid

271. 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. Deep penetration into the market

d. -

e. Following the leader

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

a. 1,5

b. 4,0

c. 0,5

d. 6,0

e. 3,0

273. A pharmacist needs to make a 5% sodium bicarbonate solution for injections. What is the optimum temperature for sodium bicarbonate dissolution that allows avoiding its forceful stirring?

a. 45-55^{°C}

b. 30-45^{°C}

c. 80-100^{°C}

d. 15-20^{°C}

e. 25-35^{°C}

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

a. 5

b. 15

c. 25

d. 20

e. 10

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

a. Toxic proteins

b. Phenol-alcohols

c. Glucosinolates

d. Alkaloids

e. Cardiac glycosides

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

a. Parchment

b. Gelatin capsules

c. Ordinary paper capsules

d. Container with a lid that has holes in it

e. Wax paper

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

a. Sodium sulfate

b. Boric acid

c. Sodium chloride

d. Sodium nitrate

e. Glucose

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

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

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

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

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

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

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

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

283. 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. Nifedipine
- c. Lisinopril
- d. Nitroglycerine
- e. Atorvastatin

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

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

introduce these substances:

a. Introduce the substances as a suspension

b. Melt a part of fatty vehicle and dissolve the substances there

c. Dissolve the substances in the water heated to 45°C

d. Introduce the substances as an emulsion

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

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

a. Planning

b. Motivation

c. Control

d. Regulation

e. Organization

287. 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. Amide group

b. Alcoholic hydroxyl

c. Phenolic hydroxyl

d. Aldehyde group

e. Ester group

288. Identification of organic medicinal substances requires the analysis of their functional groups. To identify medicinal substances that are benzoates, an analytical chemist should use:

a. Iron(III) chloride solution

b. Ammonium chloride solution

c. Sodium bicarbonate solution

d. Potassium hydroxide solution

e. Sodium acetate solution

289. A pharmaceutical company has launched a number of cold relief medicines in the form of syrups and lozenges for kids. What type of market segmentation was used by this company?

a. Geographical

b. Behavioral

c. -

d. Demographic

e. Psychographic

290. To prepare a suspension a medicinal substance should be triturated with a small amount of liquid. Specify the optimal amount of liquid for trituration of 10 g of zinc oxide according to the Deriagin's rule:

a. 2 ml

b. 10 ml

c. 5 ml

d. 0,5 ml

e. 1 ml

291. 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 leaveners

b. Insufficient amount of lubricants

c. Insufficient amount of dyes

d. Insufficient amount of diluents

e. Insufficient amount of adhesives

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

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

e. Spansule

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

a. Copper sulfate

- b. Silver nitrate
- c. Calcium gluconate
- d. Boric acid
- e. Furacilin (Nitrofuril)

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

- a. Taste improvement
- b. Making it easier to push the tablets out of the matrix

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

- d. Improvement of the granulation process
- e. Obtaining tablets of the required weight

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

a. Aldehyde group

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

296. Name the official document on audit results, which is drawn under the standard procedure and contains conclusions about reporting credibility and integrity of financial statements of an organization:

- a. Statement of changes in equity
- b. Cash flow statement
- c. Income statement

d. Auditor's conclusion

- e. Balance sheet

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

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

e. Antitussive drugs

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

e. Helical (vertical) rotation

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

a. Antimicrobial preservative

- b. Antioxidant
- c. pH regulator

- d. Isotonicity regulator
- e. Buffer solution

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

Name this reaction:

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

e. Idiosyncrasy

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

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

e. Starch

302. 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. By package size

b. Among competitors

- c. Corporate block layout
- d. Doubling product facings
- e. Seasonality

303. 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

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

- a. Cyclopentane iridoids
- b. Common iridoids
- c. Secoiridoids

d. Valepotriates

- e. Complex iridoid alkaloids

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

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

e. Iridoids

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

- a. Margin
- b. Markup

c. Production cost

- d. Breakeven
- e. Income

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

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

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

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

e. Xeroform

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

- a. Solutan
- b. Herbogastrine

c. Bellasthesin

- d. Urolesan
- e. Olimetinum

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

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

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

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

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

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

314. What method of analysis takes into account the strengths and weaknesses of a pharmaceutical company, as well as opportunities and threats at the pharmaceutical market, in order to determine marketing goals, strategies, and specific measures that would make it possible to adapt the

company's potential to market trends and conditions?

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

315. A man with gastric ulcer is prescribed anti-Helicobacter pylori therapy. On the 3rd day the patient developed black coloring of feces. What had caused such changes?

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

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

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

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

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

318. 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. Base salary**
- d. Pension benefit
- e. Additional salary

319. An analytical pharmacist uses a reaction with a sodium hydroxide solution during boiling to identify a nicotinamide substance. What gaseous product is released as a result of this reaction?

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

320. Pyridoxine hydrochloride and cyanocobalamin are not recommended to be administered in the same syringe due to their chemical incompatibility. What type of chemical reaction occurs between these compounds?

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

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

- a. Granulation
- b. Emulsification

c. Resuspension

- d. Extraction
- e. Dispersion

322. 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. Differentiation between the competing medicines on the market

- b. Ensuring the necessary quality of medicines
- c. Justification of a higher price for the medicine
- d. It is a mandatory condition to be able to sell medicines at a reduced price to certain population groups
- e. Eligibility for registration in the List of medicines and medical products with state-controlled prices

323. 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. Indirect control methods

b. Economic management methods

- c. Organizational management methods
- d. Psychosocial management methods
- e. Legal management methods

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

a. Marketing

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

325. A dispensing chemist specifies the name of a herbal raw material, its mass, the area where it has been harvested, and the date of harvest. Name this procedure:

- a. Packing of herbal raw material
- b. Sorting of herbal raw material

c. Marking of herbal raw material

- d. Standardization of herbal raw material
- e. Harvesting of herbal raw material

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

a. Pancreas of pigs or cattle

- b. Lungs of cattle
- c. Gastric mucosa of pigs
- d. Heart of cattle
- e. Egg white

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

- a. Shop floor
- b. Aseptic block

c. Material storage room

- d. Washing room
- e. Distillation room

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

- a. Dandelion roots
- b. Plantain foliage

- c. Wormwood grass
- d. Buckthorn bark

e. Lily-of-the-valley grass

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

a. Pepsin

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

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

- a. For preparation of dry extracts
- b. For preparation of tinctures
- c. To be used as ready-made medicines

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

- e. For preparation of thick extracts

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

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

e. To obtain tablets of a certain mass

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

- a. Two copies of prescription form f-1

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

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

333. 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. Sales receipt

b. Cash register fiscal receipt

- c. Invoice
- d. Settlement receipt
- e. Receipt

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

- a. Intrapersonal conflict
- b. Dysfunctional conflict

c. Interpersonal conflict

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

335. 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. -
- b. Preliminary
- c. Financial
- d. Final

e. Current

336. In the course of the pharmacotherapy for exacerbation of chronic bronchitis, the patient developed dyspeptic disorders, photodermatitis, and disturbed hepatic function. Which of the prescribed drugs could have caused these signs?

a. Doxycycline

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

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

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

e. Novocaine

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

a. Survey control

b. Physical control

- c. Chemical control
- d. Written control
- e. Organoleptic control

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

- a. Bidens aurea
- b. Bidens radiata
- c. Bidens cernua
- d. Bidens frondosa

e. Bidens tripartita

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

- a. Mixed
- b. Mediated
- c. Indirect
- d. Combined

e. Direct

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

a. Clonidine hydrochloride

b. Procaine hydrochloride

- c. Pilocarpine hydrochloride
- d. Papaverine hydrochloride
- e. Morphine hydrochloride

342. A young mother has come to a pharmacy to buy an antipyretic drug for her 3-month-old infant. What dosage form would you choose for the infant?

- a. Lozenges
- b. Spray
- c. Tablets

d. Suppositories

e. Capsules

343. Accounts receivable develop in the process of pharmaceutical company work. Specify where in

the balance book they are recorded:

- a. Credit
- b. Liabilities
- c. Account
- d. Assets**
- e. Debit

344. 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. Hyperkalemia
- b. Hyponatremia
- c. Hypermagnesemia
- d. Hypocalcemia
- e. Hypokalemia**

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

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

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

- a. Osarsolum (Acetarsol)
- b. Talcum
- c. Camphor**
- d. Sugar
- e. Sodium chlorides

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

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

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

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

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

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

350. The chemical name of 5-Nitro-8-hydroxyquinoline corresponds with the following drug:

- a. Quinocide
- b. Dibazol (Bendazol)
- c. Chingamin (Chloroquine)
- d. Nitroxoline**

e. Ofloxacin

351. 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. 200 mg
- b. 300 mg
- c. 500 mg
- d. 100 mg**
- e. 400 mg

352. 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. Receipt for issuing money
- c. Profit invoice
- d. Expense invoice
- e. Disbursement cash order**

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

354. What indicator of the pharmacy's financial performance is determined by the volume of sales, where the income from sales is equal to the expenses of the pharmacy?

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

355. 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. Fruits
- c. Seeds
- d. Leaves and flower heads**
- e. Roots

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

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

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

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

358. What drug, due to beta-lactam ring in its structure, has positive reaction with hydroxylamine hydrochloride solution in the presence of sodium hydroxide with subsequent addition of iron (III) chloride solution?

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

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

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

360. An analytical chemist performs quantitative analysis of isoniazid by means of direct bromatometry with volumetric solutions of potassium bromate, potassium bromide, hydrochloric acid and methyl red as an indicator. This method is based on the following reaction:

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

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

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

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

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

363. What is the purpose of injectable tablets?

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

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

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

365. A pharmacy has received goods from a warehouse, which were delivered by the warehouse

transport. Therefore, goods receipt requires the following accompanying document:

- a. All of the listed
- b. Specifications to the contract of delivery
- c. Contract of delivery
- d. Financial statement of the supplier
- e. Motor waybill**

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

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

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

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

368. 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. Separate from the others**
- c. Under the temperature of -5°C
- d. Under normal conditions
- e. In metal containers

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

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

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

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

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

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

- a. Methyl orange
- b. Tropaeolin 00**

c. Potassium chromate

d. Ferroin

e. Phenolphthalein

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

a. Decreased absorption in the gastrointestinal tract

b. Increased absorption in the gastrointestinal tract

c. Inhibition of the prothrombin synthesis

d. Disorder of protein binding

e. Changed volume of distribution

374. 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. 10.0 g and 100 mL

b. 0.25 g and 100 mL

c. 5.0 g and 110 mL

d. 10.0 g and 120 mL

e. 20.0 g and 140 mL

375. 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. Saturation

b. Growth

c. Decline

d. Introduction

e. Maturity

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

a. Dissolved it in cold water and heated

b. Mixed it with hot water and added cold water

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

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

e. Dissolved it in boiling water

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

a. To check the pharmacy stock for low-quality or fake medicines

b. -

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

d. To draw up conclusions regarding inspection of incoming medicines

e. To keep a roster of incoming medicines

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

a. Zero-level channel

b. Three-level channel

c. Two-level channel

d. Four-level channel

e. One-level channel

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

a. Resuspension

b. Dissolution time

c. Mechanical strength

- d. Boiling point
- e. Dry residue

380. 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 pharmacist
- c. A financially accountable person
- d. A representative of the laboratory
- e. The head manager of the pharmacy

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

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

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

383. Mixture is a liquid dosage form for internal use. It is obtained by mixing two or more solid or liquid dosage forms in a solvent. If a mixture contains tinctures, they should be added:

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

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

- a. -
- b. Employees under 30
- c. Employees under 25
- d. Employees of retirement age
- e. Employees under 18 (underage)

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

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

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

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

387. According to the current Ukrainian legislation all drugs are divided into two categories: prescription and nonprescription (over-the-counter). Which one of the listed drugs requires no prescription?

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

388. 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. Schisandrin
- c. Ephedrine
- d. Inulin
- e. Capsaicin**

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

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

390. A dispensing chemist was hired to work a night shift at a pharmacy. What time is considered to be a night time according to the Ukrainian legislation currently in force?

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

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

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

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

- a. Sodium thiopental**
- b. Metoprolol
- c. Suprastin (Chloropyramine)
- d. Anaesthesin (Benzocaine)
- e. Midecamycin

393. 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. Aminazine solution
- c. Hexamethylenetetramine solution**
- d. Diprazine (promethazine) solution
- e. Glucose solution

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

- a. Synchromarketing
- b. Incentive marketing
- c. Demarketing
- d. Remarketing

e. Conversion marketing

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

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

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

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

397. Which of the plants listed below contain inulin?

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

e. *Inula helenium*, *Helianthus tuberosus*

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

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

399. 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. Losartan
- b. Amlodipine
- c. Metoprolol
- d. Enalapril

e. Hydrochlorothiazide

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

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

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

- a. -
- b. To ensure business survival**

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

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

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

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

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

405. 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. Sales**
- c. Information
- d. Human resources
- e. Procurement

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

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

407. Galenical preparations include:

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

408. 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. Draw up a Quality Assessment Report with the defects listed and allow sale of the drug shipment
- b. Allow sale of the drug shipment
- 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. Return the shipment to the manufacturer

e. Dispose of the shipment that contains questionable drugs

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

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

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

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

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

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

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

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

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

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

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

- a. Dissolve it in hot solvent or heat it up to full dissolution**
- b. First grind it into powder when it is dry or with small amount of solvent added
- c. Dissolve in the water free of redox substances
- d. Dissolve in alkaline medium
- e. Add equal amount of sodium chloride

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

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

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

a. Thermopsis grass

b. Camomile grass

c. Motherwort grass

d. Oak bark

e. Althaea roots

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

a. Relative density

b. Lyophilic property

c. Flowability

d. Compression ratio

e. Compressibility

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

a. Magnesium sulfate solution

b. Potassium bromide solution

c. Sodium nitrate solution

d. Iron (III) chloride solution

e. Copper (II) sulfate solution

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

a. Relative density

b. Humidity

c. Bulk density

d. Fluidity (flowability)

e. Porosity

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

a. Paste

b. Gel

c. Cream

d. Ointment

e. Liniment

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

a. Ointment concentrate production

b. Homogenization

c. Mixing components with the vehicle

d. Dispersion

e. Vehicle production

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

a. Low

b. Downward

c. Subsiding

d. Sluggish

e. High (stable)

423. How should the rectal ointments be applied?

a. Applied to the external genitalia

b. Apply to the nasal mucosa

c. Apply to the conjunctival mucosa

d. Apply to the affected area of the anus

e. Apply to the skin

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

a. Osteoporosis

b. Constipation

c. Hypotension

d. Hypoglycemia

e. Jaundice

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

a. Thin-layer chromatography

b. Refractometry

c. Nuclear magnetic resonance spectroscopy

d. Polarimetry

e. Infrared spectroscopy

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

a. Iodine monochloride

b. Cerium sulfate

c. Silver nitrate

d. Potassium permanganate

e. Hydrochloric acid

427. 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*

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

a. Filtered without wringing of the solid residue

b. Infused cold

c. Prepared in a tightly closed vessel

d. Immediately filtered

e. Acidated with hydrochloric acid

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

a. Lyophilized

b. Multi-layered

c. Porous

d. Hollow

e. Dyed

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

a. 5 years

b. 1 year after the current one

c. 7 years after the current one

d. 3 years

e. 2 years after the current one

431. A pharmacy has received a prescription written on an F-3 form. The dispensing chemist, tasked with the incoming control of the prescription, noted that it was missing certain mandatory details.

