



**STATE NON-PROFIT ENTERPRISE «TESTING BOARD FOR PROFESSIONAL
COMPETENCE ASSESSMENT OF HIGHER EDUCATION TRAINEES IN
MEDICINE AND PHARMACY AT THE MINISTRY OF PUBLIC HEALTH OF
UKRAINE»**

Student ID								Surname												
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Variant 08

**TEST ITEMS
FOR THE UNIFIED STATE QUALIFICATION EXAM
STAGE 2**

**INTEGRATED TEST EXAM
KROK 2**

**Specialty «PHARMACY, INDUSTRIAL
PHARMACY»**

Specialization «PHARMACY»

1. 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 β_2 -adrenergic agonists
- B. Mucolytics
- C. Herbal antiseptics
- D. Inhaled glucocorticosteroids
- E. Inhaled muscarinic antagonists

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

- A. Alkaloids
- B. Fatty oils
- C. Cardiac glycosides
- D. Steroidal saponins
- E. Thioglycosides

3. 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. Increased tone of the cough center
- E. Exacerbation of chronic bronchitis

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

- A. Commercial patent
- B. Single tax
- C. Income tax
- D. Individual income tax
- E. Excise tax

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

- A. Salesmen-oriented sales promotion
- B. Personal selling
- C. Consumer-oriented sales promotion
- D. Sponsorship
- E. Middlemen-oriented sales promotion

6. A patient with arterial hypertension has been taking a β -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. Bronchospasm
- D. Dysbacteriosis
- E. Withdrawal syndrome

7. 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. Reduction of the medicinal substance
- D. Hydrolysis of the ester group
- E. Precipitation of the formed salt

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

- A. 10%
- B. 25%
- C. 7%
- D. 5%
- E. 15%

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

- A. Hydrochloric acid
- B. Sodium hydroxide
- C. Ascorbic acid
- D. Sodium metabisulfite
- E. Sodium bicarbonate

10. A pharmacist has prepared an ascorbic acid solution for injections. What substance must be used for the solution stabilization in this case?

- A. Sodium bromide
- B. Sodium sulfite
- C. Sodium citrate
- D. Sodium acetate
- E. Sodium chloride

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

- A. K-Strophanthin
- B. Convallatoxin
- C. Atropine and hyoscyamine
- D. Lanatosides A and B
- E. Purpurea glycosides A and B

12. Drugs made from *Rauvolfia serpentina* roots are used in treatment of arterial hypertension. Authenticity of this herbal raw material can be confirmed by its content of:

- A. Vinblastine
- B. Reserpine
- C. Adonitoxin
- D. Atropine
- E. Hyoscyamine

13. A doctor has written the following prescription for the preparation of a dosage form:

Rp.: Unguenti Benzylpenicillini-natrii 10.0
Misce. Da. Signa: Apply under
the eyelid 3 times a day

What base should be used to make this ointment?

- A. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (5:5)
- B. A mixture of paraffin and sunflower oil (3:7)
- C. 10.0 of vaseline (petroleum jelly) "for eye ointments"
- D. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (6:4)
- E. A mixture of vaseline (petroleum jelly) "for eye ointments" and anhydrous lanolin (7:3)

14. 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. Meningococcal infection
- B. Angina pectoris attack
- C. Hemorrhagic stroke
- D. Hypertensive crisis
- E. Myocardial infarction

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

- A. Microcapsules
- B. Medules
- C. Spansules
- D. Tubatines
- E. Rectal capsules

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

- A. Amlodipine
- B. Propranolol
- C. Verapamil
- D. Nitroglycerin
- E. Fenoterol

17. 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. Reference to the drug as the most effective
- C. References to the cases of successful drug use
- D. Naming and mentioning celebrities, movie and cartoon characters, competent authorities
- E. Comparison with other medical products

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

- A. *Atropa belladonna*
- B. *Styphnolobium japonicum*
- C. *Leonurus*
- D. *Hypericum*
- E. *Mentha*

