

MINISTRY OF PUBLIC HEALTH OF UKRAINE

Department of human resources policy, education and science

Testing Board

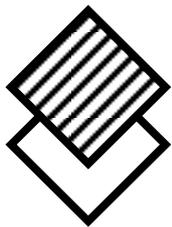
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Test items for licensing examination

Krok 2 PHARMACY



General Instruction

Every one of these numbered questions or unfinished statements in this chapter corresponds to answers or statements endings. Choose the answer (finished statements) that fits best and fill in the circle with the corresponding Latin letter on the answer sheet.

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The book includes test items for use at licensing integrated examination “Krok 2 Pharmacy” and further use in teaching.

The book has been developed for students of pharmaceutical faculties and academic staff of higher medical educational establishments.

Approved by Ministry of Public Health of Ukraine as examination and teaching publication based on expert conclusions (Orders of MPH of Ukraine of 14.08.1998 №251, of 27.12.1999 №303, of 16.10.2002 №374, of 16.04.2003 № 239, of 29.05.2003 №233).

1. A pharmacist prepares powders with a substance hard to comminute. What substance should be comminuted with a volatile liquid?

- A. Camphor
- B. Magnesium oxide
- C. Zinc sulfate
- D. Copper sulfate
- E. Glucose

2. A pharmacist has prepared powders including extract of belladonna in the amount of 0,015 per dose. For ten doses he had to take the following amount of dry extract:

- A. 0,3 g
- B. 0,15 g
- C. 1,5 g
- D. 0,03 g
- E. 0,015 g

3. A pharmacy has prepared a solution of macromolecular substance with limited swelling capacity. What solution was labelled "warm up before use"?

- A. Gelatin
- B. Trypsin
- C. Pepsin
- D. Methyl cellulose
- E. Pancreatin

4. A dispensing chemist can recommend a drug made from seeds of *Aesculus hippocastanum* to be taken as a veintonic and anti-thrombotic agent to treat venous congestion and veins dilatation of lower extremities. This drug is:

- A. Aescusan
- B. Phytolysin
- C. Flamin
- D. Marelin
- E. Ajmaline

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

- A. Once in a shift
- B. Once in a week
- C. Once every 10 days
- D. Once every 5 days
- E. Once every 3 days

6. Schedule of sanitation actions in pharmacies is regulated by the relevant regulatory acts. Cleaning day at a pharmacy must be scheduled for at least 1 time:

- A. In a month
- B. In a week
- C. In 3 days
- D. In 10 days
- E. In 5 days

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

- A. Divisional
- B. Bureaucratic
- C. Functional
- D. Centralized
- E. Decentralized

8. A pharmaceutical company produces cordiamin solution. During the quality control its quantitative content was determined by means of refractometry. For this purpose an analytical chemist measured:

- A. Index of refraction
- B. Viscosity
- C. Density
- D. Intensity of absorption
- E. Angle of rotation

9. Specify which of the alkaloids given below will react positively to xanthines (murexide test):

- A. Caffeine
- B. Atropine sulfate
- C. Papaverine hydrochloride
- D. Quinine sulfate
- E. Ephedrine hydrochloride

10. Which of the following drugs is used for thrombolytic therapy in case

of myocardial infarction?

- A. Streptokinase
- B. Heparin
- C. Phenylinum
- D. Ticlopidine
- E. Acetylsalicylic acid

11. A patient, who had a case of cardiac infarction, is recommended to take acetylsalicylic acid to:

- A. Decrease thrombocyte aggregation
- B. Decrease body temperature
- C. Dilate coronary vessels
- D. Decrease inflammation
- E. Lower cholesterol rate

12. Stinging nettle (*Urtica dioica*) leaves are mostly used as a hemostatic in tinctures and liquid extracts to treat lung, intestinal, and uterine hemorrhages. What bioactive substance provides hemostatic effect?

- A. Vitamin K
- B. β -carotene
- C. Rutin
- D. Reserpine
- E. Digitoxin

13. What herbal bioactive substances yield a positive reaction with ferric ammonium alum solution?

- A. Tannins
- B. Saponins
- C. Polysaccharides
- D. Bitters
- E. Fatty oils

14. Cumulating drugs - Digitoxin and Cordigitum - are used to treat chronic cardiac insufficiency. What plant is used as the raw material in production of these drugs?