Such prescription forms must always have the following:

- a. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility, seal of the medical facility
- b. Medical facility stamp, doctor's seal and signature, signature of the head manager of the medical facility
- c. Medical facility stamp, signature of the head manager of the medical facility, seal of the medical facility
- d. Signature of the head manager of the medical facility or signature of the deputy head manager for medical work
- e. Doctor's personal seal and signature

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

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

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

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

434. 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 muscarinic antagonists
- c. Mucolytics
- d. Herbal antiseptics
- e. Inhaled glucocorticosteroids

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

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

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

- a. Isosorbide dinitrate
- b. Nifedipine
- c. Bisoprolol
- d. Nitroglycerine
- e. Digoxin

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

- a. Sodium nitrite
- b. Sodium carbonate
- c. Ammonium hydroxide

d. Silver nitrate

e. Calcium chloride

438. A pharmacy has received a prescription for tincture. What herbal raw material can be used to make this dosage form?

a. Oak bark

b. Valerian rootstock

c. Rhubarb roots

d. Buckthorn bark

e. Arrow-wood bark

439. 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. Salicylic acid

b. Phenyl salicylate

c. Acetylsalicylic acid

d. Sodium benzoate

e. Benzoic acid

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

a. Fructus Viburni

b. Fructus Aroniae melanocarpae

c. Fructus Crataegi

d. Fructus Sorbi

e. Fructus Sambuci nigrae

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

a. They form spontaneously

b. The group leader receives authority from the group

c. They resist changes in the organization

d. They are created to implement the production process

e. They form as a result of interest, sympathy

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

a. Paraffin, spermaceti

b. Benzalkonium chloride

c. Propylene glycol, gelatin

d. Ethanol, purified water

e. Sodium lauryl sulfate

443. 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. Iron(III) hydroxamate

b. Aurine dye

c. Azomethine dye

d. Indophenol dye

e. Azo dye

444. Batches of several fatty oils were sent to the analytical quality control laboratory. One of the criteria for the study of fatty oils is determining their solubility. What oil is well soluble in ethyl alcohol?

a. Castor oil

b. Flaxseed oil

c. Sunflower oil

d. Cocoa butter

e. Olive oil

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

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

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

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

- a. Hypericum maculatum
- b. Althaea officinalis
- c. Astragalus dasyanthus
- d. Helianthus tuberosus**
- e. Brassica juncea

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

- a. Product improvement
- b. Marketing
- c. Socio-ethical marketing**
- d. Production improvement
- e. Intensification of commercial efforts

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

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

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

451. Digoxin is given to the patients with chronic heart failure. What medicinal plant that contains cardiac glycoside is a source of this medicinal substance?

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

452. When developing a new medicine, marketologists of the pharmaceutical company have

conducted an isolated research to determine the doctors' opinion of the medicines currently available on the market. What method of marketing research was used?

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

e. Survey

453. To increase the tone and specific rhythmic activity of the uterus, a certain ergot alkaloids-based herbal drug is used. Name this drug:

- a. Codeine phosphate
- b. Morphine hydrochloride
- c. Ergotamine hydrotartrate**
- d. Papaverine hydrochloride
- e. Atropine sulfate

454. A 6-year-old child developed pneumonia and was prescribed an antibiotic for its treatment. After the treatment the child's hearing deteriorated. What drug could have caused this complication?

- a. Ampicillin
- b. Gentamicin**
- c. Penicillin
- d. Azithromycin
- e. Ceftriaxone

455. 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

456. 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. Aldehyde group
- d. Phenolic hydroxyl**
- e. Ester group

457. 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

458. 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. Nitritometry
- c. Permanganatometry
- d. Iodochlorometry

e. Iodometry

459. 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. Control
- b. Delegation**
- c. Organization
- d. Motivation
- e. Planning

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

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

461. A 54-year-old hypertonic patient undergoing pharmacotherapy developed bronchial spasm. His physician considers it to be a therapy-induced complication caused by the drug that belongs to the following group:

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

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

463. 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. Personal
- d. -
- e. Intuitive

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

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

465. A pharmacy manager has drawn up a work schedule for the next month. What type of management activity is aimed at making highly specific, detailed, short-term plans?

- a. -
- b. Financial planning
- c. Strategic planning
- d. Operational planning**
- e. Business planning

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

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

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

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

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

469. 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 request and order
- d. Payment order
- e. Cheque payable

470. 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. Autoclaving at $119-121^{\circ}\text{C}$ with pressure at 1,0-1,1 atm
- c. Sterilization with flowing steam at 100°C
- d. Triple heating of solution to $40-60^{\circ}\text{C}$ with 24-hour-long intervals in between for thermostating**
- e. Sterilization with dry heat at $180-200^{\circ}\text{C}$ for a lengthy period of time

471. 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. Inelastic demand
- c. Elastic demand**
- d. Unitary demand
- e. Universal demand

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

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

473. To prepare eyedrops with antibiotic a dispensing chemist has been using flowing steam

sterilization under 100°C for 30 minutes. What antibiotic allows for such sterilization?

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

474. A pharmaceutical company produces biogenic stimulants. In the course of manufacturing process the raw materials are being subjected to adverse conditions. What is the purpose of this procedure?

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

475. 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 ammonium iron(III) sulfate
- d. Reaction with an alkali**
- e. Reaction with Dragendorff's reagent

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

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

477. 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. -
- b. Experiment**
- c. Observation
- d. Survey
- e. Panel

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

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

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

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

480. 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. Two-level channel
- e. Three-level channel

481. 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. Immunosuppressants
- c. Probiotics**
- d. Sorbents
- e. Antacids

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

483. 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. Furan
- c. beta-lactam**
- d. Quinoline
- e. Phenothiazine

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

485. A pharmacy has submitted its financial report for the first quarter of 2021. It contains the following information: turnover - 92 000 UAH, cost price of the goods sold - 60 000 UAH. Therefore, the price markup for this period amounts to:

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

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

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

487. In his line of work a dispensing chemist tries to satisfy a number of contradictory requirements, which has resulted in emotional overload, stress, and self-doubt. What type of conflict has arisen in this case?

- a. -

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

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

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

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

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

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

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

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

493. Various groups of propellants are used in production of aerosols. What group does carbon dioxide CO₂ belong to?

- a. Volatile gases
- b. Compressed gases**
- c. Liquefied gases
- d. Non-volatile gases
- e. Rarefied gases

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

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

e. $V = V_{\text{tincture}} + m_{\text{raw material}} \cdot K_{\text{alcohol absorption}}$

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

- a. Cortex Quercus
- b. Cortex Viburni opuli

c. Fructus Sorbi

- d. Rhizoma Tormentillae
- e. Folium Menthae piperitae

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

- a. Glibenclamid
- b. Arphasetin

c. Insulin

- d. Exenatide
- e. Metformin

497. 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. One-level channel
- c. Two-level channel
- d. Three-level channel

e. Zero-level channel

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

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

e. 3 years

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

- a. Herbal raw material should be fresh
- b. Intense heating

c. Certain value of the solution pH

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

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

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

e. Alkali

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

- a. Glucocorticoids
- b. Antiarrhythmic drugs
- c. Nonsteroidal antiinflammatory drugs
- d. Anticholinesterase drugs

e. Antimicrobial agents

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

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

e. Chloramine

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

a. Propranolol

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

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

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

e. Fructus Rosae

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

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

- a. Sulfanilamide
- b. Papaverine hydrochloride
- c. Phenazepam

d. Epinephrine tartrate

e. Promedol (Trimeperidine)

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

- a. Sodium iodide
- b. Sodium chloride
- c. Hydrogen peroxide

d. Sodium thiosulfate

e. Sodium bromide

508. 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. Accelerated clearance of iron preparations
- d. Formation of chelate complexes that cannot be assimilated into the body
- e. Prolonged action of iron preparations

509. 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. Calami radices

c. Tormentillae radices

d. Glycyrrhizae radices

e. Taraxaci radices

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

a. 1.31

b. 1.25

c. 1.20

d. **1.21**

e. 1.11

511. 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. Agents

b. Brokers

c. **Dealers**

d. Consignees

e. Commission agents

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

a. **Ethanol**

b. Acetone

c. Dichloroethane

d. Glycerine

e. Chloroform

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

a. Ethanol

b. Chloroform

c. Peach-kernel oil

d. **Purified water**

e. Vaseline

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

a. **Bismuth subcitrate**

b. Omeprazole

c. Amoxicillin

d. Clarithromycin

e. Metronidazole

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

a. Quantity and vehicle of the suppositories

b. **Diameter, length, and quantity of the suppositories**

c. Diameter and quantity of the suppositories

d. Length and quantity of the suppositories

e. Diameter and vehicle of the suppositories

516. 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. Maturity**
- d. Development
- e. Growth

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

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

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

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

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

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

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

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

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

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

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

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

523. 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. Legitimate power
- b. Referent power**
- c. Power based on fear

- d. -
- e. Coercive power

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

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

525. Aqueous lanolin consists of:

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

526. 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. Schisandra seeds
- c. Silybum fruits
- d. Flax seeds
- e. Fennel fruits

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

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

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

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

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

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

530. What medicinal substance is a derivative of morphinan?

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

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

- a. 20% sodium bromide solution
- b. Tincture of valerian

- c. Purified water
- d. Simple syrup
- e. Potassium bromide

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

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

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

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

534. The thyme grass is used for the production of herbal medical products for the treatment of respiratory tract infections. Under the State Pharmacopoeia of Ukraine the herbal raw material is subject to chromatographic identification by means of thin layer chromatography. What substances are detected on the chromatographic plate after its treatment with due reagent?

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

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

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

536. According to the State Pharmacopoeia of Ukraine, the tablets taken internally can be classified into several different types. The pulsatile release tablets can be classified as:

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

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

538. A pharmacist has prepared a solid dosage form - a compound powder. What technological operation is textbfNOT a part of preparation process in this case?

- a. Mixing
- b. Dissolution**

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

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

- a. Extraction of primary juice
- b. Maceration
- c. Mass transfer**
- d. Dissolution
- e. Washing the herbal raw material with an extractant

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

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

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

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

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

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

543. 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

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

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

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

- a. Sublimation
- b. Anthraquinone reduction
- c. Oxidation of anthracene derivatives

d. Production of phenolates with alkali-ammonia solution

e. Salt precipitation

546. In the process of pharmaceutical company entering an offshore market the traditions and customs, religion, system of values, and education level of the local population were analyzed. What factors of international marketing environment were researched?

a. Political

b. Economical

c. Legal

d. Sociocultural

e. Technological

547. 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. Intensification

c. Integration

d. Modernization

e. Conglomeration

548. 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. 400 mg

b. 100 mg

c. 500 mg

d. 200 mg

e. 300 mg

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

a. Adsorption bases

b. Hydrophobic bases

c. Hydrophilic bases

d. Diphylic (amphiphilic) emulsion bases

e. Silicone bases

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

a. Sodium chloride

b. Potassium chloride

c. Magnesium sulfate

d. Novocaine

e. Glucose

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

a. Starch

b. Sodium eosinate

c. Bromphenol blue

d. Potassium chromate

e. Iron (III) ammonium sulphate

552. 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. Stimulating

b. Counteractive

c. Remarketing

d. Synchromarketing

e. Conversion

553. Based on the medical certificate, a patient can receive financial assistance due to temporary

disability. Financial assistance for temporary disability textbfCANNOT be provided:

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

e. In case of intentional self-harm

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

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

e. Legal

555. 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. Limited monopoly market

b. Market with pure (free) competition

- c. Oligopolistic market
- d. Pure monopoly market
- e. -

556. 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. Personnel certification
- b. Staff dynamics

c. Staff turnover

- d. Job rotation
- e. Staff motivation

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

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

e. Informal

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

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

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

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

560. During macroscopic analysis of rhizomes with roots, a pharmacist notes that rhizomes often have a cavity in their center. The color of the raw material is reddish-brown on the outside, while on

section reddish-brown bark and orange-red wood are visible. The taste is sweet at first, but becomes slightly astringent and bitter later. What plant is the source of this herbal raw material?