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

- A. Residue of n-aminobenzoic acid
 B. Diethylamino group
 C. Unsubstituted aromatic cycle
 D. Ester bond
 E. Bound hydrochloric acid
20. An analytical pharmacist quantifies the ascorbic acid substance using the iodometric method. What indicator must be used in the process?
- A. Methyl orange
 B. Murexide
 C. Bromophenol blue
 D. Starch
 E. Phenolphthalein
21. A doctor prescribed the drug simvastatin to the patient to correct hyperlipidemia. Why should the selected daily dose be taken once in the evening?
- A. Catabolism rate of low-density lipoproteins increases
 B. Cholesterol biosynthesis occurs mainly at night
 C. Absorption of the drug increases at night
 D. Risk of myopathy decreases
 E. Receptor sensitivity to low-density lipoproteins increases
22. 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. 100 mL
 C. 1000 mL
 D. 300 mL
 E. 500 mL
23. At the exhibition, calendars, notebooks, and business gifts with the logo of a pharmaceutical company were handed out to the exhibition visitors for free. What is this type of advertising called?
- A. Film advertising
 B. Souvenir advertising
 C. Out-of-home advertising
 D. Print advertising
 E. Point-of-sale advertising
24. At the laboratory of a pharmaceutical company, a corticosteroid medicinal substance — hydrocortisone acetate — is being analyzed. What cycle in its molecule causes the appearance of an intense bright yellow coloring, when concentrated sulfuric acid is added?
- A. Pyridine cycle
 B. Xanthine cycle
 C. Imidazole cycle
 D. Steroid cycle
 E. Naphthalene cycle
25. What should be the disintegration time for effervescent tablets according to the requirements of the State Pharmacopoeia of Ukraine?
- A. 30 minutes
 B. 3 minutes
 C. 15 minutes
 D. 5 minutes
 E. 60 minutes
26. What semi-synthetic antibiotic can be synthesized in the process of reaction between 6-aminopenicillanic acid and phenylaminoacetic acid chloranhydride?
- A. Cephalexin
 B. Methacycline
 C. Rifampicin
 D. Amikacin
 E. Ampicillin
27. Acyclovir is a drug with the nucleoside structure, effective against herpes virus. What reaction of its transformation in the body is associated with its antiviral effect?
- A. Phosphorylation
 B. Reduction
 C. Hydroxylation
 D. Hydrolysis
 E. Oxidation
28. What packaging should the pharmacist use for a baby powder?
- A. Container with a lid that has holes in it
 B. Wax paper
 C. Gelatin capsules
 D. Ordinary paper capsules
 E. Parchment
29. During stock-taking at a pharmacy, a surplus of material goods was discovered. What should the inventory committee do with the discovered surplus?

- A. Elimination
- B. Writing off
- C. Recording as received
- D. Conducting an official investigation
- E. Confiscation

30. 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. Adsorption chromatography
- C. Ion-exchange chromatography
- D. Gas chromatography
- E. Paper chromatography

31. 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. Bactericidal adhesive bandage
- B. Simple lead bandage
- C. Callus treatment bandage
- D. Adhesive bandage
- E. Pepper plaster bandage

32. 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. Bromatometry
- B. Nitritometry
- C. Complexometry
- D. Iodometry
- E. Acidimetry

33. 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. Papaverine hydrochloride
- B. Acetylsalicylic acid
- C. Metoclopramide
- D. Omeprazole
- E. Clarithromycin

34. At the phytochemical workshop, percolation method is used to produce *Crataegus* tincture. What percolation

rate is necessary for this purpose?