- A. *Digitalis purpurea*
- B. *Strophanthus kombe*
- C. *Adonis vernalis*
- D. *Convallaria majalis*
- E. *Erysimum canescens*

15. To prepare a syrup the followi-

ng ingredients are taken: 82 parts of sugar syrup, 1 part of *KJ* (*KBr*), 12 parts of liquid thyme extract and 5 parts of 96% ethanol. Name this drug:

- A. Pertussin
- B. Cholosas
- C. Ambroxol
- D. Broncholytin
- E. Licorice syrup

16. A pharmaceutical enterprise that has achieved high sales rates and customers' recognition will reach the highest profit at the following stage of the product life cycle:

- A. Maturity
- B. Market penetration
- C. Growth
- D. Decrease
- E. Development

17. A marketing specialist of a retail pharmacy analyzes price lists of wholesale firms and manufacturers. The key factor in the choice of a supplier is:

- A. Selection-price characteristics of production
- B. Production multifunctionality
- C. Post-sale service quality
- D. Supply volume
- E. Market conditions

18. Suspension workshop introduces production of new drugs. Specify the optimal approach to suspension production:

- A. Grinding in a liquid medium
- B. Drop method
- C. Repercolation
- D. Percolation
- E. Maceration

19. Aerosol workshop of a pharmaceutical plant uses propellants of different groups. What propellants belong to the group of compressed gases?

- A.** Nitrogen, nitrous oxide, carbon dioxide
- B.** Freons
- C.** Propane, butane, isobutane
- D.** Vinyl and methyl chloride
- E.** Methylene chloride, ethylene chloride

20. An analytical chemist confirms the presence of calcium ions in calcium lactate molecule by means of reaction with ammonium oxalate. The reaction occurs in the medium of:

- A.** Acetic acid
- B.** Ammonia
- C.** Sodium hydroxide
- D.** Formaldehyde
- E.** Potassium chloride

21. A pharmacist has used condensation method to prepare a suspension. Select the substances that make up the precipitate:

- A.** Calcium chloride with sodium hydrocarbonate
- B.** Caffeine and sodium benzoate with zinc oxide
- C.** Sodium bromide with camphor
- D.** Potassium bromide with sodium benzoate
- E.** Magnesium sulfate with potassium iodide

22. A pharmacy received a formula for an extemporaneously compounded medication. Specify the document that is used to set the price for such medication:

- A.** Retail price list for drugs
- B.** Inventory report
- C.** Certificate of quality
- D.** Cash receipt voucher
- E.** Certificate of analysis

23. A pharmacist has made polyethylene oxide-based suppositories with Streptocid. Specify the approach to introducing the active ingredient into the vehicle:

- A.** Dissolution in the molten vehicle
- B.** Emulsification and blending with the vehicle
- C.** Trituration with small amount of water
- D.** Suspending in the vehicle
- E.** Blending with vaseline oil

24. Preparations from *Althaea officinalis* roots are used for treatment of upper airways conditions. During harvesting this herbal raw material the following can become an admixture:

- A.** *Lavatera thuringiaca*
- B.** *Plantago major*
- C.** *Tanacetum vulgare*
- D.** *Cichorium intybus*
- E.** *Taraxacum officinale*

25. A Ukrainian pharmaceutical company established a subsidiary company abroad. What organisational form of international business is it?

- A.** Direct possession
- B.** Direct export
- C.** Licensing
- D.** Contractual production of drugs
- E.** Joint venture

26. What product strategy is characterized by introducing to the market a product designed for the largest market segments and maximal amount of customers?

- A.** Undifferentiated marketing
- B.** Differentiated marketing
- C.** Concentrated marketing
- D.** Diversification
- E.** Variation

27. Which of the following anti-hypertensive drugs has potassium-sparing action?

- A.** Triamterene
- B.** Furosemide
- C.** Prazosin
- D.** Metoprolol
- E.** Diltiazem

28. An essential oil is a component of

such compound drugs as: Inhalpt, Corvalol, Pinosol, Corvaldin, tooth drops. What herbal raw material is the source of this essential oil?

- A. *Folia Menthae piperitae*
- B. *Folia Betulae*
- C. *Folia Urticae*
- D. *Folia Agavae*
- E. *Folia Absinthii*

29. A pharmacist has been on a business trip. What is the deadline for submitting a travel expense report?

- A. Three working days after returning from a trip
- B. Four working days after returning from a trip
- C. Ten working days after returning from a trip
- D. A week after returning from a trip
- E. There is no deadline

30. A pharmacy prepares atropine sulfate trituration. What adjuvant should be used to prepare this trituration?

- A. Lactose
- B. Saccharose
- C. Glucose
- D. Starch
- E. Talcum

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

- A. 5 ml
- B. 10 ml
- C. 2 ml
- D. 1 ml
- E. 0,5 ml

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

- A. Direct compression without additional substances
- B. Moulding
- C. Direct compression with the addition of adjuvants
- D. Wet granulation prior to compression
- E. Dry granulation prior to compression

33. Various types of dryers can be used for granule dehumidification. Specify the type of "СП-30" dryer:

- A. Fluidized bed dryer
- B. Freeze dryer
- C. Infrared dryer
- D. Silica gel dryer
- E. Forced air dryer

34. Ampoule workshop of a factory produces injection solution. Name the stabilizer to be added to 1% morphine hydrochloride injection solution:

- A. 0,1 N solution of hydrochloric acid
- B. 0,1 N solution of sodium chloride
- C. Amino-propylene-glycol
- D. Rongalite
- E. Sodium metabisulfite

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

- A. Angle of rotation
- B. Refractive index
- C. Optical density
- D. Melting point
- E. Specific gravity

36. *Rhamnus cathartica* herbal raw material can be used as a laxative. What plant parts are harvested for drug production?