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

561. Powder moisture content affects its:

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

562. 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. Simple capitate hairs
- b. Capitate, flask-shaped, and stinging hairs; cystoliths; vessels of the conducting bundle, veins, druses of calcium oxalate
- c. Bast fibers, tracheids, starch, vessels
- d. Many-armed, two-armed, and simple hairs
- e. T-shaped hairs along the leaf margin

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

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

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

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

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

566. 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. Refractometry
- c. Photocolorimetry
- d. Spectrophotometry
- e. Polarography

567. 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. Cholesterol biosynthesis occurs mainly at night

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

568. 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

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

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

570. Tussilago farfara leaves are a component of drugs that exhibit coating, expectorant, and softening effect. What class of bioactive substances determines such pharmacological characteristics of this raw material?

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

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

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

572. 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. Iridoids
- c. Tannins**
- d. Glycosides
- e. Lipids

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

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

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

a. 1:10

b. 1:5

c. 1:30

d. 1:400

e. 1:20

575. 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. 5 years

e. 6 months

576. Most types of herbal raw materials are stored dry. However, for juice production the factories receive fresh herbal material. Name one such plant that is processed fresh:

a. *Urtica dioica*

b. *Capsella bursa-pastoris*

c. *Plantago major*

d. *Althaea officinalis*

e. *Rosa canina*

577. 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. Celecoxib

b. Ibuprofen

c. Metamizole sodium

d. Paracetamol

e. Acetylsalicylic acid

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

a. Self-actualisation

b. Esteem

c. Social (involvement in the events)

d. Safety and protection

e. Physiological

579. 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. Withdrawal syndrome

c. Reye syndrome

d. Idiosyncrasy

e. Anaphylactic reaction

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

a. Solvent

b. Preservative

c. Solubilizer

d. Emollient

e. Plasticizer

581. 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. Ferroin

b. Bromphenol blue

- c. Potassium chromate
- d. Methyl orange
- e. Phenolphthalein

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

- a. Medical certificate
- b. Work schedule
- c. Payroll
- d. Material aid log book
- e. Employee time sheet**

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

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

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

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

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

- a. Tropaeolin OO**
- b. Methyl orange
- c. Phenolphthalein
- d. Xylenol orange
- e. Methyl red

586. A 25-year-old woman is in the third trimester of her pregnancy. During her regular examination, US detected a malformation in the fetus. Medical history of the patient shows that she was taking large doses of diazepam without prescription during her pregnancy. What type of side effect has occurred in this case?

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

587. Name the optimal vehicle for soluble vaginal suppositories:

- a. Fat
- b. Glycerine
- c. Cocoa butter
- d. Hard fat
- e. Polyethylene oxide**

588. 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 paraffin and sunflower oil (3:7)
- b. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (6:4)**
- c. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (5:5)
- d. 10.0 of vaseline (petroleum jelly) "for eye ointments"
- e. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (7:3)

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

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

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

- a. Flowers
- b. Bark**
- c. Buds
- d. Infructescences
- e. Roots

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

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

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

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

593. A patient with chronic heart failure, who has been taking cardiac glycosides, developed signs of glycoside intoxication. What antidote would be advisable in this case?

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

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

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

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

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

596. 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. -

d. Monthly

- e. Daily

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

- a. Commercial report
- b. Inventory item description
- c. Act on the inventory results**
- d. Invoice
- e. Checklist

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

- a. Rectal capsules
- b. Microcapsules
- c. Medules
- d. Tubatines**
- e. Spansules

599. 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. Ash bark
- c. Birch bark
- d. Buckthorn bark**
- e. Oak bark

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

- a. Commercial activity
- b. Social responsibility**
- c. Manufacturing activity
- d. Financial activity
- e. -

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

602. 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. 50
- c. 20**
- d. 10
- e. 30

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

- a. Bromometry**
- b. Argentometry
- c. Complexometric titration

- d. Mercurimetry
- e. Nitritometry

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

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

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

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

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

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

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

- a. Triamcinolone acetonide
- b. Prednisolone
- c. Hydrocortisone acetate
- d. Dexamethasone
- e. Fluocinolone acetonide**

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

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

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

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

610. 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. Ascorbic acid
- e. Benzoic acid

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

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

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

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

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

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

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

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

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

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

617. Polyethylene oxide base belongs to the following group:

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

618. 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. Convallatoxin
- b. Lanatosides A and B

c. Purpurea glycosides A and B

d. K-Strophanthin

e. Atropine and hyoscyamine

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

a. Sodium nitrite solution

b. Magnesium sulfate solution

c. Ammonium oxalate solution

d. Potassium pyroantimonate solution

e. Barium chloride solution

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

a. Injection solutions with thermostable substances

b. Injection solutions with thermolabile substances

c. Concentrated solutions for burette systems

d. 2% collargol solution for infants

e. Liquid ingestible antibiotics

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

a. Extended time

b. Nightshift

c. Dayshift

d. Overtime

e. Regular hours

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

a. Strict control procedure

b. Focus on individual results

c. Individualism

d. Strictly formalized management system

e. Collectivism

623. 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. Alcohol precipitation

b. Ability to sublime

c. Amorphous state

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

e. Solubility in fats

624. 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

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

a. Dissolved in the boiling water

b. Reduced to fine powder

c. Comminuted with alcohol

d. Dispersed with glycerine

e. Dissolved in the saturated solution of potassium iodide

626. Lipophilicity is very important for the bioavailability of a substance. Name the numerical

parameter that characterizes lipophilicity.

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

627. A 53-year-old patient diagnosed with arterial hypertension is undergoing inpatient treatment. After the examinations, the urologist diagnosed the patient with a prostate adenoma. What can be the drug of choice in this case?

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

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

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

629. 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. Pure competition**
- d. Economic planning
- e. Monopolistic competition

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

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

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

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

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

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

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

a. Oxeladin

b. Sodium bicarbonate

c. Tripsin

d. Acetylcysteine

e. Bromhexine

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

a. Coloring

b. Microcrystalline

c. Colored

d. Macrocrystalline

e. Volatile

635. 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. Penicillins

b. Fluoroquinolones

c. Macrolides

d. Cephalosporins

e. Aminoglycosides

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

a. Vroom's expectancy theory

b. Herzberg's two-factor theory

c. McClelland's theory of needs

d. McGregor's Theory X and Theory Y

e. Maslow's hierarchy of needs

637. 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

638. 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. Ammonium chloride

b. Mucaltin

c. Ambroxol syrup

d. Potassium iodide

e. Infusion of Thermopsis grass

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

a. Sodium bicarbonate, sodium sulfate

b. Bolus alba (kaolin), bentonite

c. Boric acid, calcium carbonate

d. Zinc oxide, talcum

e. Camphor, menthol

640. The documents of a pharmaceutical company are being received and sent in a centralized

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

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

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

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

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

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

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

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

644. Motherwort grass is a component of hypotensive and sedative drugs. This herbal raw material should be harvested taking into account its renewal rate. Therefore it can be harvested:

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

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

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

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

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

- a. Aromatic ketones

- b. Aromatic sulfo acid amides
- c. Aromatic amino acid amides
- d. Aromatic amino-aldehydes

e. Aromatic amino acid esters

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

a. Hydroxyquinoline

b. Furfural

c. Resorcinol

d. Aniline

e. Benzaldehyde

649. 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. Hyperkalemia

b. Hyponatremia

c. Hypocalcemia

d. Hypoglycemia

e. Hybernatriemia

650. What reagent is used to identify sodium sulfate?

a. Barium chloride

b. Cobalt chloride

c. Calcium chloride

d. Silver nitrate

e. Iron(III) chloride

651. 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. Red

c. Green

d. Turquoise

e. Blue

652. 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. Tropaeolin OO

b. Mordant black

c. Potassium chromate

d. Ammonium iron (III) sulfate

e. Phenolphthalein

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

a. Alkaloids

b. Polysaccharides

c. Saponins

d. Coumarins

e. Flavonoids

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

a. Labetalol

b. Lisinopril

c. Hydrochlorothiazide

d. Atenolol

e. Carvedilol

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

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

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

- a. Coacervation
- b. Mechanical dispersion**
- c. Ultrasonic dispersion
- d. Solubilization
- e. Maceration

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

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

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

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

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

- a. Polyvinyl alcohol
- b. Sodium chloride
- c. Methyl cellulose
- d. Hydrochloric acid
- e. Boric acid**

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

- a. Emulsifier**
- b. Antioxidant
- c. Solvent
- d. Taste correction agent
- e. Preservative

661. 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. Mixed rotation
- c. Diagonal rotation
- d. Employee turnover
- e. Vertical rotation

662. 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. Complexonometry
- c. Argentometry**
- d. Alkalimetry
- e. Acidimetry

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

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

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

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

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

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

666. A pharmacist has prepared a medicine, using the following formulation: Magnesii oxydi Natrii hydrocarbonatis ana 0.2 M. f. pulv. D. t. d. №12 S. Take one powder thrice a day. endtabular What is the optimal preparation technique in this case?

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

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

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

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

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

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

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

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

671. 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. Steroid cycle**
- c. Pyridine cycle
- d. Imidazole cycle
- e. Naphthalene cycle

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

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

673. 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. Three-level distribution channel
- b. Direct distribution channel (zero channel)**
- c. One-level distribution channel
- d. Four-level distribution channel
- e. Two-level distribution channel

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

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

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

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

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

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

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

What stage is textbfNOT a part of herbal mixture production?

a. Extraction

- b. Marking
- c. Mixing
- d. Packing
- e. Sifting

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

- a. Characteristics of the raw stock, materials, and intermediate products
- b. Description of the manufacturing process

c. Characteristics of the end product

- d. Characteristics of the auxiliary raw stock and materials
- e. Information materials

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

a. Furosemide

b. Alpha-methyldopa

- c. Captopril
- d. Sodium nitroprusside
- e. Propranolol

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

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

d. First dissolve it in the minimum amount of water

- e. Grind it with a part of the molten base

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

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

e. Tramadol, tablets

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

a. Morphine hydrochloride

b. Sodium benzoate

- c. Benzocaine
- d. Nitrofurural (Nitrofurazone)
- e. Theophylline monohydrate

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

a. Customers ledger

b. Transactions ledger

- c. Prescription logbook
- d. Receipt book
- e. Cash book

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

a. Murexide

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

685. A patient needs the pharmacy to prepare him a camphor ointment. What concentration of camphor should be in the ointment according to the regulatory documents?

- a. 5%
- b. 15%
- c. 1%
- d. 20%
- e. 10%**

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

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

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

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

688. 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. Cushing's syndrome
- c. Osteoarthritis
- d. Osteoporosis
- e. Steroid diabetes

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

- a. Sulfamide group
- b. Carboxylic group
- c. Ketone group
- d. Aldehyde group
- e. Esther group**

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

- a. Medicine is available only by prescription
- b. Medicine can cause no direct or indirect harm to the patient's health**
- c. Medicine is available only for in-patient treatment
- 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

691. 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. Stimulation marketing
- b. Synchromarketing

- c. Conversion marketing
- d. Remarketing
- e. Demarketing**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- a. Anti-hydrolysis effect
- b. Cost
- c. Pharmacological inertness
- d. Selectivity toward active substances**
- e. Thermostability

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

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

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

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

702. 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. 0.5 g
- b. 0.3 g
- c. 0.25 g**
- d. 0.1 g
- e. 0.2 g

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

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

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

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

705. A pharmacist needs to add a stabilizer to prepare an atropine sulfate solution for injections. What stabilizer would the pharmacist choose for this purpose?

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

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

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

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

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

708. 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. Nitroglycerine**
- d. Naphthyzin (Naphazoline)
- e. Riboxin (Inosine)

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

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

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

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

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

- a. Bisoprolol
- b. Prazosin
- c. Diltiazem
- d. Triamterene**
- e. Furosemide

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

- d. Thermopsis tincture, purified water
- e. Thermopsis grass, sodium chloride, purified water

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

- a. Benzylaminocellulose
- b. Paraaminobenzoate of sugars
- c. Diethylaminomethylcellulose
- d. Acetylphthalylcellulose**
- e. Sodium carboxymethyl cellulose

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

- a. 100% of the average salary**
- b. 50% of the average salary
- c. 60% of the average salary
- d. 80% of the average salary
- e. 70% of the average salary

715. 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. Polysaccharides
- b. Iridoids**
- c. Alkaloids
- d. Saponins
- e. Essential oils

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

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

717. A substance was received for analysis. The substance is a round seed 1-1,8 mm in diameter, yellow with bluish tint. When mashed with water, emits characteristic irritant odor; is sharp and acrid to taste. The raw material can be identified as:

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

718. 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. Democratic
- c. Collective
- d. Liberal
- e. Direct

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

- a. Bismuth subcitrate**
- b. Omeprazole
- c. Tetracycline

- d. Metronidazole
- e. Amoxicillin

720. 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. 40 000 UAH
- b. 15 000 UAH
- c. 35 000 UAH
- d. 5 000 UAH**
- e. 30 000 UAH

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

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

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

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

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

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

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

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

725. 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. Fruiting
- c. Defoliation
- d. Flowering
- e. Sap flow**

726. 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. Fluorides
- d. Sulfates
- e. Bromides

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

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

728. 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. FeCl_3
- c. KMnO_4
- d. K_2CrO_4
- e. $\text{K}_2[\text{HgI}_4]$

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

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

730. 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. 30%
- c. 10%
- d. 20%
- e. 50%

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

- a. Dry substance was dissolved in the filtered extract in a stand
- b. Concentrated solution was added into the prepared extract
- c. Sodium bromide was mixed in a separate vessel with a part of the extract, then this mixture was added into the prepared tincture
- d. Dry substance was dissolved in the infusion apparatus
- e. Sodium bromide was dissolved in the tincture in a vial for dispensing

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

733. 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. *Schisandra chinensis*

- c. Ribes nigrum
- d. Prunus padus**
- e. Vaccinium myrtillus

734. A man has bought nitroglycerine for sublingual administration in a pharmacy. He wants to know, what side effect might develop after taking this medicine:

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

735. To reduce business risks, the director of a pharmaceutical company has decided to withdraw a part of the profits and invest money into the restaurant business. Name the phenomenon, when the effort and capital are divided and invested into different types of business, the results of which are not directly related.