- A. 1/30 of the percolator's volume per 30 minutes
- B. 1/24 or 1/48 part of the percolator's working volume per hour
- C. 1/10 of the percolator's volume per 20 minutes
- D. 1/20 of the percolator's volume per hour
- E. 1/40 of the percolator's volume per hour

35. 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. *Schisandra* seeds
- B. Fennel fruits
- C. *Silybum* fruits
- D. Pumpkin seeds
- E. Flax seeds

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

- A. Public relations
- B. Lobbying
- C. Advertising
- D. Personal selling
- E. Sales promotion, sampling

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

- A. Dissolve it in the molten base
- B. First dissolve it in the minimum amount of water
- C. Grind it with a part of the molten base
- D. Comminute it with glycerin
- E. Comminute it with an alcohol or ether

38. What excretory structures of a *Eucalyptus globulus* leaf accumulate the essential oil?

- A. Secretory cells
- B. Essential oil cavities
- C. Essential oil glandules
- D. Glandular spots
- E. Glandular hairs

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

A. A company, the members of which bear additional solidary liability for the company's obligations with all their property

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

C. 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

D. A company, the members of which bear full liability

E. 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

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

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

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

C. Improvement of the granulation process

D. Obtaining tablets of the required weight

E. Taste improvement

41. The duty of a cash desk operator is to perform cash receipt and withdrawal transactions on the grounds of the relevant cash orders. Select from the list below a receipt transaction.

A. Salary payments

B. Receipt of funds for advance salary payments

C. Payment for the goods purchased for the business needs

D. Withdrawing sales proceeds for the transfer to the current account

E. Issuing a cash sum to be accounted for

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

A. Naloxone

B. Potassium chloride

C. Protamine sulfate

D. Unithiol

E. Acetylcysteine

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

A. Rectification

B. Sublimation

C. Lyophilization

D. Extraction

E. Recuperation

44. 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. Barium chloride

E. Sodium cobaltinitrite

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

A. *Macleaya cordata*

B. *Glaucium flavum*

C. *Passiflora incarnata*

D. *Vinca minor*

E. *Chelidonium majus*

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

- A. Starch, glucose, kaolinite, magnesium oxide, sodium bicarbonate
- B. Purified water, starch glue, sugar syrup, gelatin, carboxymethylcellulose solution
- C. Methylcellulose, polyvinylpyrrolidone, acetylphthalylcellulose
- D. Stearic acid, calcium and magnesium stearate, starch, talcum
- E. Sugar, glucose, essential oils, menthol, fruit juice concentrates, indigo carmine, iron oxide, mannitol

47. 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. Monetary funds
- C. Accounts receivable
- D. Goods
- E. Authorized capital

48. 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 power, success, and affiliation
- C. The need for safety
- D. The need for existence, connection, growth
- E. Hygienic and motivational factors

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

- A. Prescription form f-1
- B. Two prescription forms f-1 and f-3
- C. Two copies of prescription form f-1
- D. Two copies of prescription form f-3
- E. Prescription form f-3

50. 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. Profitability
- B. Markups
- C. Commodity circulation
- D. Profit
- E. Expenses

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

- A. Nitrofural (Nitrofurazone)
- B. Metronidazole
- C. Norfloxacin
- D. Phthalazole (Phthalylsulfathiazole)
- E. Nitroxoline

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

- A. Aniline
- B. Pyridine
- C. Cyanogen bromide
- D. Diphenylamine
- E. Ninhydrin

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

- A. Pneumatic
- B. Ultrasonic
- C. Acoustic
- D. Circulation
- E. Mechanical

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

- A. Antibacterial agents
- B. Sedatives
- C. Diuretics
- D. Wound healing agents
- E. Laxatives

55. 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. Cefuroxime
- B. Clarithromycin
- C. Levofloxacin
- D. Benzylpenicillin sodium salt
- E. Amoxicillin

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

- A. Technical regulations for the drug
- B. Written Control Passport
- C. Drug Quality Standard
- D. Extract from the State Register of Medicines
- E. Conclusion on the quality of the drug imported into Ukraine

57. What parameter must be measured during the standardization of suppositories with hydrophilic bases?

- A. Resuspension
- B. Dry residue
- C. Boiling point
- D. Dissolution time
- E. Mechanical strength

58. Alkalimetry in a non-aqueous medium is used for quantification of a phenobarbital substance. What reagent is used as a solvent for this purpose?

