

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

2. Calcium gluconate is being tested for presence of admixtures of saccharose and reducing sugars with copper-tartrate reagent. If these admixtures are present the substance colors:

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

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

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

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

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

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

6. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

- a.  $140^{\circ}\text{C}$  - 12 minutes
- b.  $120^{\circ}\text{C}$  - 8 minutes**
- c.  $110^{\circ}\text{C}$  - 15 minutes
- d.  $160^{\circ}\text{C}$  - 15 minutes
- e.  $180^{\circ}\text{C}$  - 30 minutes

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

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

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

- a. Real estate tax

- b. Corporate income tax
- c. Individual income tax
- d. Rent

**e. Value added tax**

9. 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. Caffeine and sodium benzoate
- c. Theophylline ethylenediamine
- d. Theophylline
- e. Theobromine

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

- a. Steroidal saponins

- b. Fatty oils

**c. Alkaloids**

- d. Cardiac glycosides
- e. Thioglycosides

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

**e. Ninhydrin**

12. 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. Yellow
- c. Blue
- d. Green
- e. Violet

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

- a. Benzene and thiazole
- b. Two 4-oxycoumarin residues
- c. Benzene and pyridine
- d. Pyrimidine and imidazole

**e. Pyrrole and benzene**

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

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

**e. Exclusive**

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

- a. Diluted hydrochloric acid
- b. Perchloric acid 0.1 M
- c. Anhydrous acetic acid

**d. Concentrated sulfuric acid**

e. Diluted phosphoric acid

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

a. Brownian motion of the particles

**b. Different concentration of the active substance in the raw material and extractant**

c. High polarity of the extractant

d. High temperature of the extractant

e. Presence of a film membrane

17. 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. Celecoxib**

c. Diclofenac sodium

d. Ibuprofen

e. Indomethacin

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

a. Invoices

b. Payroll records

c. Payment orders

**d. Transactions log book**

e. Cash deposit and cash withdrawal receipts

19. A 28-year-old pregnant woman (8-9 weeks) after clinical examination and laboratory analysis was diagnosed with acute pyelonephritis. What empiric antibacterial therapy will be optimal in this case?

a. Norfloxacin

b. Gentamicin

c. Chloramphenicol

**d. Amoxicillin**

e. Tetracycline

20. 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. 90%

b. 60%

c. 40%

d. 95%

**e. 70%**

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

**a. Intrapersonal**

b. Intergroup

c. Interorganizational

d. -

e. Individual vs. group

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

a. Antipsychotics

**b. ACE inhibitors**

c. Calcium antagonists

d. Tranquilizers

e. Antacids

23. A doctor prescribed amoxicillin to a patient to treat bronchitis. What mucolytic is synergistic with

this antibiotic?

a. Euphylline (Theophylline)

**b. Ambroxol**

c. Codeine

d. Dextromethorphan

e. Glaucine

24. 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. Observation

b. Panel research

**c. Theoretical research**

d. Survey

e. Field research

25. 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. Cardiac glycosides

b. Polysaccharides

c. Flavonoids

d. Alkaloids

**e. Essential oils**

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

a. Accounts receivable, prepaid expenses

b. Retained earnings, intangible assets

c. Authorized capital, fixed assets

**d. Bank loan, accounts payable**

e. Fixed assets, accounts receivable

27. 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 shift**

c. No less than once in a week

d. No less than thrice in a week

e. No less than twice in a month

28. 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. Maturity**

b. Introduction

c. Decline

d. Growth

e. Development

29. 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. Platiphyllin

b. Morphine

c. Papaverine

d. Codeine

**e. Scopolamine**

30. The head manager of a pharmacy calls the manager of a pharmaceutical wholesaler to clarify the terms of supply. What type of communication is it?

a. Interlevel

- b. External
- c. Horizontal
- d. Vertical
- e. Internal

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

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

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

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

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

- a. Material
- b. -
- c. Financial**
- d. Labor
- e. Special

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

35. 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 form occurring. What process is it?