- A. Fruit
- B. Leaves
- C. Bark
- D. Roots
- E. Sprouts

37. Crude drugs **CANNOT** be tasted

if they contain:

- A. Toxins
- B. Essential oils
- C. Polysaccharides
- D. Bitter glycosides
- E. Vitamins

38. During microscopy of *Althaea* root it is necessary to determine the presence of starch granules within the plant cells. What reagent enables such analysis?

- A. Lugol's solution
- B. Ammonium hydroxide
- C. Concentrated sulfuric acid
- D. Alcohol solution of α -naphthol
- E. Thymol solution

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

- A. 17
- B. 36
- C. 38
- D. 40
- E. 41

40. For the purpose of sales stimulation a pharmaceutical wholesale company grants its customers a discount according to the social contract and on condition of their loyalty. Specify the type of discount:

- A. Bonus
- B. Dealer
- C. Seasonal
- D. Discounts for quantity of purchased goods
- E. -

41. Before goods are accepted by a pharmacy, they should be checked for quantity and quality. If there is no discrepancy, the pharmacy issues a warrant for receipt of goods. This warrant is valid for:

- A. 10 days
- B. 3 months
- C. 1 year
- D. 15 days
- E. 20 days

42. Companies producing injectable dosage forms apply different methods of ampoule sealing. Sealing against a jet of inert gases (nitrogen, argon, carbon dioxide) is suitable for the following injection solutions:

- A. Easily oxidable
- B. Viscous
- C. Thermostable
- D. Hydrolytically unstable
- E. Photosensitive

43. An analytical chemist of a central industrial laboratory performs quantitative determination of penicillin sum in benzylpenicillin sodium salt by means of iodometric method. What indicator is used?

- A. Starch
- B. Phenolphthalein
- C. Potassium chromate
- D. Methyl orange
- E. Methyl red

44. 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 minimal quantity of purified water
- B. Dissolve in Dimexid (Dimethylsulfoxide)
- C. Dissolve in molten cocoa butter
- D. Dissolve in vaseline oil
- E. Dissolve in alcohol

45. Suppositories are prepared by various methods such as rolling, pouring, pressing. What base is used in the pouring method?

- A. Butyrolum
- B. Paraffin
- C. Cocoa butter
- D. Vaseline
- E. Coriander oil

46. A pharmacist has made an injection solution with 0,1 M of sodium hydroxide solution as a stabilizer. What substance requires such stabilizer?

- A. Caffeine and sodium benzoate
- B. Dibazol (Bendazol)
- C. Sodium hydrocarbonate
- D. Sodium chloride
- E. Glucose

47. Anesthesin is a substance with local anesthetic activity and a derivative of the following acid:

- A. Para-aminobenzoic
- B. Para-aminosalicylic
- C. Para-aminobenzolsulfonic
- D. Para-chlorbenzoic
- E. Para-aminophthalic

48. Paracetamol substance has been received for analysis. Reaction with the solution of iron (III) chloride resulted in blue-purple color. This indicates the presence of:

- A. Phenolic hydroxyl
- B. Aldehyde group
- C. Keto group
- D. Ester group
- E. Alcoholic hydroxyl

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

- A. Standard set of sieves
- B. Various vibrosieves
- C. Blade friabilators
- D. Laboratory identifiers
- E. Microscope

50. Various dryer types are used in production of herbal and animal-derived drugs. What dryer would be optimal for dehumidification of

thermolabile compounds?

- A. Freeze dryer
- B. Roller dryer
- C. Band dryer
- D. Drying oven
- E. Drum dryer

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

- A. Thioacetamide
- B. Methoxyphenylacetic acid
- C. Hypophosphite
- D. Aminomethyl alizarin acetic acid
- E. Sulfomolybdenum

52. Select a reagent that should be applied by an analytical chemist to detect alkaloids in the herbal raw material:

- A. Dragendorff reagent
- B. Bromine water
- C. Alkaline solution
- D. Stahl's reagent
- E. Trim-Hill reagent

53. A warehouse received a batch of herbal raw material consisting of peppermint leaves. Specify the storage conditions for this herbal material:

- A. Separately from other herbal raw materials
- B. Under the regular conditions
- C. In metal storage containers
- D. Protected against CO_2
- E. At the temperature of $-5^{\circ}C$

54. For a month a pharmacy has been receiving multiple deliveries from various suppliers. What accrual document is used to record the goods received by the pharmacy?