- A. Ethyl alcohol
- B. Glacial acetic acid
- C. Acetic anhydride
- D. Dimethylformamide
- E. Formic acid

59. 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. AB-1 (non-boric glass)
- B. NS-2 A (neutral glass 2A)
- C. NS-2 (neutral glass 2)
- D. USP-1
- E. MTB (colorless glass for medical containers)

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

- A. Deep vacuum distillation
- B. Distillation with inert gases
- C. Separation of a mixture consisting of mutually-miscible liquids with different boiling temperature into separate fractions
- D. Technology of obtaining liquid extracts
- E. Rinsing of exhausted raw material with 3–5 times the amount of ethanol

61. 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. National Health Service of Ukraine
- B. State Fiscal Service of Ukraine
- C. State Expert Center of the Ministry of Health of Ukraine
- D. Ministry of Labor and Social Policy of Ukraine
- E. State Service of Ukraine on Medicines and Drugs Control

62. What parameter must be measured by an analytical pharmacist, when using spectrophotometry to quantify furacilin?

- A. pH of a solution
- B. Optical density
- C. Angle of rotation
- D. Refractive index
- E. Melting point

63. An analytical pharmacist identifies a hydrochlorothiazide substance. In this case, sulfate ions that formed after mineralization of the substance can be determined using the reaction with a certain solution. Name this solution.

- A. Barium chloride solution
- B. Cobalt nitrate solution
- C. Copper(II) sulfate solution
- D. Sodium hydroxide solution
- E. Silver nitrate solution

64. What medicine can be used to relieve muscle pain in a 10-year-old patient?

- A. Nimesulide
- B. Ibuprofen
- C. Acetylsalicylic acid
- D. Naproxen
- E. Diclofenac

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

- A. Nationwide, direct
- B. Special
- C. Local, indirect
- D. Nationwide, indirect
- E. Local, direct

66. A pharmaceutical company plans to start selling its products abroad by transferring them into the ownership of a

foreign reseller. What type of entry into a foreign market is it?

- A. Licensing
- B. Direct investments
- C. Export
- D. Joint venture
- E. Franchising

67. 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. Faster absorption of the drug
- C. Prolongation of the effect of iron preparations
- D. Formation of poorly soluble chelate complexes
- E. Increased activity of the drug

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

- A. Ophthalmic dosage forms
- B. Infusions
- C. Suspensions
- D. Dosage forms for newborns
- E. Emulsions

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

- A. Obtained from publications in scientific magazines
- B. Published in statistical reference books
- C. Published in the company's annual report
- D. Collected for the first time for a specific purpose
- E. Published in mass media

70. A certain component in the structure of atropine sulfate makes it possible to quantify atropine sulfate using acidimetry in a non-aqueous medium. Name this structural component.

- A. Phenyl radical
- B. Bound sulfuric acid
- C. Ester group
- D. Tertiary nitrogen atom
- E. Alcohol hydroxyl

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

- A. 0.05 g
- B. 0.04 g
- C. 0.02 g
- D. 0.1 g
- E. 0.03 g

72. 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. Infusion therapeutic system
- B. OROS tablet
- C. Transdermal therapeutic system
- D. Liposome
- E. Matrix tablet

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

- A. Densifier
- B. Preservative
- C. Emulsifier
- D. —
- E. Vehicle

74. A pharmacist needs to prepare a powder, using the following formulation:

Rp.: *Camphorae 0.1*
Sacchari 0.25
M.f.pulv.
D.t.d.N 10

S. Take one powder thrice a day.

What is the optimal preparation technique in this case?