- a. Diversification**
- b. Liquidation
- c. Bankruptcy
- d. Indexation
- e. Insurance

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

737. 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. 50 days
- b. 100 days
- c. 126 days**
- d. 115 days
- e. 70 days

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

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

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

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

740. 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

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

- a. Drug dosing equipment
- b. WHO directives

c. Adjuvants

- d. Material expenses of the manufacture
- e. Compliance with GMP regulations

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

- a. Increase its mechanical stability
- b. Increase its thermal stability

c. Decrease its melting point

- d. Increase its dimming ability
- e. Increase its chemical stability

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

- a. Labor
- b. Material

c. Financial

- d. -
- e. Special

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

- a. *Melissa officinalis*
- b. *Inula helenium*

c. *Chamomilla recutita*

- d. *Valeriana officinalis*
- e. *Arnica montana*

745. The duty of a cash desk operator is to perform cash receipt and withdrawal transactions on the grounds of the relevant cash orders. Select from the list below a receipt transaction.

- a. Issuing a cash sum to be accounted for
- b. Salary payments

c. Receipt of funds for advance salary payments

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

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

a. The State Service of Ukraine for Drug Control

b. The Audit Chamber of Ukraine

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

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

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

d. Filtration through membrane

- e. Ultrasound

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

- a. After solid medicinal substances are dissolved

b. First

- c. Before ethanol-containing liquids are added
- d. Last, because of its essential oil content
- e. After concentrated solutions

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

- a. Iridoids
- b. Polysaccharides
- c. Alkaloids
- d. Flavonoids

e. Tannins

750. 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. Talcum

b. Streptocid

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

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

- a. Issuing cash sums to be accounted for
- b. Salary payments
- c. Advance salary payments

d. Revenue of the pharmacy

e. Transfer of the revenue to the bank account

752. 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. Anthracene derivatives and tannins

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

753. A pharmacist prepares a mixture that according to the prescription must contain ammonia spirit-anise spirit drops. What type of a disperse system will form as a result?

- a. Colloidal solution
- b. Emulsion

c. Opalescent mixture

- d. High-molecular compound solution
- e. True solution

754. What substance can be synthesized as a result of the condensation of 5-nitrofurfural with semicarbazide?

- a. Nitroxoline
- b. Phthalazole (Phthalylsulfathiazole)
- c. Metronidazole
- d. Norfloxacin

e. Nitrofural (Nitrofurazone)

755. Standardization of a certain herbal raw material is done by calculating its alkaloid content in terms of hyoscyamine. Name this herbal raw material:

a. Radices Berberidis

b. Folia Belladonnae

- c. Herba Chelidonii
- d. Herba Thermopsisidis lanceolatae

e. Fructus Capsici

756. Powders are a solid dosage form for internal or external use. What stage is **NOT** a part of powder production?

- a. Packing
- b. Granulation**
- c. Comminution
- d. Mixing
- e. Sifting

757. Simultaneous application of doxycycline hydrochloride and oral contraceptive causes:

- a. Increase of the antibacterial effect of doxycycline
- b. -
- c. Reduction of oral contraceptives effectiveness**
- d. Increase of oral contraceptives effectiveness
- e. Reduction of the antibacterial effect of doxycycline

758. 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 on the holiday
- b. There are no regulations regarding payment of salaries in this case
- c. To pay the salaries 10 days earlier
- d. To pay the salaries after the holiday
- e. To pay the salaries one day earlier**

759. 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. Centralized**
- b. Referent
- c. Decentralized
- d. Specialized
- e. Mixed

760. A pharmaceutical company produces belladonna tincture. In the process of standardization, excessive content of active substances was detected. How can this situation be remedied?

- a. Filter the tincture through adsorbent
- b. Dilute the tincture with extractant to normal concentration**
- c. This kind of deviation is not important
- d. The tincture is a non-recoverable reject material
- e. Precipitate excessive active substances

761. A 63-year-old woman suffering from diabetic nephropathy with functional disturbance of the kidneys needs etiotropic treatment for focal pneumonia. What drug is **CONTRAINDICATED** in this case?

- a. Combined penicillins
- b. Synthetic penicillins
- c. Aminoglycosides**
- d. Natural penicillins
- e. Macrolides

762. The head managers of the pharmacy's over-the-counter department and ready-to-use drugs department exchange information on the demand for medicines. What type of communication is it?

- a. Interlevel
- b. Vertical descending
- c. Vertical ascending
- d. Horizontal**
- e. External

763. To improve structural and mechanical properties of capsule shells, to ensure their proper elasticity and reduce their brittleness, the following substances are introduced into the gelatin mass:

- a. Pigments
- b. Thickeners
- c. Plasticizers**
- d. Preservatives
- e. Stabilizers

764. A 12-year-old girl has been diagnosed with acute pyelonephritis. What antibacterial agent has an age limit for its prescription to a patient?

- a. Benzylpenicillin sodium salt
- b. Amoxicillin
- c. Cefuroxime
- d. Levofloxacin**
- e. Clarithromycin

765. According to the State Pharmacopoeia of Ukraine, an analytical chemist can determine sulfate admixtures in sodium tetraborate by the effect of white opalescence that results from its reaction with the following solution:

- a. Sodium sulfide
- b. Ammonium oxalate
- c. Silver nitrate
- d. Barium chloride**
- e. Magnesium sulfate

766. For what substance its dosing is based on the mass, when preparing liquid dosage forms?

- a. Ammonia spirit-anise spirit drops
- b. Leonurus tincture
- c. Elixir pectoralis
- d. 1% citral alcohol solution
- e. 30% hydrogen peroxide (Perhydrol)**

767. 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 an alkali**
- c. Reaction with ammonium iron(III) sulfate
- d. Reaction with iron(II) sulfate
- e. Reaction with Molisch reagent

768. How often should a pharmacy make an inventory of its fixed assets?

- a. At least thrice a year
- b. At least once in a quarter
- c. Once every three years
- d. At least twice a year
- e. Once a year**

769. Various types of dryers can be used for granule dehumidification. Specify the type of "СП-30" dryer:

- a. Silica gel dryer
- b. Infrared dryer
- c. Forced air dryer
- d. Freeze dryer
- e. Fluidized bed dryer**

770. 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. 6 years

- c. 1 year
- d. 3 years**
- e. 2 years

771. A patient receives heparin for acute myocardial infarction. On the third day the patient developed hematuria and subcutaneous hematomas. What medicine should be prescribed as an antidote in this case?

- a. Protamine sulfate**
- b. Streptokinase
- c. Clopidogrel
- d. Acetylsalicylic acid
- e. Vicasol (Menadione)

772. 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. Chromatography
- d. Gravimetry**
- e. Spectrophotometry

773. 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 ethyl alcohol into a vial for dispensing, measure out salicylic acid
- b. Measure out the substance into a vial for dispensing, measure out ethyl alcohol, shake the vial**
- c. Measure out the solvent into a stand, measure out the substance
- d. Measure out the substance into a stand, measure out the solvent
- e. Commminute the substance in a mortar, add the solvent

774. Helichrysum arenarium herbal raw material has anti-inflammatory and choleretic effect. What parts of this plant are harvested?

- a. Fruits
- b. Grass
- c. Flowers**
- d. Rhizomes
- e. Roots

775. Microcapsules are made by coating solid particles of the substance being encapsulated with a shell consisting of metallic silver, zinc, etc. Name this method of making microcapsules:

- a. Coacervation
- b. Polymerization
- c. Pelleting
- d. Galvanization**
- e. Slurrying of the nuclei

776. A patient with arterial hypertension has been taking a beta-blocker (bisoprolol) for a long time. After his condition improved, he suddenly stopped taking this drug, which caused a sharp increase in the blood pressure. What complication of the therapy has occurred in this case?

- a. Reduced sensitivity
- b. Bradycardia
- c. Withdrawal syndrome**
- d. Dysbacteriosis
- e. Bronchospasm

777. During quantitative determination of Vicasol (Menadione) by means of cerimetry, the following indicator is used:

- a. Ferroin**
- b. Methyl orange

- c. Crystal violet
- d. Naphtholbenzein
- e. Methyl red

778. A pharmacist has prepared a suspension that contains basic bismuth nitrate. What method was used in the process of its preparation?

- a. Dispersion with stirring
- b. Continental method
- c. Chemical condensation
- d. Solvent replacement method
- e. Physical condensation

779. The head manager of a pharmacy uses influence methods that concern property and financial interests of the employees. What management methods are used by the head manager?

- a. Social and psychological
- b. Social and political
- c. Technological
- d. Administrative

e. Economic

780. The dispensing chemist of a pharmacy has prepared 5 formulations. Which one of them requires total chemical control?

- a. Riboflavin-containing powders
- b. Kvater's mixture
- c. Baby powder

d. Atropine sulfate eyedrops

e. Streptocide (sulfanilamide) ointment

781. Passiflora incarnata grass contains a complex of indole alkaloids. What pharmacological group do Passiflora preparations belong to?

- a. Wound healing agents
- b. Laxatives
- c. Diuretics
- d. Antibacterial agents

e. Sedatives

782. To prepare an ointment, a pharmacist has additionally used paraffin. What is the role of paraffin in the technology?

- a. Dispersing agent for powders
- b. Preservative
- c. Vehicle

d. Densifier

e. Emulsifier

783. The chief manager of a pharmacy designs its organizational structure and job descriptions for its employees. These arrangements belong to the following management method:

- a. Psychosocial
- b. Simulation

c. Organizational

- d. Economic
- e. Legal

784. A pharmaceutical company produces deep-acting ointments. What is the mechanism of action of the active substances contained in resorptive ointments?

a. Reach the systemic circulation and enhance the effect of drugs

- b. Protect the skin from microbial infection
- c. Protect the skin from external factors
- d. Prevent drying and contamination of the epidermis
- e. Absorbed by the outer layers of the skin

785. A pharmacist prepares a chamomile flowers infusion. Specify the proportion of raw material to infusion:

- a. 1:400
- b. 1:20
- c. 1:10**
- d. 1:50
- e. 1:30

786. The amount of temporary disability benefits to be paid is calculated taking into account the insured record of service of an employee. What percentage of temporary disability benefits will be paid to an employee with a disability certificate and more than 8-year-long insured record of service?

- a. 90% of salary
- b. 50% of salary
- c. 100% of salary**
- d. 75% of salary
- e. 60% of salary

787. What tincture is industrially manufactured at the ratio of 1:2?

- a. Atropa belladonna
- b. Mentha
- c. Styphnolobium japonicum**
- d. Leonurus
- e. Hypericum

788. Acyclovir is a drug with the nucleoside structure, effective against herpes virus. What reaction of its transformation in the body is associated with its antiviral effect?

- a. Hydrolysis
- b. Reduction
- c. Oxidation
- d. Phosphorylation**
- e. Hydroxylation

789. Under the current legislation, full or partial exemption of persons and legal entities from tax payment is called:

- a. Tax rate
- b. Tax concession**
- c. Tax
- d. Subject to taxation
- e. Tax system

790. What effect will anthracene derivatives have, if -OH- groups are located in both benzene rings of anthraquinone?

- a. Choleric
- b. Sedative
- c. Litholytic
- d. Diuretic
- e. Laxative**

791. To increase its sales, the "Have a good day!" pharmacy introduced a discount system. According to this system if a customer buys 100 UAH worth of medical products, this customer receives 2% discount. What marketing communication has this pharmacy implemented?

- a. Salesmen-oriented sales promotion
- b. Middlemen-oriented sales promotion
- c. Public relations, sponsorship
- d. Personal sale
- e. Consumer-oriented sales promotion**

792. According to the State Pharmacopoeia of Ukraine regulations, valine amino acid should be identified by means of thin-layer chromatography. To develop a chromatogram, the following reagent

should be used:

- a. 2,4-Dinitrochlorobenzene
- b. Ninhydrin**
- c. Concentrated ammonia
- d. Cyanogen bromide
- e. 2,4-Dinitrophenylhydrazine

793. Chromatographic methods are used in pharmaceutical analysis. What type of chromatography is based on reversible chemisorption of the ions of the analyte solution by the ionogenic groups of the sorbent?

- a. Thin layer chromatography
- b. Ion-exchange chromatography**
- c. Adsorption chromatography
- d. Gas chromatography
- e. Paper chromatography

794. 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. Pyrazinamide
- b. Piperazine**
- c. Riboflavin
- d. Calcitonin
- e. Ribavirin

795. What preparation has an antacid effect?

- a. Omeprazole
- b. Ranitidine
- c. Pirenzepine
- d. Famotidine
- e. Aluminum phosphate**

796. A 70-year-old patient with stenocardia claims that the pharmacy had sold him a drug that relieved an attack of stenocardia but instead caused an acute bursting headache. What antihypertensive drug is this side-effect typical of?

- a. Metoprolol
- b. Nitrosorbid**
- c. Nifedipine
- d. Amlodipine
- e. Trimetazidine

797. *Arctostaphylos* leaves have uroseptic effect. The following is an allowable admixture to this herbal raw material:

- a. *Folia Urticae*
- b. *Folia Digitalis lanata*
- c. *Folia Vitis idaeae***
- d. *Folia Cotini coggygriae*
- e. *Herba Bursae pastoris*

798. A folic acid molecule has a heterocyclic system, consisting of two condensed heterocycles - pyrimidine and pyrazine. Name this system:

- a. Phenothiazine
- b. Pteridine**
- c. Purine
- d. Isoalloxazine
- e. Corrin

799. 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. Titrated hydrochloric acid solution**
- c. Iodized potassium iodide solution
- d. Saturated sodium chloride solution
- e. Freshly prepared tannin solution

800. 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. 90%
- c. 95%
- d. 70%**
- e. 60%

801. To determine the quantity of wild-growing medicinal plants, it is necessary to know their area of vegetation and yield per unit area. Yield of *Thymus serpyllum* grass can be determined by the following method:

- a. Geodesically
- b. Permanent quadrat method
- c. Projective cover method**
- d. Visually
- e. Model sample method

802. What method is used to sterilize the eye drops containing benzylpenicillin sodium salt?

- a. Hot air
- b. Not subject to sterilization**
- c. Ultraviolet radiation
- d. Flowing steam
- e. Steam under pressure

803. 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

804. General sedimentation reagents are used to identify alkaloids in an extract obtained from herbal raw materials. Select from the list one such reagent.