- A.** Merchandise activity report
B. Invoice register
C. Receipt log book
D. Cash book
E. Debit/credit invoice
- 55.** A set of values, traditions, behavioral norms and views inherent to an organisation characterize its following feature:
- A.** Culture
B. Success
C. Profitability
D. Capitalization level
E. Self-development capability
- 56.** Products differentiation (advantages) pursued by a pharmaceutical company with the aim to surpass its competitors in satisfying customers's demands is called:
- A.** Product leadership
B. Benchmarking
C. Porter's generic strategies model
D. Penetration strategy
E. Concentration strategy
- 57.** Sterilization methods used for the preparation of drugs under aseptic conditions can be differentiated into physical, mechanical, and chemical ones. Specify the chemical method of sterilization:
- A.** Addition of preservatives
B. Dry heat sterilization
C. Radiation sterilization
D. Pressure steam sterilization
E. UV light sterilization
- 58.** One of the first stages of business activity is to register an enterprise with public authorities. What documents **NEED NOT** be submitted to the local authorities for state registration of an enterprise?
- A.** Samples of director's and chief accountant's signatures
B. Record card
C. Payment document for registration fee
D. Payment document confirming owner's assessed contribution
E. Constituent documents
- 59.** For better coverage of various markets the Lubnyfarm company sells a portion of its production through its chain of pharmacies, another portion is being sold through distributors, and the third - through pharmacies of another owners. What marketing system of distribution is used by this company?
- A.** Multichannel
B. Horizontal
C. Corporate
D. Contractual
E. Administered
- 60.** One of the most important market characteristics is a goods economic trend. What economic trend can be characterized by relative stability of high prices and the highest activity of manufacturers and customers?
- A.** High (stable)
B. Subsiding
C. Downward
D. Sluggish
E. Low
- 61.** A patient has been administered powders containing menthol. What is the best way to achieve the required extent of menthol comminution?
- A.** To triturate it with alcohol or ether
B. To triturate it with glycerine or chloroform
C. To triturate it with purified water
D. To triturate it with other components of the formula
E. To triturate it thoroughly with sugar
- 62.** An analytical laboratory received a sample of alpha-aminobutyric acid for analysis. What reagent should

be used by the analytical chemist to identify this substance?

- A. Ninhydrin
- B. Sodium nitrate
- C. Benzene
- D. Aniline
- E. Calcium bromide

63. A retail pharmacy has been purchasing goods within an accounting period. What changes to the balance will result from this business transactions?

- A. Increase in assets and liabilities
- B. Decrease in assets and liabilities
- C. Changes will affect only the assets
- D. Changes will affect only the liabilities
- E. -

64. Which of the following non-steroid anti-inflammatory agents has the least harmful effect on the mucosa of gastrointestinal tract?

- A. Nimesulide
- B. Diclofenac
- C. Indomethacin
- D. Piroxicam
- E. Acetylsalicylic acid

65. When preparing an ointment with castor oil and vaseline a pharmacist failed to obtain a homogeneous system. What is the most likely cause of incompatibility between these components?

- A. Immiscibility of the ingredients
- B. Limited solubility
- C. Release of crystallization water
- D. Coagulation
- E. Adsorption

66. Tablet quality is assessed through various indicators. Name the apparatuses used to measure tablet dissolution:

- A. Paddle, flow-through cell
- B. Rotating basket, flow-through cell
- C. Paddle, rotating basket
- D. Flow-through cell
- E. Rotating basket

67. When doing calculations to determine the limit of the cash balance, an accountant must specify the actual amount of cash receipts. What time period should be taken into account?

- A. Three months prior to calculation
- B. Six months prior to calculation
- C. 1 year prior to calculation
- D. 10 days prior to calculation
- E. 7 days prior to calculation

68. A certain plant is used for production of tinctures and extracts that are a part of complex drugs, such as *Bellataminal*, *Becarbon*, *Besalol*, etc. Specify the grass that is used for this purpose:

- A. Belladonna
- B. Lily of the valley
- C. Astragalus
- D. Beggarticks
- E. Celandine

69. A pharmacist has prepared a drug by the following prescription:

Rp.: Streptocidi

Dermatoli ana 1,0

Lanolini

Vaselini ana 5,0

M.D.S.: Apply to the affected area of skin.