- A.** Fill the mortar pores with glucose and pour it out on a capsule, comminute camphor with alcohol, add glucose from the capsule, mix the ingredients
B. Fill the mortar pores with glucose and pour it out on a capsule, comminute camphor, mix the ingredients
C. Place camphor between the layers of glucose, mix the ingredients
D. Measure out camphor into the mortar, add glucose, mix the ingredients
E. Comminute glucose with alcohol in a mortar, add camphor, mix the ingredients
- 75.** A woman with type 1 diabetes mellitus has developed first signs of hypoglycemia after an insulin injection. What urgent measures should be taken in this case?
- A.** Make a subcutaneous insulin injection
B. Give nitroglycerine sublingually
C. Offer the patient a cup of warm sweetened tea
D. Make a subcutaneous adrenaline injection
E. Make an intramuscular injection of caffeine
- 76.** When preparing compound powders, a pharmacist used the "three-layer" method. Which one of the listed substances is a dye?
- A.** Streptocide (Sulfanilamide)
B. Protargol
C. Ethacridine lactate
D. Camphor
E. Sulfur
- 77.** A lactone test was conducted to verify the authenticity of *Melilotus* grass. What group of compounds can be detected using this test?
- A.** Lignans
B. Coumarins
C. Cardiac glycosides
D. Saponins
E. Anthracene derivatives
- 78.** How long can vasoconstrictors be used for symptomatic treatment of rhinitis?
- A.** 1 month
B. 5 weeks
C. 2 weeks
D. 5-7 days
E. 3 weeks
- 79.** 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. True solution
C. Emulsion
D. Opalescent mixture
E. High-molecular compound solution
- 80.** 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.** 1 month before the closure
B. Notification is optional
C. 3 months before the closure
D. 10 working days before the closure
E. 20 working days before the closure
- 81.** What oral hypoglycemic agent should be prescribed for a 47-year-old overweight patient with type 2 diabetes mellitus, if diet therapy is ineffective?
- A.** Metformin
B. Meloxicam
C. Metoprolol
D. Metronidazole
E. Metoclopramide
- 82.** What stage is not a part of powder manufacturing?
- A.** Granulation
B. Mixing
C. Comminution
D. Packing
E. Sifting
- 83.** For the treatment of cystitis, the doctor prescribed the patient a herbal drug. This drug is used in cases of acute and chronic infectious diseases of the kidneys and bladder. What herbal raw material that contains iridoids and xanthenes is a component of this drug?
- A.** *Vaccinium vitis-idaea* leaves
B. *Centaurea cyanus* flowers
C. *Centaureum* grass
D. *Equisetum arvense* grass
E. Birch leaves
- 84.** The substances and their salts that can be used in manufacturing and purification of narcotic and psychotropic

substances must be accounted at the pharmacy as:

- A. Psychotropic substances
- B. Narcotic substances
- C. Potent substances
- D. Precursors
- E. Toxic substances

85. 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. *Panax ginseng* roots
- C. *Aralia mandshurica* roots
- D. *Berberis* roots
- E. *Glycyrrhiza* roots

86. An analytical pharmacist analyzes an isoniazid substance. What method must be used for the quantification of this substance?

- A. Alkalimetry
- B. Argentometry
- C. Bromatometry
- D. Acidimetry
- E. Complexonometry

87. 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. They form as a result of interest, sympathy
- C. The group leader receives authority from the group
- D. They are created to implement the production process
- E. They resist changes in the organization

88. Bioactive substances of this plant have a secretolytic, antispasmodic, anti-flatulent, and slight diuretic effect. Its essential oil is used in making of gripe water. What plant is it?

- A. *Betula pendula*
- B. *Tanacetum vulgare*
- C. *Calendula officinalis*
- D. *Foeniculum vulgare*
- E. *Crataegus sanguinea*

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

- A. Prednisolone
- B. Prednisone
- C. Hydrocortisone acetate
- D. Cortisone acetate
- E. Betamethasone dipropionate

90. An analytical pharmacist conducts an express analysis of a 2% boric acid solution. What method must be used in this case to quantify the active ingredient?

- A. Argentometry
- B. Nitritometry
- C. Alkalimetry
- D. Complexonometry
- E. Acidimetry

91. 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. 1.0–4.0 g
- C. 2.0–6.5 g
- D. 1.5–6.0 g
- E. 4.0–7.5 g

92. Mandatory payroll deductions are withheld from the salary of pharmacy workers. What is the tax rate on income of natural persons?