- a. Dragendorff reagent**
- b. Erdman reagent
- c. Froehde reagent
- d. Marquis reagent
- e. Vitali-Morin reagent

805. 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 $+0,2^{\circ}$ to $-0,2^{\circ}$**
- c. From $+10^{\circ}$ to $+13^{\circ}$
- d. From $+50^{\circ}$ to $+56^{\circ}$
- e. From -48° to -51°

806. An important indicator of business activity is profitability of a business. Specify the indicators that can be used to measure the profitability:

- a. Turnover/production cost
- b. Liquidity/solvency

- c. Turnover/income
- d. Income/turnover

e. Profit/turnover

807. A pharmaceutical company produces suppositories made from thermolabile medicinal substances. What method is used in their production?

- a. Rolling
- b. Dispersion

c. Pressing

- d. Steeping
- e. Pouring

808. A woman at the third trimester of her pregnancy fell ill with pneumonia. A doctor prescribed her a fluoroquinolone. What negative effect can it have on the fetus?

- a. Hepatotoxic
- b. Neurotoxic
- c. Nephrotoxic
- d. Hematotoxic

e. Chondrotoxic

809. The cholagogue derived from Rosa canina fruit is used in treatment of liver and gallbladder diseases. Name this drug:

- a. Phytolyt
- b. Altan
- c. Chophytol
- d. Allochol

e. Cholasas

810. 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. Osarsol
- b. Collargol (Colloidal silver)
- c. Tannin
- d. Copper sulfate

e. Pepsin

811. Optical rotation angle of substances is determined under the temperature of 20°C , in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ($\lambda = 589,3 \text{ nm}$), and is calculated with reference to a solution containing 1 g of the substance per ml. It is called:

a. Specific optical rotation

- b. Relative density
- c. Refractive index
- d. Distribution coefficient
- e. Optical density

812. What should be the disintegration time for effervescent tablets according to the requirements of the State Pharmacopoeia of Ukraine?

a. 5 minutes

- b. 3 minutes
- c. 60 minutes
- d. 15 minutes
- e. 30 minutes

813. What medicinal substance has benzimidazole in its structure?

a. Dibazol (Bendazol)

- b. Metamizole sodium salt (Analgin)
- c. Mercazolil (Thiamazole)
- d. Diphenhydramine hydrochloride (Dimedrol)
- e. Nitrofuril (Furacilin)

814. Who gives permission to distribute medical products between the structural divisions of a pharmacy, after these products have successfully passed the on-receipt inspection?

- a. Accountant
- b. Pharmacist on duty
- c. Authorized person**
- d. Lawyer
- e. Supplier representative

815. The Dobropharma pharmacy manager makes plans for standard stock of various groups of goods, based on their purpose. Convenience goods belong to the following group:

- a. Prior delivery
- b. Current demand**
- c. Seasonal accumulation
- d. Specific demand
- e. Single delivery

816. The main method of quantitative determination of corticosteroids is:

- a. Cerimetry
- b. Acidimetry
- c. Argentometry
- d. Potentiometry
- e. Spectrophotometry**

817. 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. Amoxicillin**
- c. Norfloxacin
- d. Chloramphenicol
- e. Gentamicin

818. A pharmacy visitor periodically feels constricting pain behind the sternum. Explain to this visitor, what contraindication exists for taking nitroglycerin.

- a. Pulmonary fibrosis
- b. Kidney failure
- c. Heart failure
- d. Angle-closure glaucoma**
- e. Peptic ulcer disease

819. For treatment of enteric infection a 36-year-old woman was prescribed a nitrofurant derivative that is poorly absorbed in the intestine and takes its effect along the intestinal tract. Name this drug:

- a. Furadonin (Nitrofurantoin)
- b. Nifuroxazide**
- c. Nalidixic acid
- d. Nitroxoline
- e. Furacilin (Nitrofurant)

820. 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. Unitary**
- b. Elastic
- c. Perfectly inelastic
- d. Perfectly elastic
- e. Inelastic

821. A pharmaceutical warehouse has received a batch of herbal raw material - hawthorn flowers. Merchandise analysis revealed in one of the sacks significant amount of bird-cherry flowers besides the hawthorn. What quality assessment of the herbal raw material should be performed?

- a. Moisture content
- b. Acceptable admixtures**
- c. Extractive values
- d. Ash values (Total ash)
- e. Mineral admixtures

822. 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 lower its melting temperature
- d. To change its color
- e. To improve its chemical resistance**

823. Prescriptions for psychotropic drugs remain in the pharmacy after the sale. How long must they be kept?

- a. The prescription must be returned to the patient
- b. Three years
- c. One year
- d. One month
- e. Five years**

824. Herbal raw material quality depends on the period when it was harvested. Subterranean organs - roots, rhizomes, subterranean tubers - should be harvested:

- a. During the bloom
- b. In early spring or autumn**
- c. During the period of vegetation
- d. Before the bloom
- e. At the end of the bloom

825. What herbal raw material is used as an industrial source of tannins?

- a. Solidago canadensis grass
- b. Nettle leaves
- c. Persicaria hydropiper grass
- d. Cotinus coggygria leaves**
- e. Rose hips

826. At a pharmacy, during the visual inspection, an authorized person has doubts about the quality of medicines. What measures should be taken in this case?

- a. Withdraw the medicines and send them to the quality assurance department of the manufacturing company
- b. Withdraw the medicines and send them back to the manufacturing factory
- c. Withdraw the medicines and send them for laboratory testing**
- d. Withdraw the medicines and send them for disposal
- e. Withdraw the medicines and send them back to the supplier

827. 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. Quantitative determination
- c. Microbiological purity
- d. Identification
- e. pH

828. 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 Melissae
- b. Folia Absinthii
- c. Folia Eucalypti**

- d. Folia Menthae piperitae
- e. Folia Betulae

829. Because of a power outage, the cash register in a pharmacy has stopped working. What should be used to perform transactions, while the cash register remains inoperable?

- a. Cash deposit and cash withdrawal receipts
- b. Payment orders
- c. Invoices
- d. Transactions log book**
- e. Payroll records

830. Benzocaine is a substance with local anesthetic activity. According to its chemical structure, it is a derivative of:

- a. n-Aminosalicylic acid
- b. n-Chlorobenzoic acid
- c. n-Aminophthalic acid
- d. n-Aminobenzoic acid**
- e. n-Aminobenzene sulfonic acid

831. What fatty oil can be used as a substitute for olive oil, when making injectable solutions?

- a. Oleum Maydis
- b. Oleum Lini
- c. Oleum Amygdalarum**
- d. Oleum Ricini
- e. Oleum Cucurbitae

832. The <<Violet>> pharmacy chain operates in the pharmaceutical market for over 20 years. In difficult market environment, the company's management actively uses elements of crisis management, diversification, and attraction of investments. What component of the successful activity of the pharmaceutical organization does the company provide?

- a. Practical implementation of management decisions
- b. Survival**
- c. Effectiveness
- d. Productivity
- e. Efficiency

833. 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 gas absorption
- b. The process of extraction from one liquid using another liquid
- c. The characteristic of biopolymer molecules that does not allow them to pass through semi-permeable membranes**
- d. The process of heating the extract
- e. The process of electrolyte action

834. What economic parameter characterizes the effectiveness of the pharmacy's commercial, financial, and manufacturing activity?

- a. Inventory turnover
- b. Work productivity
- c. Profitability**
- d. Stock of goods
- e. Circulation of goods

835. What document must be added to the foreign-made medical products?

- a. Drug Quality Standard
- b. Written Control Passport
- c. Conclusion on the quality of the drug imported into Ukraine**
- d. Technical regulations for the drug

e. Extract from the State Register of Medicines

836. A pharmacy has received a prescription for colloid solution. Name this solution:

- a. 5% glucose solution
- b. Burow's solution
- c. Sodium chloride solution
- d. Collargol solution**
- e. Nonaqueous solution

837. Bank is a financial mediator in pharmacy's payments. Payment of taxes withheld from the employees' salary into the budget requires the following document:

- a. Cash register receipt
- b. Check payable in account
- c. Cash order
- d. Payment order**
- e. Accounting form

838. What medicine is simultaneously a mucolytic and an antidote against a paracetamol overdose?

- a. Trypsin
- b. Carbocysteine
- c. Acetylcysteine**
- d. Ambroxol
- e. Bromhexine

839. The chemical name of 2,2-(diphenylmethoxy)-N,N-dimethyl-ethanamine hydrochloride corresponds with the following medicinal substance:

- a. Papaverine hydrochloride
- b. Lidocaine hydrochloride
- c. Ciprofloxacin hydrochloride
- d. Ethylmorphine hydrochloride
- e. Diphenhydramine hydrochloride**

840. Core tablets that are to be made into dragees must not have a flat shape. Why such requirement is necessary?

- a. To prevent them from adhesion to each other**
- b. To speed up the process of applying the coating
- c. To avoid prolonged contact with overlaying suspension
- d. To improve their appearance
- e. They are not durable enough

841. What reagent should be used by a dispensing chemist-analyst in a reaction for pyridine ring identification?

- a. Silver nitrate solution
- b. Chromotropic acid disodium salt
- c. Cyanogen bromide reagent**
- d. Cobalt nitrate solution
- e. Hydrochloric acid

842. 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. Satisfied
- b. Declining
- c. Excessive**
- d. Negative
- e. Absent

843. Infusion of Althaea roots is being prepared for a patient. What pattern of infusion should be chosen in this case?

- a. 30 minutes of water bath infusion and immediate filtering without cooling
- b. 15 minutes of water bath infusion and 45 minutes of cooling at room temperature
- c. 30 minutes of water bath infusion and 10 minutes of cooling at room temperature
- d. 30 minutes at room temperature**
- e. 60 minutes at room temperature

844. 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 sulfate
- d. Sodium chloride
- e. No isotonation is needed**

845. Erythromycin belongs to the following type of antibiotics based on its chemical structure:

- a. Polyene antibiotics
- b. Polypeptides
- c. Aromatic antibiotics
- d. beta-lactams
- e. Macrolides**

846. Vitali-Morin's reaction is used to identify tropane alkaloids in herbal raw material. Name the alkaloid that can be detected by means of this specific reaction:

- a. Papaverine
- b. Codeine
- c. Platyphyllin
- d. Scopolamine**
- e. Morphine

847. 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. Decarboxylation of the medicinal substance
- b. Oxidation of the medicinal substance
- c. Hydrolysis of the ester group**
- d. Reduction of the medicinal substance
- e. Precipitation of the formed salt

848. 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. Flavonoids
- b. Coumarins
- c. Lignans**
- d. Iridoids
- e. Xanthones

849. What technological method is used to prepare powders with dyes?

- a. Mixing in descending order, from larger to smaller volume
- b. Mixing in ascending order, from smaller to larger volume
- c. The principle of <<three layers>>**
- d. The dye is added last, after the mixture is prepared
- e. Preliminary sifting

850. 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

851. What drug facilitates dissolution of cholesterol stones in the gallbladder?

- a. Magnesium sulfate
- b. Silybum dry extract
- c. Ademethionine
- d. Cynara dry extract

e. Ursodeoxycholic acid

852. What stabilizer must the pharmacist add, when preparing an atropine sulfate solution for injections?

- a. Sodium hydroxide
- b. Sodium bicarbonate
- c. Ascorbic acid
- d. Sodium metabisulfite

e. Hydrochloric acid

853. A herbal raw material that contains alkaloids is being identified using a freshly prepared tannin solution. What precipitate forms as a result of this reaction?

- a. Yellow
- b. Green
- c. Creamy

d. White and amorphous

e. Red-brown

854. An analytical laboratory has received a procaine hydrochloride substance for analysis. According to the State Pharmacopoeia of Ukraine limit content of heavy metals should be determined with the following reagent:

- a. Aminomethyl alizarin acetic acid
- b. Sulfomolybdenum
- c. Methoxyphenylacetic acid
- d. Hypophosphite

e. Thioacetamide

855. Menthol medicinal substance can be chemically classified as a:

a. Monocyclic terpene

- b. Bicyclic terpene
- c. Glycoside
- d. Acyclic terpene
- e. Polypeptide

856. A doctor has given the patient a prescription for tramadol. What prescription form must be used in this case?

- a. F-1 form
- b. 2 copies of F-1 form

c. F-3 form

- d. F-1 and F-3 forms
- e. 2 copies of F-3 form

857. An analytical pharmacist conducts a quantitative analysis of sodium benzoate and uses a hydrochloric acid solution as a titrant. What method of quantification is being used in this case?