Specify the type of the disperse system:

- A. Suspension ointment
- B. Solution ointment
- C. Hydrophilic ointment
- D. Combined ointment
- E. Extraction ointment

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

- A. Streptomycin sulfate
- B. Doxycycline hydrochloride
- C. Amoxicillin
- D. Lincomycin hydrochloride
- E. Kanamycin monosulfate

71. What concept can be described as determining the goods specifications, special features that distinguish these goods from their competitor-manufactured analogues?

- A. Positioning
- B. Selection
- C. Quality
- D. Demand
- E. Consumer value

72. Aerosols contain active ingredients, solvents, propellants. What substances can be used as propellants?

- A. Freon 11, carbon monoxide, propane/butane mixture
- B. Isopropyl myristate, neon, sulfur oxide
- C. Glycerine, argon, helium
- D. Linaetholum, myristinic acid, benzocaine
- E. Hydrogen sulfide, hydrogen, triethanolamine

73. White precipitate produced by the reaction of morphine hydrochloride with ammonia solution dissolves in sodium hydroxide solution due to the presence of the following group in the structure of morphine hydrochloride:

- A. Phenolic hydroxyl
- B. Carboxyl group
- C. Aldehyde group
- D. Alcoholic hydroxyl
- E. Keto group

74. A pharmacy plans to purchase and retail goods of different stock record units. Which group of goods does VAT reduction apply to?

- A. Medicaments
- B. Baby food
- C. Optics
- D. Curative cosmetics
- E. Perfumes

75. During processing, drying and refinement of herbal raw materials containing saponins the dust particles can cause mucosa irritation. Therefore, precautionary measures should be observed when working with:

- A. *Rhizoma et radices Polemonii*
- B. *Rhizomata Tormentillae*
- C. *Radices Araliae*
- D. *Rhizomata Bistortae*
- E. *Rhizomata et radices Rubiae*

76. An analytical chemist identifies the substance of potassium acetate. What reagent confirms the presence of potassium cation in the substance?

- A. Tartaric acid
- B. Sodium hydroxide
- C. Potassium permanganate
- D. Iron (III) chloride
- E. Zinc oxide

77. A pharmacy has received a batch of drugs from a pharmacy depot. Specify the drug subject to the controlled substance inventory in pharmacies:

- A. Dicaine
- B. Paracetamol
- C. Analgin
- D. Novocaine
- E. Acetylsalicylic acid

78. A pharmaceutical company conducted an age-specific segment analysis of the regional antihistamine market. It revealed the lack of antihistamines for children. The company will consider this segment as:

- A. A market niche
- B. An unattractive segment
- C. A market share
- D. A segment requiring further research
- E. A market door

79. The manufacturing pharmaceutical company "Elema" has set up its own corporate pharmacy. In this case, it uses the following distribution channel:

- A. Zero level
- B. First level
- C. Second level
- D. Third level
- E. Fourth level

80. What type of market can be characterized by the following conditions: there are many sellers and buyers, who have no influence over current prices; similar and interchangeable competing goods are available; no price limits?

- A. Pure competition
- B. Monopolistic competition
- C. Oligopoly
- D. Pure monopoly
- E. Economic planning

81. An analytical laboratory received the task to confirm the presence of ethylenediamine in aminophylline. Which of the following reagents allows to detect ethylenediamine?

- A. Copper (II) sulfate
- B. Sodium hydroxide
- C. Concentrated sulfuric acid
- D. Silver nitrate
- E. Barium chloride

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

- A. Osmolality
- B. Isohydricity
- C. Isotonicity
- D. Isoviscosity
- E. Apyrogenicity

83. Quality of viscous extracts is assessed based on a variety of indices. Specify the maximum allowed moisture content of viscous extracts according to the regulations of the State Pharmacopoeia of Ukraine:

- A. 30%
- B. 20%
- C. 10%
- D. 5%
- E. 100%

84. Injection solutions in ampoules are assessed through various indicators. What percentage of ampoules should be checked for mechanical impurities?

- A. 100%
- B. 98%
- C. 95%
- D. 90%
- E. 50%

85. A pharmacy prepares suspensions. What substance can be used for preparing a suspension without adding a stabilizer?

- A. Magnesium oxide
- B. Camphor
- C. Sulfur
- D. Menthol
- E. Phenyl salicylate

86. During planned inventory of cash money in a pharmacy cash register there is an unaccounted surplus discovered. What should a committee do with this surplus?