- A. 18%
- B. 15%
- C. 20%
- D. 5%
- E. 0%

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

- A. 0.02 g
 B. 0.01 g
 C. 0.05 g
 D. 0.04 g
 E. 0.03 g
94. What is the fundamental difference of the Japanese management model?
- A. Strict control procedure
 B. Collectivism
 C. Focus on individual results
 D. Individualism
 E. Strictly formalized management system
95. At the end of a working day, a cashier prepares the sales proceeds received in cash for the transfer to the bank account through a collecting agent. What document must be issued by the cashier for the cash transfer in this case?
- A. Cheque payable
 B. Payment summary
 C. Payment order
 D. Payment request and order
 E. Cash cheque
96. What is a motive in the context of management functions?
- A. A conscious incentive to act in a certain way
 B. The end result, to achieve which an effort is made
 C. A certain discomfort, a feeling that something is lacking
 D. Psychological characteristics of people that help them acquire certain types of knowledge
 E. Something that is important for a person
97. 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 tripartita*
 C. *Bidens radiata*
 D. *Bidens frondosa*
 E. *Bidens cernua*
98. Chemical analysis of *Helichrysum arenarium* flowers shows positive results of the cyanidin test. This reaction indicates the presence of the following class of compounds:
- A. Alkaloids
 B. Saponins
 C. Coumarins
 D. Flavonoids
 E. Polysaccharides
99. An expert at the laboratory of the pharmaceutical product certification center tests a chloramphenicol substance. What instrument must be used when determining its specific optical rotation?
- A. Potentiometer
 B. Spectrophotometer
 C. Refractometer
 D. Viscometer
 E. Polarimeter
100. In its work, a pharmaceutical company combines ensuring its own profitability with meeting the needs of consumers and raising the standard of living in the society. What marketing management concept has the company chosen?
- A. Intensification of commercial efforts
 B. Product improvement
 C. Marketing
 D. Production improvement
 E. Socio-ethical marketing
101. The medicines that contain anthracene derivatives are used as laxatives. What medicinal plant contains this group of bioactive substances?
- A. *Salvia officinalis*
 B. *Bidens tripartita*
 C. *Frangula alnus*
 D. *Calendula officinalis*
 E. *Eucalyptus globulus*
102. A 65-year-old man with community-acquired pneumonia was prescribed antibiotic amikacin. It should be kept in mind, that amikacin has the following side-effect:
- A. Red coloring of urine
 B. Ototoxicity
 C. Increased blood pressure
 D. Vomiting
 E. Decreased blood pressure
103. 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. Cardiac glycosides
- B. Inhaled glucocorticoids
- C. Nonsteroidal anti-inflammatory drugs
- D. Mucolytics
- E. Antibiotics

104. On the occasion of the Pharmaceutical Worker Day in Ukraine, the best employees at a pharmacy were awarded the Letters of Commendation. What type of management methods was used in this case?

- A. Economic
- B. Socio-psychological
- C. Administrative
- D. Technological
- E. —

105. 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. Competitive Intensity
- E. Business opportunities

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

- A. 59 working days
- B. 56 calendar days
- C. 70 working days
- D. 90 calendar days
- E. 126 calendar days

107. A laboratory conducts analysis of a phenylephrine hydrochloride substance (Mesatonum). What reagent is used to identify it?

- A. Magnesium sulfate
- B. Copper(II) sulfate
- C. Ammonium chloride
- D. Sodium nitrate
- E. Potassium bromide

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

- A. Ambroxol
- B. Carbocysteine
- C. Trypsin
- D. Acetylcysteine
- E. Bromhexine

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

- A. No less than 40 m²
- B. No less than 30 m²
- C. No less than 50 m²
- D. No less than 18 m²
- E. No less than 250 m²

110. What is the drug of choice for treatment of arterial hypertension during pregnancy?

- A. Furosemide
- B. Captopril
- C. Methyldopa
- D. Amlodipine
- E. Propranolol

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

- A. *Althaea officinalis herba*
- B. *Urtica dioica folium*
- C. *Hyoscyamus niger folium*
- D. *Gnaphalium uliginosum herba*
- E. *Digitalis purpurea folium*

112. A pharmacy as a business has its income and expenditure operations. What business operation will result in an increase of the amount of stocked goods?