- a. Complexometry
- b. Iodometry

c. Acidimetry

- d. Nitritometry
- e. Bromatometry

858. 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. Caffeine

b. Theobromine

c. Caffeine and sodium benzoate

d. Theophylline ethylenediamine

e. Theophylline

859. A pharmacy supplies the surgical ward of a hospital. What document enables the dispensing chemist to supply the goods:

a. Report on the movement of packaging

b. Purchase order

c. Consolidated register

d. Product revaluation notice

e. Receipt log book

860. A dispensing chemist-analyst identifies phenol, using a phenolic hydroxyl reaction. What reagent is necessary for this reaction?

a. Calcium chloride

b. Sulfuric acid

c. Potassium chloride

d. Iron(III) chloride

e. Sodium sulfate

861. 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. Administrative

b. Socio-psychological

c. Economic

d. -

e. Technological

862. What type of loan does the pharmacy receive in the form of goods, and returns mainly in monetary form?

a. Bank loan

b. Commercial loan

c. Term loan

d. Prolonged loan

e. State loan

863. Number of mediators that pharmaceutical goods pass on their way from manufacturer to consumer is called:

a. Level of distribution channel

b. Length of distribution channel

c. Volume of distribution channel

d. -

e. Width of distribution channel

864. An analytical chemist can quantitatively determine the thiamine bromide content in powders by means of:

a. Alkalimetry

b. Permanganatometry

c. Bromometry

d. Nitritometric titration

e. Complexometric titration

865. Eucalyptus essential oil is used as an antiseptic. What excretory structures of a leaf accumulate this substance?

a. Glandular hairs

b. Glandular <<spots>>

- c. Secretory cells
- d. Essential oil cavities**
- e. Essential oil glands

866. The addition of preservatives and stabilizers is prohibited, when making the following dosage forms:

- a. Ophthalmic dosage forms
- b. Emulsions
- c. Suspensions
- d. Infusions

e. Dosage forms for newborns

867. A pharmaceutical wholesaler sells ointment bases (vaseline, lanolin, etc.) in bulk ("an gross") to the pharmacies that make extemporaneous compounds. What sales method (type of distribution) is typical for selling these goods?

- a. Mass sales method
- b. Selective method**
- c. Integrated method
- d. Intensive method
- e. -

868. Testing of a calcium lactate pentahydrate substance requires a reaction with a solution of thioglycolic acid in the presence of citric acid and an ammonia solution. What impurity can be detected using this reaction?

- a. Sulfates
- b. Ammonium salts
- c. Iron**
- d. Potassium
- e. Chlorides

869. A pharmacy has received a receipt for preparation of a dermatological ointment with a non-specified vehicle. What vehicle should be used in this case?

- a. Vaseline**
- b. Soap-glycerine base
- c. Lanolin
- d. Gelatin-glycerine gel
- e. Vaseline and lanolin

870. A medicinal plant contains hydroxycoumarins and is used in production of venotonic agents. Name the herbal raw material harvested from this plant:

- a. Fructus Dauci carotae
- b. Herba Meliloti
- c. Semina Hippocastani**
- d. Fructus Pastinacae sativae
- e. Fructus Ammi majoris

871. Pharmacies can prepare medicines based on individual formulations. What makes up the retail price of such medicines?

- a. Cost of ingredients, package, and labor**
- b. Cost of labor and price markup
- c. Cost of ingredients and package
- d. Cost of the ingredients that make up this dosage form
- e. Cost of ingredients

872. 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. Surname and initials of the doctor
- b. Own address
- c. License number

d. Medical facility seal

e. Own address, license number and its date of issue

873. What antibacterial agent is a part of the eradication therapy for H. pylori during the treatment of peptic ulcer disease of the stomach?

a. Clarithromycin

b. Gentamicin

c. Biseptol (Co-trimoxazole)

d. Meropenem

e. Ceftriaxone

874. What nonsteroidal anti-inflammatory drug is the most hematotoxic and can cause agranulocytosis?

a. Metamizole sodium

b. Nimesulide

c. Indomethacin

d. Ibuprofen

e. Acetylsalicylic acid

875. An analytical pharmacist of the quality control department analyzes the phenol substance. What method of quantification is used for this purpose?

a. Argentometry

b. Complexonometry

c. Permanganatometry

d. Mercurimetry

e. Bromatometry

876. 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. Officer of a local division of the state inspectorate for drug quality control

b. Pharmacist

c. Head manager

d. Employee appointed to this task by the head manager

e. Tax officer

877. Inorganic medicines are identified by their cations and anions. What should be used by an analytical chemist for identification of medicinal substances that contain potassium?

a. Hydrochloric acid solution

b. Acetic acid solution

c. Tartaric acid solution

d. Benzoic acid solution

e. Nitric acid solution

878. The "Medpharm" wholesale pharmaceutical firm employs a system that encourages its managers to achieve better results in sales by assigning them points for surpassing their sale goals. The points then become converted into material remuneration. This way the company management carries out the following management function:

a. Planning

b. Organization

c. Motivation

d. Control

e. Delegation

879. Indometacine is a nonsteroidal antiinflammatory drug. A condensed heterocyclic system is contained within the structure of this drug. What cycles compose the system?

a. Pyrimidine and imidazole

b. Benzene and pyridine

c. Two 4-oxycoumarin residues

d. Pyrrole and benzene

e. Benzene and thiazole

880. Working hours for the pharmacy workers are reduced. What is the length of the work week for the pharmacist-analyst?

- a. 30 hours
- b. 36 hours**
- c. 45 hours
- d. 24 hours
- e. 32 hours

881. On the initiative and with support of the manufacturing company, free samples of adhesive bandages were handed out to the visitors at a pharmacy. What element of the marketing communications complex is it?

- a. Lobbying
- b. Advertising
- c. Public relations
- d. Sales promotion, sampling**
- e. Personal selling

882. During limit test for aluminium admixture, the State Pharmacopoeia of Ukraine recommends to use the following solution as the basic reagent:

- a. Barium chloride
- b. Sodium tetraphenylborate
- c. Sodium hypophosphite
- d. Thioglycolic acid
- e. Hydroxyquinoline**

883. A pharmacist prepares 180 ml of adonis grass infusion. How much herbal raw material should be taken to prepare this infusion?

- a. 15.0
- b. 18.0
- c. 2.0
- d. 10.0
- e. 6.0**

884. According to Decree №360 issued by the Ministry of Health of Ukraine, there is a list of medicines that cannot be prescribed to outpatients. Select one such drug from the list below:

- a. Tramadol
- b. Atropine sulfate
- c. Nitrous oxide**
- d. Zopiklon
- e. Tetracaine

885. 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. Blood pressure rise
- b. Cumulation
- c. Bronchospasm**
- d. Constipations
- e. Drug dependence

886. 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 lotions**
- b. Eye ointments
- c. Eye drops
- d. Eye inserts
- e. Eye sprays

887. A pharmaceutical company produces aromatic waters. Peppermint water should be prepared in the following proportion:

- a. 1:10
- b. 1:2000
- c. 1:1000**
- d. 1:1
- e. 1:4000

888. 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. Betamethasone dipropionate**
- b. Hydrocortisone acetate
- c. Prednisolone
- d. Cortisone acetate
- e. Prednisone

889. "Balance" accounting form consists of two parts - assets and liabilities. Select from the list only the liabilities.

- a. Retained earnings, intangible assets
- b. Fixed assets, accounts receivable
- c. Bank loan, accounts payable**
- d. Authorized capital, fixed assets
- e. Accounts receivable, prepaid expenses

890. In Ukraine the auditor position eligibility requires the candidate to be a Ukrainian citizen and have the qualification certificate for work as an auditor within the Ukraine's territory. The certificate is effective for:

- a. 1 years
- b. 3 years
- c. 5 years**
- d. Indefinitely
- e. 2 years

891. What quality indicator is subject to additional control during the production of eye drops in the form of suspensions?

- a. Purification methods
- b. Moisture content
- c. Dry residue
- d. Particle size**
- e. Acid value and peroxide value

892. 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. Chelidonium majus
- d. Vinca minor
- e. Glaucium flavum

893. A 60-year-old man has come to a pharmacy with complaints of impaired twilight vision, dry sclera, cracked and peeling skin. The dispensing chemist suspected hypovitaminosis and recommended the customer to take the following drug after consultation with the physician:

- a. Vicasol (Menadione)
- b. Retinol acetate**
- c. Tocopherol acetate
- d. Ascorbic acid
- e. Ergocalciferol

894. What drug is used to treat hyperthyroidism?

- a. Oxytocin
- b. Prednisolone
- c. Metformin
- d. Mercazolil (Thiamazole)**
- e. Insulin

895. 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. Precipitation and gassing
- b. Color change from yellow to black
- c. Precipitation
- d. Ammonia production
- e. Solution decoloration**

896. A 43-year-old patient with a severe form of rheumatoid arthritis has been administered a certain drug for background therapy. Specify this drug:

- a. Diclofenac sodium
- b. Methylprednisolone
- c. Methotrexate**
- d. Prednisolone
- e. Nimesulide

897. A pharmacy has received a prescription for the preparation of a solution. What substance requires the presence of sodium chloride and a hot solvent during the dissolution?

- a. Sodium bromide
- b. Urotropin
- c. Sodium iodide
- d. Streptocide (Sulfanilamide)
- e. Furacilin (Nitrofurazone)**

898. A pharmacy has been licensed for wholesale distribution of medicinal products. What sales operation belongs to a wholesale distribution?

- a. Sale of drugs to chronically ill patients
- b. Sale of over-the-counter drugs
- c. Sale of ready-to-use drugs
- d. Sale to other organizations for commercial use**
- e. Sale of extemporal dosage forms

899. 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. Rubia tinctorum**
- b. Valeriana officinalis
- c. Rhodiola rosea
- d. Dryopteris filix-mas
- e. Sanguisorba officinalis

900. One of the substances listed below changes its appearance when stored in a brightly lit place and not tightly sealed against air (assumes pink coloring). Name this substance:

- a. Sodium chloride
- b. Barium sulfate
- c. Sodium benzoate
- d. Resorcin**
- e. Boric acid

901. 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. Iodometry
- c. Argentometry**
- d. Cerimetry
- e. Bromatometry

902. 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. Breakeven pricing
- b. Tender pricing
- c. Cost-based pricing
- d. Competition-based pricing**
- e. Demand-based pricing

903. Nicotinamide is a pyridine derivative, which can be identified by its positive reaction with:

- a. Thioacetamide reagent
- b. Copper-tartrate solution
- c. Grade reagent
- d. Cyanogen bromide reagent**
- e. Thioglycolic acid solution

904. Microscopy of herbal raw material reveals the following diagnostic characters in the microslide: pseudostratified cork, large parenchyma cells, filled with inulin, clearly visible cambium layer, large vessels, schizogenous cavities with essential oil. These features confirm the authenticity of the following herbal raw material:

- a. Rhizomata et radices Inulae**
- b. Radices Althaeae
- c. Rhizomata et radices Rubiae
- d. Radices Taraxaci
- e. Radices Ononidis

905. What parameter is measured using a drum friability tester during tablet quality control?

- a. Uniformity of dosage
- b. Dissolution
- c. Disintegration
- d. Impurities
- e. Abrasion resistance**

906. 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. Socioeconomic
- b. Demographic**
- c. Psychographic
- d. Geographic
- e. Behavioral

907. The price of a medicine depends on many factors. Which of the listed below is an internal factor of price formation for a pharmaceutical manufacturer?

- a. Customer preferences
- b. Manufacturing costs**
- c. Pricing policy of the competitors
- d. Middleman markup
- e. Demand for the product

908. What stabilizer is used to stabilize ascorbic acid solutions for injections?

- a. Weibel stabilizer
- b. 0.1 M sodium hydroxide solution
- c. Sodium bicarbonate with sodium sulfite**

- d. 0.1 M hydrochloric acid solution
- e. Sodium thiosulfate

909. What can be observed when aluminum-magnesium antacids and iron preparation are used simultaneously?

a. Reduced effectiveness of iron preparations

- b. Increased blood pressure
- c. Decreased blood pressure
- d. Increased effectiveness of antacids
- e. Increased risk of hepatotoxicity

910. 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. Contract of sale

b. Act on established discrepancy in quantity and quality

- c. Product report
- d. Logbook of receipt of goods by group
- e. Register of medicinal products received by the subject of economic activity

911. A pharmaceutical factory produces various types of tablets. What is the purpose of Solublettae tablets?

- a. Preparation of solutions for injections
- b. Sublingual administration

c. Preparation of solutions for various pharmaceutical purposes

- d. Rectal administration
- e. Implantation

912. What morphological feature is diagnostic for the *Matricaria chamomilla* herbal raw material?

a. Conical, glabrous, and hollow receptacle

- b. Curved hemispherical receptacle with membranous bracts
- c. Spherical receptacle with membranous bracts
- d. Solid hemispherical receptacle
- e. Solid spherical receptacle

913. A pharmacist has prepared an injection solution of ascorbic acid. What substance is necessary for solution stabilization in this case?

- a. Sodium acetate
- b. Sodium chloride

c. Sodium sulfite

- d. Sodium citrate
- e. Sodium bromide

914. To work properly, a pharmacy needs sufficient staff. What job position belongs to the auxiliary staff of a pharmacy?

- a. Pharmacist
- b. Accountant
- c. Head of a department

d. Packer

e. -

915. *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. Flavonoids

b. Saponins

- c. Coumarins
- d. Tannins
- e. Anthracene derivatives

916. What mixing method is carried out by repeatedly pumping the liquid through the apparatus, using a pump or nozzles?

- a. Acoustic
- b. Ultrasonic
- c. Mechanical
- d. Circulation**
- e. Pneumatic

917. 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. Steeping
- b. Remaceration
- c. Percolation**
- d. Turbo extraction
- e. Maceration

918. 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. Metronidazole
- b. Acyclovir
- c. Doxycycline hydrochloride
- d. Isoniazid**
- e. Benzylpenicillin (Penicillin G)

919. The marketing team of a pharmaceutical company has performed a comparative analysis of internal environment and external conditions. They have analyzed strengths and weaknesses, opportunities and threats. The marketing team has performed:

- a. VEN analysis
- b. SWOT analysis**
- c. PEST analysis
- d. -
- e. ABC analysis

920. A patient with arterial hypertension has developed a dry cough in the course of his treatment. The doctor suspects a side effect caused by one of the medicines the patient was taking. This medicine most likely belongs to the following group:

- a. Angiotensin-converting-enzyme inhibitors**
- b. Imidazoline receptor blockers
- c. Ganglionic blockers
- d. Diuretics
- e. Calcium channel blockers

921. When studying the demand for influenza vaccines, it was found that a pharmacy is insufficiently supplied with these vaccines. What type of demand is it?