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

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

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

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

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

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

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

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

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

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

41. 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. 5 000 000 UAH
- b. 750 000 UAH
- c. 3 000 000 UAH
- d. 100 000 UAH
- e. 500 000 UAH**

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

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

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

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

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

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

45. 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. Indole derivatives**

b. Purine derivatives

c. **Tropane derivatives**

d. Isoquinoline derivatives

e. Quinuclidine derivatives

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

a. Metal cylinders

b. Packaging materials

c. Glassware

d. Paper boxes

e. Glass-stoppered bottles

47. 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 characteristic of biopolymer molecules that does not allow them to pass through semi-permeable membranes

b. The process of electrolyte action

c. The process of extraction from one liquid using another liquid

d. The process of heating the extract

e. The process of gas absorption

48. 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. USP-1

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

c. MTB (colorless glass for medical containers)

d. AB-1 (non-boric glass)

e. NS-2 (neutral glass 2)

49. Powder moisture content affects its:

a. Particle size

b. Solubility

c. Homogeneity

d. **Flowability**

e. Particle shape

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

a. Polyene antibiotics

b. **Macrolides**

c. Aromatic antibiotics

d. beta-lactams

e. Polypeptides

51. 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. Pyranocoumarin visnadin

b. Free coumarin

c. **Furocoumarin psoralen**

d. Hydroxycoumarin esculin

e. Furanochromon kelin

52. A medicinal plant contains hydroxycoumarins and is used in production of venotonic agents.

Name the herbal raw material harvested from this plant:

a. Fructus Ammi majoris

b. Herba Meliloti

c. Fructus Pastinaceae sativae

d. Semina Hippocastani

e. Fructus Dauci carotae

53. 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. To pay the salaries after the holiday
- c. There are no regulations regarding payment of salaries in this case

d. To pay the salaries one day earlier

- e. To pay the salaries 10 days earlier

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

a. Accompanying statement

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

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

a. 100 mL

- b. 50 mL
- c. 500 mL
- d. 300 mL
- e. 1000 mL

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

a. Direct

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

57. What reagent is used to identify sodium sulfate?

a. Barium chloride

- b. Calcium chloride
- c. Cobalt chloride
- d. Silver nitrate
- e. Iron(III) chloride

58. Name the list of pharmacy's property that indicates the actual balance and value of pharmacy's stocks as determined in the process of stock-taking:

- a. Accounts ledger
- b. Cash flow register

c. Inventory

- d. Commodity report
- e. Register of requisitions

59. What medicinal substance has benzimidazole in its structure?

- a. Diphenhydramine hydrochloride (Dimedrol)
- b. Nitrofural (Furacilin)

c. Dibazol (Bendazol)

- d. Metamizole sodium salt (Analgin)
- e. Mercazolil (Thiamazole)

60. After mineralization of bromocamphor with zinc dust, bromide-ions can be detected in the filtrate in the presence of  $\text{CHCl}_3$  by performing a reaction with:

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

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

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

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

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

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

64. 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. Publicity
- c. Direct marketing
- d. Product promotion
- e. Sponsorship

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

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

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

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

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

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

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

- a. Inspectorate for medicine quality control
- b. The Ministry of Health
- c. Local council
- d. Pharmacy**
- e. Regional state administration

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

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

71. 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. Antibiotic malabsorption**
- b. Inhibition of hepatic microsomal enzymes
- c. Acceleration of metabolism and excretion
- d. Mutual potentiation
- e. Relative overdosage

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

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

73. 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. Omeprazole
- b. Lansoprazole
- c. Ranitidine
- d. Famotidine
- e. Bismuth subcitrate**

74. 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. Methyl isothiocyanate**
- b. Hydroxyquinoline
- c. Furfural
- d. Naphthoquinone

e. Acridine

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

- a. Replacement of over 30% of the initial personnel
- b. Change of the dispensing chemist
- c. Change of the chief accountant
- d. Change of the janitor

**e. Change of the head manager or replacement of over 50% of the initial personnel**

76. Rhamnus cathartica fruits contain anthracene derivatives. What qualitative reaction is used to determine the presence of these substances in a herbal raw material?

- a. Reaction with ammonium iron(III) sulfate
- b. Reaction with Fehling reagent
- c. Reaction with Molisch reagent
- d. Reaction with iron(II) sulfate

**e. Reaction with an alkali**

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

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

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

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

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

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

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

- a. Rectal capsules
- b. Tubatines**
- c. Spansules
- d. Microcapsules
- e. Medules

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

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

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

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

83. A group of independent intermediaries operates on a regional market. They sell medicines on their own behalf and at their own cost. Such intermediaries are called:

- a. Commission agents
- b. Brokers
- c. Dealers**
- d. Agents
- e. Consignees

84. 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. Unithiol (DMPS)**
- c. Protamine
- d. Vicasol (Menadione)
- e. Naloxone

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

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

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

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

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

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

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

e. Enfleurage

89. 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. Paracetamol rectal suppositories**
- c. Acetylsalicylic acid powder
- d. Ibuprofen tablets
- e. Acetylsalicylic acid tablets

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

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

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

92. 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. Countermarketing
- c. -
- d. Remarketing**
- e. Synchromarketing

93. 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. Local authorities
- c. Chief physician
- d. -
- e. Pharmacy management**