- A. Money transfer from a bank to the cash desk
- B. Goods receipt from a supplier
- C. Receipt of low-value and fast-wearing items
- D. Issuing money to be accounted for
- E. Debt recovery from a person accountable

113. What amount of furacilin should a pharmacist measure out for the preparation of 250 mL of a furacilin solution (1:5000)?

- A. 0.025 g
- B. 0.25 g
- C. 0.05 g
- D. 0.5 g
- E. 5.0 g

114. 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. Methyl isothiocyanate
- C. Acridine
- D. Naphthoquinone
- E. Furfural

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

- A. Permanganatometry
- B. Complexonometry
- C. Bromatometry
- D. Mercurimetry
- E. Argentometry

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

- A. Implantation
- B. Preparation of solutions for various pharmaceutical purposes
- C. Preparation of solutions for injections
- D. Rectal administration
- E. Sublingual administration

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

- A. Acridine
- B. Phenothiazine
- C. Benzimidazole
- D. Indole
- E. Purine

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

- A. *Elixir pectoralis*
- B. 30% hydrogen peroxide (Perhydrol)
- C. *Leonurus* tincture
- D. 1% citral alcohol solution
- E. Ammonia spirit-anise spirit drops

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

- A. Manufacturing activity
- B. —
- C. Commercial activity
- D. Financial and credit activity
- E. Financial activity

120. How is profitability calculated?

- A. Ratio of the sum of profits to the total cost of fixed assets · 100%
- B. Ratio of the sum of profits to the sum of expences · 100%
- C. —
- D. Ratio of the sum of profits to the sum of goods turnover · 100%
- E. Ratio of the sum of profits to the sum of cost price of the goods · 100%

121. 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. Alkaloids
- B. Iridoids
- C. Polysaccharides
- D. Flavonoids
- E. Tannins

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

- A. Levomycetin (Chloramphenicol)
- B. Tetracycline
- C. Cephalixin
- D. Polymyxin
- E. Erythromycin

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

- A. Emulsifiers
- B. Solubilizers
- C. Preservatives
- D. Thickeners
- E. Pectic materials

124. To reduce business risks, the director of a pharmaceutical company has decided to withdraw a part of the profits and invest money into the restaurant business. Name the phenomenon, when the effort and capital are divided and invested into different types of business, the results of which are not directly related.

- A. Insurance
- B. Liquidation
- C. Bankruptcy
- D. Indexation
- E. Diversification

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

- A. The receipt form need not be kept by the pharmacy
- B. Three years, not counting the current one
- C. One month, not counting the current one
- D. Five years, not counting the current one
- E. One year, not counting the current one

126. When should subterranean plant organs — roots, rhizomes, bulbotubers — be harvested?

- A. At the end of the bloom
- B. In early spring or autumn
- C. Before the bloom
- D. During the period of vegetation
- E. During the bloom

127. 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

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

- A. Raoult's law
- B. Boyle-Mariotte law
- C. —
- D. Clapeyron-Mendeleev equation
- E. Dalton's law

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

- A. Slime
- B. Pectin
- C. Fatty oils
- D. Inulin
- E. Essential oils

130. 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. Phenothiazine
- C. Quinoline
- D. β -lactam
- E. Furan

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

- A. Accountant
- B. Authorized person
- C. Lawyer
- D. Pharmacist on duty
- E. Supplier representative

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

- A. Particle size
- B. Transparency
- C. Color
- D. Sterility
- E. Quantitative determination