- a. Satisfied
- b. Unsatisfied**
- c. Hidden
- d. Negative
- e. Irrational

922. What group of drugs can be characterized by a side effect, where the color perception of surrounding objects is distorted, making everything yellow-green tinted?

- a. Antibiotics
- b. Cardiac glycosides**
- c. Nonsteroidal anti-inflammatory drugs
- d. Mucolytics
- e. Inhaled glucocorticoids

923. During visual inspection of a product, the authorized person developed doubts about the quality

of the received medicines. What should the authorized person do, to initiate the laboratory testing of the medicine quality?

- a. Send the medicines to the nearest compounding pharmacy that employs a dispensing chemist
- b. Send the medicines to the Ministry of Health of Ukraine
- c. Send the medicines back to the supplier
- d. Send the medicines back to the manufacturer

e. Send the medicines to a local laboratory of the State Drugs and Medications Control Service

924. Strategic planning of pharmaceutical companies consists of several consecutive stages. What stage is the final one?

- a. Setting goals and tasks
- b. Analysis of organisation's internal strength and weaknesses
- c. Environment assessment and analysis

d. Strategy assessment

- e. Choice of strategy

925. A prescription does not specify the shape of rectal suppositories. What shape would be optimal in such case and therefore should be used by the pharmacist?

- a. Cylinder
- b. Ovoid
- c. Sphere
- d. Pessary

e. Torpedo

926. A marketer of a pharmaceutical enterprise uses primary and secondary marketing information for market analysis. What information is considered to be primary?

- a. Published in the company's annual report
- b. Published in statistical reference books
- c. Obtained from publications in scientific magazines
- d. Published in mass media

e. Collected for the first time for a specific purpose

927. According to the State Pharmacopoeia of Ukraine, chemical identification of *Atropa belladonna* grass must be carried out using thin-layer chromatography. What substance is identified on a chromatographic plate after treatment with a reagent?

- a. Rutin
- b. Arbutin
- c. Vinblastine
- d. Gallic acid

e. Hyoscyamine

928. A pharmaceutical warehouse has received a batch of herbal raw material - a bark of *Quercus robur*. What active substances should be measured in this material, according to the State Pharmacopoeia of Ukraine?

- a. Essential oils
- b. Coumarins
- c. Flavonoids

d. Tannins

- e. Anthracene derivatives

929. Bilitrast is an X-ray contrast substance. What reagent can confirm the presence of phenolic hydroxyl in its molecule?

- a. Hydrochloric acid solution
- b. Alcoholic iodine solution
- c. Iodine dissolved in potassium iodide
- d. Silver nitrate solution

e. Iron(III) chloride solution

930. 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. Alkalimetry
- b. Bromometry
- c. Nitritometric titration
- d. Acidimetry

e. Complexometric titration

931. One of the substances listed below is **NOT** a vitamin:

- a. Calcium pangamate
- b. Nicotinic acid
- c. Calcium gluconate**
- d. Ergocalciferol
- e. Calcium pantothenate

932. 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. Blue coloring
- c. Pink coloring
- d. Brown coloring
- e. Yellow coloring

933. Among various types of tablet external layers there are enterosoluble coatings. Where in the body are they dissolved?

- a. Oral cavity
- b. Intestine**
- c. Stomach
- d. Rectum
- e. Esophagus

934. The following herbal raw material is a source of tannin in pharmaceutical manufacture:

- a. Rhizomata Bistortae
- b. Rhizomata et radix Sanguisorbae
- c. Rhizomata Bergeniae
- d. Folium Cotini coggygriae**
- e. Fructus Viburni

935. 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. Anthracene derivatives

- b. Flavonoids
- c. Alkaloids
- d. Tannins
- e. Vitamins

936. *Origanum vulgare* herbal raw material is harvested during the flowering. How is it harvested?

- a. Only the tips of the inflorescences are cut
- b. The grass is cut with a knife or sickle at a distance of 20-30 cm from the ground**
- c. The whole plant is dug up
- d. The leaves are plucked with the stem
- e. The whole plant with a root is pulled out from the soil

937. When dispensing an antacid and ofloxacin in tablets, the dispensing chemist warned the customer that these drugs should be taken separately with 2-hour interval in between. Simultaneous taking of both drugs:

- a. Decreases antacid effectiveness
- b. Increases antacid effectiveness
- c. Increases ofloxacin absorption

d. Decreases ofloxacin absorption

e. Increases risk of dysbiosis

938. 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. 10%

b. 20%

c. 30%

d. 3%

e. 2%

939. 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. Submission of a resume

c. Telephone interview

d. Targeted selection interview

e. Preliminary interview

940. 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. Pachycarpine hydroiodide

b. Codeine phosphate

c. Caffeine monohydrate

d. Scopolamine hydrobromide

e. Quinine sulfate

941. What substances are used as leaveners in <<effervescent>> tablets?

a. Agar agar, alginic acid

b. Aerosil (fumed silica), polysorbate 80

c. Sodium bicarbonate, agar agar

d. Mixtures of sodium bicarbonate with tartaric or citric acid

e. Starch, alginic acid

942. Name the list of pharmacy's property that indicates the actual balance and value of pharmacy's stocks as determined in the process of stock-taking:

a. Accounts ledger

b. Register of requisitions

c. Inventory

d. Cash flow register

e. Commodity report

943. What adjuvants are added to a tablet mass to promote its breakup?

a. Lubricants

b. Disintegrants

c. Thickeners

d. Antioxidants

e. Fillers

944. What means of demand stimulation can be applied by pharmacy management among its employees?

a. Bonuses

b. In-store advertising

c. -

d. Coupons

e. Layout of medical products in shop-windows and on shelves

945. A pharmaceutical factory produces medicinal syrups. What substances ensure microbial stability

of this dosage form?

- a. Emulsifiers
- b. Thickeners

c. Preservatives

- d. Pectic materials
- e. Solubilizers

946. What amount of the standard pharmacopoeial fluid of aluminum acetate must be taken to prepare 100 mL of 10% Burov's solution?

- a. 3 mL
- b. 12.5 mL
- c. 6.25 mL
- d. 7.5 mL

e. 10 mL

947. A patient was prescribed an oral antibiotic for treatment and an antacid to remove heartburn symptoms. If the drugs are taken simultaneously their interaction can result in the following:

- a. Acceleration of metabolism and excretion
- b. Inhibition of hepatic microsomal enzymes
- c. Relative overdosage
- d. Mutual potentiation

e. Antibiotic malabsorption

948. What adjuvants improve the wettability and water permeability of the components during the tablet production?

- a. Solvents
- b. Thickeners

c. Leaveners

- d. Film formers
- e. Antifriction materials

949. During the transportation of alkaloid drugs, the markings on their packaging were damaged. Qualitative group reactions for alkaloids revealed that the Vitali-Morin test was positive. Therefore, the analyzed drug belongs to the following group of derivatives:

a. Tropane derivatives

- b. Indole derivatives
- c. Isoquinoline derivatives
- d. Purine derivatives
- e. Quinuclidine derivatives

950. *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 flowers

b. Roots and leaves

- c. Roots and fruits
- d. Leaves and seeds
- e. Leaves and fruits

951. Hyoscyamine and scopolamine are typically contained in the plants of the following family:

a. Fabaceae

b. Solanaceae

- c. Asteraceae
- d. Apocynaceae
- e. Papaveraceae

952. 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. Anhydrous acetic acid
- d. Diluted hydrochloric acid
- e. Perchloric acid 0.1 M

953. *Hypericum perforatum* grass contains hypericin. What is the pharmacological effect of this substance?

- a. Antidepressant
- b. Anticonvulsant
- c. Antiasthmatic
- d. Expectorant
- e. Analgesic

954. A herbal raw material was sent for analysis: rounded cordate leaves with incised margins that are irregularly, coarsely, and finely toothed; the upper leaf surface is naked, while its lower surface is covered in white down. Leaf petioles are thin, with a groove on the upper part, often downy. Leaf blade length is usually 8-15 cm, a petiole is approximately 5 cm long. The upper leaf surface is green, while the lower leaf surface is whitish-gray. No odor. The taste is slightly bitter with a slimy texture. What herbal raw material is it?

- a. *Folia Menthae*
- b. *Folia Urticae*
- c. *Folia Uvae-ursi*
- d. *Folia Eucalypti*
- e. *Folia Farfarae*

955. A drug quality control laboratory performs certification of antibiotics. What antibiotic has alpha-amino acid residue that can be determined using the ninhydrin reaction?

- a. Ampicillin
- b. Lincomycin
- c. Oxacillin
- d. Cefazolin
- e. Chloramphenicol

956. Presence of phenolic hydroxyl in the structure of pyridoxine hydrochloride can be confirmed by application of the following solution:

- a. Iron (III) chloride
- b. Silver nitrate
- c. Sodium sulfate
- d. Potassium permanganate
- e. Sodium nitrite

957. The pharmacological activity of medicines largely depends on their chemical structure. Which of the following drugs is a pyrazole derivative?

- a. Metamizole sodium
- b. Thiamazole
- c. Metronidazole
- d. Piracetam
- e. Bendazol

958. What should be used by an analytical chemist in the pharmacopoeial analysis of medicinal substances that contain iron(III)?

- a. Sodium nitrite solution
- b. Ammonia solution
- c. Potassium permanganate solution
- d. Potassium thiocyanate solution
- e. Ammonium chloride solution

959. There are different grades and types of glass based on their quality, quantitative composition, and properties. What type of glass belongs to the first-grade?

- a. NS-2 (neutral glass 2)

b. NS-2 A (neutral glass 2A)

c. AB-1 (non-boric glass)

d. USP-1

e. MTB (colorless glass for medical containers)

960. What group of antibacterial agents is used as first-line drugs in treatment of uncomplicated community-acquired pneumonia in young people?

a. Aminoglycosides

b. Tetracyclines

c. Nitrofurans

d. Semisynthetic penicillins

e. Oxyquinolines

961. A refractometer is used to identify and test the glycerine substance. What parameter is measured using this device?

a. Refractive index

b. Dynamic viscosity

c. Angle of rotation

d. Melting point

e. Optical density

962. 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. Two months after the current one

c. Five years after the current one

d. Three years after the current one

e. One month after the current one

963. What adjuvants are used in manufacturing of tablets to change their taste?

a. Leavening agents

b. Corrigents

c. Antioxidants

d. Fillers

e. Thickeners

964. A pharmacy prepares extemporaneous drugs. Who sets the retail prices and labor charges for these pharmacy-made medicines?

a. Pharmacy

b. Regional state administration

c. Local council

d. The Ministry of Health

e. Inspectorate for medicine quality control

965. Motivation is one of the management functions. A motive can be described as:

a. Something that is important for a person

b. -

c. Psychological characteristics of people that help them acquire certain types of knowledge

d. A conscious incentive to act in a certain way

e. A certain discomfort, a feeling that something is lacking

966. 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. Distillation with inert gases

c. Technology of obtaining liquid extracts

d. Deep vacuum distillation

e. Separation of the mixture consisting of mutually-associating liquids with different boiling

temperature into separate fractions

967. 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. Berberis roots
- c. Panax ginseng roots
- d. Aralia mandshurica roots

e. Glycyrrhiza roots

968. Folia Eucalypti is used as an antiseptic, anti-inflammatory, analgesic, and bactericidal agent. What group of bioactive substances is measured for the quality control of Folia Eucalypti?

- a. Flavonoids
- b. Cardiac glycosides
- c. Polysaccharides

d. Essential oils

e. Alkaloids

969. A patient, who for the last three weeks was taking a laxative - a decoction of Frangula bark, has noticed a significant decrease in its clinical effect. What is the name of this phenomenon?

a. Tolerance

- b. Withdrawal syndrome
- c. Sensitization
- d. Cumulation
- e. Idiosyncrasy

970. Specify a potent herbal raw material, infusion from which is made in 1:400 ratio:

- a. Sage leaves
- b. Motherwort grass

c. Foxglove leaves

- d. Althaea roots
- e. Valerian roots and rhizomes

971. How should the tablets of pancreatin enzyme preparation be taken?

- a. 2 hours before a meal
- b. Regardless of food intake

c. During eating

- d. 1 hour after a meal
- e. 1 hour before a meal

972. 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. Accelerated elimination of the drug
- b. Increased activity of the drug
- c. Prolongation of the effect of iron preparations

d. Formation of poorly soluble chelate complexes

e. Faster absorption of the drug

973. What type of tax is the Individual Income Tax?

a. Local, direct

b. Nationwide, direct

c. Local, indirect

d. Special

e. Nationwide, indirect

974. 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. Purified water, starch glue, sugar syrup, gelatin, carboxymethylcellulose solution

c. Methylcellulose, polyvinylpyrrolidone, acetylphthalylcellulose

d. Stearic acid, calcium and magnesium stearate, starch, talcum

e. Starch, glucose, kaolinite, magnesium oxide, sodium bicarbonate

975. 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 vaseline oil

b. Dissolve in alcohol

c. Dissolve in molten cocoa butter

d. Dissolve in minimal quantity of purified water

e. Dissolve in Dimexid (Dimethylsulfoxide)

976. Specify the fluid used to coat the forms for pouring of the suppositories with hydrophilic vehicles:

a. Glycerine

b. Purified water

c. Vaseline (petroleum jelly)

d. Glycerine-water solution

e. Dimethylsulfoxide

977. Select from the list a medical substance that is an indole derivative:

a. Isoniazid

b. Indometacin

c. Dibazol (Bendazol)

d. Diazepam

e. Glaucine hydrochloride

978. A control laboratory needs to analyze streptomycin powder for injections. To identify it according to the State Pharmacopoeia of Ukraine sodium hydroxide is added into the dissolved powder, the resulting substance is heated, and then iron (III) chloride solution is added, which results in violet coloring of the substance. This test is known as:

a. Maltol test

b. Thiochrome test

c. Biuret test

d. Vitali-Morin reaction

e. Ninhydrin test

979. When analyzing the activity of the pharmacy, the pharmacy's head manager performed the following calculations: the manager subtracted the cost price of the sold goods from the proceeds from the sales of goods at retail prices. What indicator was calculated by the pharmacy's head manager?

a. Markups

b. Commodity circulation

c. Profitability

d. Expenses

e. Profit

980. Schedule of sanitation actions in pharmacies is regulated by the relevant regulatory acts. Cleaning day at a pharmacy must be scheduled at least once:

a. In 10 days

b. In a week

c. In a month

d. In 3 days

e. In 5 days

981. 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. Bank statement
- d. Cash receipt order**
- e. Cashier's check

982. 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. Accounting form
- b. Cash withdrawal receipt
- c. Payment order
- d. Fiscal receipt for the goods sold (or services rendered)**
- e. Cash cheque

983. A pharmacy makes medicines according to individual prescriptions. How often must the pharmacy staff change their working clothes?