- A. Record as received
- B. Transfer to authorized capital
- C. Transfer to accounts payable
- D. Transfer to accounts receivable
- E. Transfer to emergency fund

87. To confirm the presence of sulfates in the medicinal preparation of magnesium sulfate an analytical chemist of a pharmacy uses the following solutions:

- A.** Barium chloride and hydrochloric acid
- B.** Ammonium chloride and ammonium hydrate
- C.** Silver nitrate and nitric acid
- D.** Benzenesulfonic acid
- E.** Diphenylamine

88. Streptocide, sulfacyl sodium, norsulfazole or sulfadimezinum can be identified by means of the reaction that forms:

- A.** Azo dye
- B.** Murexide
- C.** Iodoform
- D.** Fluorescein
- E.** -

89. Pharmaceutical market is in such a situation when there is only one company selling a certain product. Specify the competitive structure of the market:

- A.** Pure monopoly market
- B.** Pure competition market
- C.** Monopolistic competitive market
- D.** Oligopolistic market
- E.** Pure monopoly market and oligopolistic market

90. A pharmaceutical company has made a decision to expand its activities. The process of the company's activity expansion by penetration into new fields of the branch is called:

- A.** Diversification
- B.** Segmentation
- C.** Conglomeration
- D.** Integration
- E.** Centralization

91. An analytical chemist determines the quantity of a drug by the method of indirect bromatometry. Which of the following titrated solutions is to be used?

- A.** Sodium thiosulfate
- B.** Calcium bromate
- C.** Sodium edetate
- D.** Sodium nitrite
- E.** Silver nitrate

92. A pharmacist working at an analytical laboratory is performing sulfite-ion identification of a drug in compliance with the requirements of State Pharmacopoeia of Ukraine. What reagent becomes colorless in this investigation?

- A.** Iodine solution
- B.** Iron (III) chloride solution
- C.** Ammonia solution
- D.** Potassium iodide solution
- E.** Potassium nitrate solution

93. An analytic laboratory received "Aether anaestheticus" for analysis. Which reagent should be used for detection of acetone and aldehyde admixtures according to the State Pharmacopoeia of Ukraine?

- A.** Alkaline solution of potassium tetraiodomercurate
- B.** Ammonium solution of argentic nitrate
- C.** Aqueous solution of potassium iodide
- D.** Sodium hydrosulphite
- E.** Hydroxylamine solution

94. Natural persons registered as small business entities with simplified taxation scheme (2 group) are subject to the limit of the annual amount of sales proceeds. Specify the proceeds limit:

- A.** 1 million UAH
- B.** 750 thousand UAH
- C.** 100 thousand UAH
- D.** 3 million UAH
- E.** 5 million UAH

95. Fatty oil containing unsaturated fatty acids is used for the prevention of atherosclerosis. Specify the herbal raw material used in oil production:

- A.** Seeds of flax
- B.** Seeds of fennelflower
- C.** Fruits of dill
- D.** Fruits of black chokeberry
- E.** Hawthorn berries

96. Quality of dried extracts is assessed according to several cri-

teria. Specify the highest acceptable amount of moisture in dried extracts according to the State Pharmacopoeia of Ukraine:

- A. 5%
- B. 25%
- C. 20%
- D. 75%
- E. 95%

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

- A. Xeroform
- B. Camphor
- C. Menthol
- D. Protargol (silver proteinate)
- E. Ephedrine hydrochloride

98. Benzathine benzylpenicillin is the drug of choice for treatment of the following disease:

- A. Syphilis
- B. Intestinal infection
- C. Pneumonia
- D. Tonsillitis
- E. Furunculosis

99. The main active substances of senna leaves and fruits are sennosides A, B, C, D. They belong to the following class of biologically active substances:

- A. Anthracene derivatives
- B. Phenolic acids
- C. Flavonoids
- D. Iridoids
- E. Thioglycosides

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

- A. Pods of opium poppy
- B. Pods of plume poppy
- C. Celandine grass
- D. Grass of common periwinkle
- E. Tea leaves

101. What herbal drug produced form alkaloid-containing raw materials can be recommended for

neurasthenia, insomnia, menopausal disorders?

- A. Novopassit
- B. Ergotamine
- C. Glaucine hydrochloride
- D. Securinine nitrate
- E. Vinblastine

102. A pharmacist prepares 3000 ml of valerian root infusion for a hospital department. The given amount of extract should be infused in a water bath for:

- A. 25 minutes
- B. 45 minutes
- C. 15 minutes
- D. 10 minutes
- E. 30 minutes

103. A pharmacist has prepared a solution of menthol oil. Specify the dissolution temperature of the active substance:

- A. 40-50°C
- B. 60-70°C
- C. 30-40°C
- D. 70-80°C
- E. 20-30°C

104. The risk can arise from some forms of activity connected with production of goods and services, their selling, commodity-money and financial operations, commerce, implementation of socioeconomic and scientific-and-technical projects. This is the definition of the following concept:

- A. Business risk
- B. Loss of property
- C. Labour loss
- D. Loss of time
- E. Financial loss

105. Althaea roots are used as a mucolytic agent. Underground parts of this plant are harvested:

- A.** After the seeds have ripened, and the above-ground part have died off
- B.** In the period of blossoming
- C.** In the period of fruiting
- D.** In the period of budding
- E.** In the period of stem extension