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

- A.** Thermopsis grass, hydrochloric acid solution 1:10, purified water
B. Thermopsis tincture, purified water
C. Thermopsis grass, sodium bicarbonate, purified water
D. Thermopsis grass, sodium chloride, purified water
E. Thermopsis grass, purified water
- 134.** The head manager of a pharmacy has transferred to the deputy head manager the authority to select the range of products for sale and make decisions about the nomenclature and amount of medicines and medical products to be purchased from suppliers and the terms of such purchase contracts. What is this action called in the management theory?
- A.** Motivation
B. Organization
C. Control
D. Planning
E. Delegation
- 135.** What nonsteroidal anti-inflammatory drug is the most hematotoxic and can cause agranulocytosis?
- A.** Metamizole sodium
B. Ibuprofen
C. Nimesulide
D. Acetylsalicylic acid
E. Indomethacin
- 136.** A pharmaceutical company provides its employees with free lunches. What needs does it try to satisfy according to the Maslow's theory of motivation?
- A.** Safety and protection
B. Self-actualisation
C. Physiological
D. Esteem
E. Involvement in the events
- 137.** What is the rational method of introducing magnesium oxide into an oil emulsion?
- A.** Introduction as a suspension into the prepared emulsion
B. Dissolution in water to prepare the primary emulsion
C. Dissolution in the prepared emulsion
D. Dissolution in oil
E. Comminution with the water intended for the dilution of the primary emulsion
- 138.** What group of ointment bases vaseline (petroleum jelly) belongs to?
- A.** Adsorption bases
B. Hydrophobic bases
C. Silicone bases
D. Diphylic (amphiphilic) emulsion bases
E. Hydrophilic bases
- 139.** Iridoids can be divided into four main groups. What is the common name for the iridoids obtained from the *Valerianaceae* family plants?
- A.** Valepotriates
B. Common iridoids
C. Secoiridoids
D. Cyclopentane iridoids
E. Complex iridoid alkaloids
- 140.** A 53-year-old patient diagnosed with arterial hypertension is undergoing inpatient treatment. After the examinations, the urologist diagnosed the patient with a prostate adenoma. What can be the drug of choice in this case?
- A.** Verapamil
B. Bisoprolol
C. Propranolol
D. Doxazosin
E. Enalapril
- 141.** What device is used to disperse medicinal substances and homogenize ointments?
- A.** Excelsior
B. Dismembrator
C. Disintegrator
D. Three-roll ointment mill
E. Double-slide tablet press machine
- 142.** *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. Alkaloids
- B. Polysaccharides
- C. Thioglycosides
- D. Fatty oil
- E. Flavonoids

143. What characteristic of adrenaline hydrochloride must be taken into account, by a pharmacist, when preparing the eye drops with this substance?

- A. Thermolability
- B. Thermal stability
- C. Volatility
- D. Low solubility in water
- E. Coloring agent characteristics

144. 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 for these drugs?

- A. Fixed price
- B. Free-of-control price
- C. Indicative price
- D. Contract price
- E. Controlled price

145. A patient with ischemic heart disease after physical exertion felt sharp pain in the cardiac area. What drug can be prescribed in this case for quick relief of the pain syndrome?

- A. Nitroglycerine
- B. Enalapril
- C. Prazosin
- D. Corglycon (convallatoxin)
- E. Captopril

146. A 44-year-old patient was diagnosed with chronic hyperacid gastritis. What pharmacological group of drugs would be most advisable in this case?

- A. Glucocorticosteroids
- B. β -blockers
- C. Proton pump inhibitors
- D. α -blockers
- E. Inhibitors of protein-degrading enzymes

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

- A. Continental method
- B. Solvent replacement method
- C. Chemical condensation
- D. Physical condensation
- E. Dispersion with turbidization

148. A pharmaceutical company organizes scientific conferences and workshops for doctors and pharmaceutical workers. What element of marketing communications is used by this pharmaceutical company?

- A. Direct marketing
- B. Public relations
- C. Merchandising
- D. Personal selling
- E. Sales promotion

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

- A. *Oleum Lini*
- B. *Oleum Sojae*
- C. *Oleum Cucurbitae*
- D. *Oleum Amygdalarum*
- E. *Oleum Ricini*

150. 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. Employee turnover
- B. Helical (vertical) rotation
- C. Mixed rotation
- D. Recruitment
- E. Spiral (horizontal) rotation