- a. At least once a week
- b. At least twice a week**
- c. At least twice a month
- d. At least once a month
- e. At least once per shift

984. 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. Expectorants
- b. Probiotics**
- c. Antispasmodics
- d. Mucolytic agents
- e. Antitussive drugs

985. 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. Riboflavin
- b. Rutin
- c. Vicasol (Menadione)**
- d. Cocarboxylase hydrochloride
- e. Ergocalciferol

986. For 2 weeks, a pharmacy network has been holding a lottery among its visitors who have purchased over 200 UAH worth of medicines. What set of marketing activities does the pharmacy network use in this case?

- a. Personal selling
- b. Lobbying
- c. Public relations
- d. Sales promotion**
- e. Advertising

987. A pharmacist prepared a 5% glucose solution and added 5 mL of Weibel's stabilizer. What is the volume of the prepared solution?

- a. 50 mL
- b. 300 mL
- c. 1000 mL
- d. 100 mL**
- e. 500 mL

988. 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. Functional
- c. Line and staff
- d. Line**
- e. Matrix

989. During the microscopy of a herbal raw material, the pharmacist noted its main diagnostic features: calcium oxalate druses in the mesophyll of the leaf and along the veins, simple unicellular hairs, covering stellate hairs with 4-8 thick-walled, porous and often lignified rays at their base, idioblast cells with slime. What herbal raw material can be characterized by the listed diagnostic features?

- a. *Urtica dioica* folium
- b. *Hyoscyamus niger* folium
- c. *Gnaphalium uliginosum* herba
- d. *Althaea officinalis* herba**
- e. *Digitalis purpurea* folium

990. What medicines cannot be advertised in pharmacies and their structural units?

- a. Dietary supplements
- b. Prescription medicines**
- c. Disinfectants
- d. Over-the-counter medicines
- e. Cosmetics

991. A dispensing chemist-technologist has accepted a prescription for eye drops with adrenaline hydrochloride. What characteristic of adrenaline hydrochloride must be taken into account, when preparing the eye drops?

- a. Volatility
- b. Low solubility in water
- c. Poor solubility in water
- d. Thermal stability
- e. Thermolability**

992. The head manager of a pharmacy calls the manager of a pharmaceutical wholesaler to clarify the terms of supply. What type of communication is it?

- a. Internal
- b. Interlevel
- c. External**
- d. Vertical
- e. Horizontal

993. The material accountability of an employee is determined by the written agreement. When does the agreement of employee's material accountability need to be concluded anew?

- a. Replacement of over 30% of the initial personnel
- b. Change of the head manager or replacement of over 50% of the initial personnel**
- c. Change of the dispensing chemist
- d. Change of the janitor
- e. Change of the chief accountant

994. At the laboratory of pharmacopoeial analysis, glutamic acid is being identified using the method of thin-layer chromatography. What reagent is used to develop a chromatogram?

- a. Diphenylamine
- b. Aniline
- c. Pyridine
- d. Cyanogen bromide
- e. Ninhydrin**

995. A 46-year-old pharmacy customer suffers from chronic bronchitis and needs a medicine to

facilitate expectoration of thick viscous sputum. What drug is indicated in this case?

- a. Butamirate
- b. Oxeladin
- c. Codeine phosphate
- d. Ambroxol**
- e. Salbutamol

996. An analytical chemist studies an iodine substance. What volumetric solution is recommended by the State Pharmacopoeia of Ukraine for its quantitative determination?

- a. Sodium thiosulfate**
- b. Sodium edetate
- c. Potassium bromate
- d. Sodium hydroxide
- e. Hydrochloric acid

997. A sum of properties that make the medicines capable of meeting the needs of the consumers, when used as intended, is called:

- a. Trade dress
- b. Appearance
- c. Pharmacological action
- d. Quality**
- e. Marking

998. 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. Product improvement**
- b. Manufacture improvement
- c. Socioethical marketing
- d. Intensification of commercial effort
- e. Sales improvement

999. Pharmaceutical factory received a batch of Althaea roots. What reagent should be used in histochemical test for slime production in the course of qualitative analysis?

- a. 1% phloroglucinol solution
- b. 1% ammonium iron(III) sulfate solution
- c. Sudan III solution
- d. Alcoholic solution of methylene blue**
- e. Dragendorff reagent

1000. A pharmacist approached the chief manager of the pharmacy with a proposition to introduce an additional service for their customers - blood pressure measurement. What type of communication is it?

- a. Intra-level
- b. Horizontal
- c. Vertical descending
- d. External
- e. Vertical ascending**

1001. 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. Sodium hydroxide
- e. Potassium bromate

1002. What department of a wholesale firm is tasked with search for and analysis of potential

suppliers' commercial offers, as well as concluding supply contracts and supervision of contract fulfillment?

- a. Marketing department
- b. Shipping department
- c. Supply department**
- d. Finance department
- e. Stores development

1003. 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. Contract
- b. Offer
- c. Request**
- d. Statement
- e. Complaint

1004. 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. Cardiac glycosides
- b. Steroidal saponins
- c. Thioglycosides
- d. Fatty oils
- e. Alkaloids**

1005. What lubricants are used in tablet manufacturing?

- a. Water, ethanol
- b. Solutions of high-molecular compounds
- c. Starch paste
- d. Calcium stearate, stearic acid**
- e. Tween 80, Aerosil

1006. 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. Captopril
- d. Corglycon (convallatoxin)
- e. Prazosin

1007. How are pharmacies classified in Ukraine based on their commercial and manufacturing functions?

- a. Pharmacies with centralized and decentralized accounting
- b. Self-financing pharmacies and pharmacies financed from the state budget
- c. Retail and hospital pharmacies
- d. Compounding and retail pharmacies**
- e. State, community-owned, and private pharmacies

1008. Which one of the listed solutions for injections must be stabilized with a 0.1 mol-eqL solution of hydrochloric acid?

- a. Ascorbic acid
- b. Novocaine (Procaine)**
- c. Caffeine and sodium benzoate
- d. Sodium thiosulfate
- e. Sodium bicarbonate

1009. A pharmacy opens a bank account to store funds and conduct ongoing business transactions. What kind of account should be opened?

- a. Investment
- b. Current**
- c. Deposit
- d. Provisional
- e. Letter of credit

1010. Alkalimetry is used to determine the quantitative content of diphenhydramine hydrochloride antihistamine. What solution is used as a titrant in this analysis?

- a. Sodium hydroxide solution**
- b. Hydrochloric acid solution
- c. Sodium thiosulfate solution
- d. Potassium bromate solution
- e. Potassium permanganate solution

1011. Publicly-owned Isotope factory is the only manufacturer of radiopharmaceuticals in Ukraine. What type of distribution is characteristic of radioactive drugs?

- a. Bulk
- b. Exclusive**
- c. Intensive
- d. Sample
- e. Selective

1012. 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. Furocoumarin psoralen**
- e. Free coumarin

1013. An infusion and a liquid extract used as cardiotonics are obtained from *Crataegus oxyacantha* flowers and fruits. What active substance that is a component of this herbal raw material can be determined using spectrophotometry?

- a. Papaverine
- b. Flavonoids**
- c. Cytisine
- d. Atropine
- e. Lipids

1014. 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. Retor-shaped hairs
- c. Branched and capitate hairs
- d. Branched, simple and ciliated hairs
- e. T-shaped hairs along the leaf edge**

1015. 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. Preliminary
- b. Final
- c. Ongoing**
- d. Social
- e. Financial

1016. A pharmacy needs to prepare a 1% alcohol solution of methylene blue. What concentration of alcohol must be used for this purpose?

- a. 96%
- b. 70%
- c. 40%
- d. 90%
- e. 60%**

1017. 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. Plum
- b. Acacia
- c. Apricot
- d. Cherry**
- e. Tragacanth

1018. What herbal drug produced from alkaloid-containing raw materials can be recommended for neurasthenia, insomnia, menopausal disorders?

- a. Vinblastine
- b. Glaucine hydrochloride
- c. Novopassit**
- d. Securinine nitrate
- e. Ergotamine

1019. The medicines that contain anthracene derivatives are used as laxatives. What medicinal plant contains this group of bioactive substances?

- a. *Bidens tripartita*
- b. *Eucalyptus globulus*
- c. *Frangula alnus***
- d. *Calendula officinalis*
- e. *Salvia officinalis*

1020. 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. On separate shelves and in separate shopwindows**
- e. By their application

1021. Standard herbal material of lily-of-the-valley is obtained by drying it at a temperature of 50-60°C to prevent the following possible biochemical process:

- a. Volatilization of essential oils
- b. Oxidation of resins
- c. Oxidation of terpenoids
- d. Enzymatic hydrolysis of cardiac glycosides**
- e. Oxidation of phenolic compounds

1022. An accountant conducts necessary calculations for remuneration of labor. Name the type of remuneration that is due for labor carried out according to the work standards and is paid within the amount determined by basic or piece wages for factory workers and salaries for office workers:

- a. Financial aid
- b. Basic pay**
- c. One-off payment
- d. Increment
- e. Bonus

1023. 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. Political
- c. Economic
- d. Environmental and ecological
- e. Socio-demographic**

1024. 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. Strategy evaluation**
- c. Evaluation and analysis of the external environment
- d. Implementation of the strategic plan
- e. Choosing a strategy

1025. 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. Arsenite ion
- b. Ammonium ion**
- c. Acetate ion
- d. Nitrate ion
- e. Carbonate ion

1026. 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 Menthae piperitae
- b. Semina Hippocastani
- c. Folia Fragariae
- d. Folia Urticae**
- e. Fructus Hippophaes

1027. A technological controller uses Marquis reagent to identify the substance of acetylsalicylic acid after acid hydrolysis. Positive effect of the reaction would be indicated by the following coloring:

- a. Pink**
- b. Violet
- c. Yellow
- d. Green
- e. Blue

1028. 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. Headache
- b. Cold
- c. Muscle pain
- d. Diabetes mellitus**
- e. Cuts and abrasions

1029. Pharmacy as a healthcare facility fulfills three main functions. Its manufacturing function includes:

- a. Health education of the population
- b. Pharmaceutical care
- c. Preparation of individual formulations**
- d. Providing access to pharmaceutical information
- e. Storage of medical products

1030. 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. Intuitive**

- c. Rational
- d. Collegial
- e. Collective

1031. 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. Diclofenac sodium
- c. Celecoxib**
- d. Indomethacin
- e. Ibuprofen

1032. 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. Resorcin
- b. Retinol acetate
- c. Tyrosine**
- d. Nitrofurural
- e. Sulfamethoxazole

1033. Limit cash balance is the maximum amount of monetary funds that can remain in the cash desk of an organization at the end of a workday. This limit is established by the following authorities:

- a. Tax Inspectorate
- b. Chief physician
- c. -
- d. Pharmacy management**
- e. Local authorities

1034. Codeine is used as a cough-depressant. What herbal raw material contains this alkaloid?

- a. Grass of plume poppy
- b. Grass of common periwinkle
- c. Tea leaves
- d. Celandine grass
- e. Pods of opium poppy**

1035. A pharmacist has prepared an aqueous extract using the cold infusion method. What herbal raw material was it?

- a. Mint leaves
- b. Thermopsis grass
- c. Arctostaphylos leaves
- d. Buckthorn bark
- e. Marshmallow roots**

1036. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

- a. 140°C - 12 minutes
- b. 120°C - 8 minutes**
- c. 160°C - 15 minutes
- d. 180°C - 30 minutes
- e. 110°C - 15 minutes

1037. During quantitative determination of ascorbic acid by means of iodometry the following should be used as an indicator:

- a. Phenolphthalein
- b. Bromphenol blue
- c. Starch**
- d. Murexide
- e. Diphenylcarbazone

1038. Bromatometry allows quantitative analysis of the following drug:

a. Sodium salicylate

b. Benzoic acid

c. Glutamic acid

d. Potassium acetate

e. beta-Alanine

1039. A patient developed dry cough while undergoing pharmacotherapy for arterial hypertension. What group of drugs can be characterized by this side effect?

a. Tranquilizers

b. ACE inhibitors

c. Calcium antagonists

d. Antipsychotics

e. Antacids

1040. 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. Eucalyptus globulus

b. Juniperus communis

c. Salvia officinalis

d. Inula helenium

e. Origanum vulgare

1041. A pharmacy has received a prescription for the preparation of powders. What substance must be added after sterilizing the powder?

a. Ephedrine hydrochloride

b. Osarsolum

c. Streptocide (Sulfanilamide)

d. Streptomycin sulfate

e. Magnesium oxide

1042. 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. 100 000 UAH

d. 5 000 000 UAH

e. 500 000 UAH

1043. As a result of heparin overdose, a patient developed bleeding. What medicine must be used as an antidote in this case?

a. Thiosulfate

b. Methionine

c. Naloxone

d. Unithiol (Dimercaptopropansulfonate sodium)

e. Protamine sulfate

1044. 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. Cromoglicic acid preparations

b. Beclomethasone preparations

c. Essential oil-based preparations

d. Xylometazoline preparations

e. Salt solutions based on iso- and hypotonic sodium chloride solutions