106. Substance of calcium pangamate is to be studied in an analytical laboratory. Calcium cations form white precipitate with the following reagent:

- A.** Ammonium oxalate
- B.** Sodium chloride
- C.** Potassium permanganate
- D.** Potassium bromide
- E.** Sodium cobaltinitrite

107. In cases of inorganic mercury compounds poisoning the following drug should be used for antidotal therapy:

- A.** Unithiol (Dimercaptopropane sulfonate)
- B.** Naloxone
- C.** Calcium tetacine
- D.** Desferal (Deferoxamine)
- E.** Dexamethasone

108. As a pharmacist was serving a customer, who ordered a nonprescription drug, he realized that the patient did not apprehend the verbal information. Name the communicative barriers that arise when words or symbols may have different meanings for the information sender and the receiver:

- A.** Semantic barriers
- B.** Neglect of facts
- C.** Nonverbal barriers
- D.** Failure to understand the importance of information
- E.** Stereotypes of thinking

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

- A.** Triple heating of solution to 40-60°C with 24-hour-long intervals in between for thermostating
- B.** Autoclaving at 119-121°C with pressure at 1,0-1,1 atm
- C.** Sterilization with flowing steam at 100°C
- D.** Sterilization with dry heat at 180-200°C for a lengthy period of time
- E.** Sterilization with high-frequency and microwave frequency current

110. What final document is used for the preparation of the report on the discrepancies revealed in the course of the inventory at a pharmacy?

- A.** Act on the inventory results
- B.** Inventory item description
- C.** Checklist
- D.** Commercial report
- E.** Invoice

111. According to the basic regulations for supply of medical products, pharmacies should be supplied with medicaments that have a remaining shelf life of no less than ...%, and bacterial preparations of no less than ...%:

- A.** 60%, 40%
- B.** 80%, 60%
- C.** 50%, 40%
- D.** 40%, 20%
- E.** 60%, 30%

112. A pharmaceutical enterprise produces ointments. What base is used for production of sulfur ointment simple?

- A.** Emulsion
- B.** Vaseline
- C.** Base "For ophthalmic ointments"
- D.** Lanolin
- E.** Polyethylene glycol

113. Powders that quickly enter into a reaction in presence of water and emit carbon dioxide belong to the following group:

- A. Effervescent powder
- B. Soluble powder
- C. Powders for oral use
- D. Nasal powders
- E. Powders for external use

114. While filling hard gelatin capsules such glidants as 0,1% - 0,3% aerosil or magnesium stearate along with 0,5% - 1% talcum are often added to the filling agent in order to improve the following properties:

- A. Flowability
- B. Homogeneity
- C. Regulation of moisture content
- D. Homogeneity of mixing
- E. Ability to contact molding

115. A patient suffering from bronchial asthma has been diagnosed with essential hypertension. What antihypertensive drug is contraindicated in this case?

- A. Propranolol
- B. Captopril
- C. Amlodipine
- D. Hypothiazid (Hydrochlorothiazide)
- E. Verapamil

116. A female patient in the first trimester of her pregnancy has been diagnosed with acute pyelonephritis. What is the antibiotic drug of choice for treatment of this patient?

- A. Amoxicillin
- B. Norfloxacin
- C. Gentamicin
- D. Chloramphenicol
- E. Amikacin

117. Which group of adjuvants includes polyvinyl alcohol allowed for use under the State Pharmacopoeia of Ukraine regulations?

- A. Prolongators
- B. Preservatives
- C. pH adjusters
- D. Antioxidants
- E. Isotonizing agents

118. A patient with moderately

severe pneumonia has been administered ceftriaxone 1 time per day. The drug should be taken once a day due to its following property:

- A. Slow excretion
- B. Presence of bactericidal action
- C. Wide range of action
- D. Cumulative ability
- E. Poor absorption from the injection site

119. A pharmacist is preparing an ointment under aseptic conditions on the sterile ointment base - composition of vaseline and lanoline at a ratio 6:4. The drug substance is incorporated by suspending. Such technology of ointment preparation is typical for the following substance:

- A. Benzylpenicillin sodium salt
- B. Sodium chloride
- C. Thiamine chloride
- D. Pilocarpine hydrochloride
- E. Sodium sulfate

120. Mixers are used to obtain a homogeneous mixture of free-flowing materials. What mixers have no rotating details?

- A. Fluidized bed mixers
- B. Drum mixers
- C. Blade mixers
- D. Double cone blenders
- E. Centrifugal mixers

121. In the course of isoniazid identification a pharmacy analyst has thoroughly boiled the substance with 2,4-dinitrochlorobenzene. The substance colored yellow, after adding alkaline solution it colored first violet and then brownish-red. As the result of this reaction the following aldehyde derivative is produced:

- A. Glutaconic
- B. Gluconic
- C. Glutamic
- D. Glyoxylic
- E. Hexanic

122. A routine inventory revealed a cash shortage. Who has to reimburse

the sum of the revealed shortage?