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

95. 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. Technology of obtaining liquid extracts
- c. Distillation with inert gases

d. Separation of the mixture consisting of mutually-associating liquids with different boiling temperature into separate fractions

e. Deep vacuum distillation

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

- a. Populus nigra buds
- b. Acorus calamus rhizomes
- c. Taraxacum roots

**d. Passiflora grass**

e. Viburnum bark

97. 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**

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

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

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

- a. Muscle pain
- b. Headache
- c. Cuts and abrasions
- d. Cold

**e. Diabetes mellitus**

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

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

**e. Angle-closure glaucoma**

101. 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

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

- a. Quality**
- b. Pharmacological action
  - c. Marking

- d. Appearance
- e. Trade dress

103. 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 alcohol
- b. Dissolve in molten cocoa butter
- c. Dissolve in Dimexid (Dimethylsulfoxide)
- d. Dissolve in vaseline oil

**e. Dissolve in minimal quantity of purified water**

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

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

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

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

**e. Foxglove leaves**

106. 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. Pepper plaster bandage
- b. Bactericidal adhesive bandage
- c. Adhesive bandage
- d. Simple lead bandage**

e. Callus treatment bandage

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

- a. Dyed
- b. Multi-layered
- c. Porous
- d. Lyophilized**

e. Hollow

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

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

**d. Introduction as a suspension into the prepared emulsion**

e. Dissolution in the prepared emulsion

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

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

e. Dialysis

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

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

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

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

112. 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. Hydrocortisone acetate
- d. Gentamicin sulfate
- e. Tramadol, tablets**

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

- a. 1:20
- b. 1:5
- c. 1:400
- d. 1:30
- e. 1:10**

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

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

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

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

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

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

117. 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. Thioglycolic acid
- c. Sodium tetraphenylborate**

d. Sodium hypophosphite

e. Hydroxyquinoline

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

a. 18%

b. 5%

c. 20%

d. 0%

e. 15%

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

a. Dalton's law

b. Boyle-Mariotte law

c. -

**d. Raoult's law**

e. Clapeyron-Mendeleev equation

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

a. Iodometry

b. Bromatometry

**c. Alkalimetry**

d. Complexometry

e. Nitritometry

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

a. Scopolamine hydrobromide

b. Codeine phosphate

c. Quinine sulfate

**d. Pachycarpine hydroiodide**

e. Caffeine monohydrate

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

a. Circulation of goods

**b. Profitability**

c. Work productivity

d. Inventory turnover

e. Stock of goods

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

a. Promedol (Trimeperidine)

**b. Epinephrine tartrate**

c. Phenazepam

d. Papaverine hydrochloride

e. Sulfanilamide

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

a. Purified water

**b. Vaseline (petroleum jelly)**

c. Glycerine-water solution

d. Glycerine

e. Dimethylsulfoxide

125. How are pharmacies classified in Ukraine based on their commercial and manufacturing

functions?

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

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

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

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

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

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

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

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

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

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

132. What preparation has an antacid effect?

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

133. 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. Fructus Hippophaes
- c. Semina Hippocastani
- d. Folia Urticae**
- e. Folia Fragariae

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

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

135. A pharmaceutical company uses the Boston Consulting Group matrix to analyze the state of its strategic business units (drugs). What is the BCG Matrix based on?

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

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

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

137. 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. Codeine phosphate
- b. Oxeladin
- c. Salbutamol
- d. Ambroxol**
- e. Butamirate

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

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

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

- a. 2.9 g**
- b. 1.4 g

- c. 2.4 g
- d. 3.9 g
- e. 1.9 g

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

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

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

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

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

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

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

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

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

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

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

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

- a. Coumarins and phenol glycosides
- b. Anthracene derivatives and tannins
- c. Essential and fatty oils

- d. Flavonoids and essential oils
- e. Iridoids and vitamins

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

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

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

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

149. 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. Tax officer
- e. Employee appointed to this task by the head manager**

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

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

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

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

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

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

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

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

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

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

155. 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. Enzymatic hydrolysis of cardiac glycosides
- d. Oxidation of phenolic compounds
- e. Oxidation of terpenoids

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

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

157. How should the rectal ointments be applied?

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

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

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

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

160. For 2 weeks, a pharmacy network has been holding a lottery among its visitors who have purchased over 200 UAH worth of medicines. What set of marketing activities does the pharmacy network use in this case?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

171. Hierarchic structure of the Agapetus pharmacy management foresees that authority is being passed on directly from the pharmacy manager to the employees. Specify this type of authority:

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

172. 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. Thioacetamide
- c. Sulfomolybdenum
- d. Methoxyphenylacetic acid
- e. Hypophosphite

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

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

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

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