- A. Cashier
- B. Pharmacy director
- C. Deputy director of a pharmacy
- D. Department head
- E. Deputy head of a department

123. 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. Diclofenac sodium
- C. Nimesulide
- D. Prednisolone
- E. Methylprednisolone

124. A process dealing with drawing the documents, their processing, circulation and storage is called records management. If all documents circulate through one organisation center, - office desk, - then such system of records management is called:

- A. Centralized
- B. Decentralized
- C. Mixed
- D. Referent
- E. Specialized

125. A pharmacy received a formula for an alcohol solution of methylene blue with unspecified alcohol concentration. In this case, a pharmacist should use ethyl alcohol of the following concentration:

- A. 60%
- B. 90%
- C. 70%
- D. 96%
- E. 40%

126. A pharmacist needs to prepare 10,0 g of eye ointment vehicle. What amounts of lanolin and vaseline should be taken?

- A. 1,0 g of anhydrous lanolin and 9,0 g of vaseline
- B. 1,0 g of anhydrous lanolin and 29,0 g of vaseline
- C. 12,0 g of anhydrous lanolin and 18,0 g of vaseline
- D. 27,0 g of anhydrous lanolin and 3,0 g of vaseline
- E. 10,0 g of anhydrous lanolin and 20,0 g of vaseline

127. Rifampicin is a cytochrome P 450 inducer; therefore, its interaction with other chemically active drugs:

- A. Can decrease concentration of other drugs
- B. Can increase concentration of other drugs
- C. Has no effect on concentration of other drugs
- D. Can result in binding with other metabolites
- E. Has no effect on toxicity of other drugs

128. Bronchodilatory effect of a short-acting β_2 -adrenoceptor agonist, - salbutamol, - develops after:

- A. 5-10 minutes
- B. 20-30 minutes
- C. 45-60 minutes
- D. 2-3 hours
- E. 4-6 hours

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

- A. *Solanum laciniatum*
- B. *Atropa belladonna*
- C. *Datura Stramonium*
- D. *Hyoscyamus niger*
- E. *Solanum tuberosum*

130. Grass of *Equisetum arvense* is recommend as a diuretic. What herbal raw material can be used as a substitute?

- A. *Herba Aervae lanatae*
- B. *Herba Leonuri*
- C. *Herba Menthae piperitae*
- D. *Herba Convallariae*
- E. *Herba Adonidis*

131. Under the State Pharmacopoeia of Ukraine (appendix 2) leaves of ginkgo are standardized by the content of:

- A. Flavonoids
- B. Saponins
- C. Alkaloids
- D. Coumarins
- E. Chromones

132. During employment a pharmacy manager provides a dispensing chemist with job description. Such communication is called:

- A. Descending
- B. Ascending
- C. External
- D. Informal
- E. Non-verbal

133. Some of the local businesses has entered into a temporary statutory association to buy medical goods from foreign manufactures. Name such association:

- A. Consortium
- B. Concern
- C. Corporation
- D. Association
- E. Syndicate

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

- A. Cost-based
- B. Competitive
- C. Demand-based
- D. Supply-based
- E. Breakeven

135. A dosage form for internal use, which consists of round or irregular-shaped uncoated grains containing mixture of active ingredients and adjuvants, is called:

- A. Granules
- B. Tablets
- C. Tea
- D. Spansules
- E. Dragee

136. What method is recommended by the State Pharmacopoeia of Ukraine for quantitative determination of potassium chloride substance that is used in treatment of hypokalemia?

- A. Argentometry
- B. Bromatometry
- C. Iodometry
- D. Cerimetry
- E. Polarimetry

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

- A. Bronchospasm
- B. Drug dependence
- C. Cumulation
- D. Blood pressure rise
- E. Constipations

138. Diazotization reaction with the following azo compound is common for the substances with primary amino groups. What drug **DOES NOT** yield this reaction?

- A. Barbitol
- B. Benzocaine
- C. Procaine hydrochloride
- D. Procaineamide hydrochloride
- E. Sulfanilamide

139. Cash receipts and payments at a pharmacy are recorded in a cashbook. Which of the following cash transactions **IS NOT REGARDED** as a receipt transaction?

- A.** Issuing funds to be accounted for
B. Recognizing cash receipts from sales at a pharmacy
C. Recognizing cash receipts from sales at pharmacy stands and outlets
D. Return of unused disbursement funds
E. Recognizing accrued salaries and advance payable
- 140.** Phytochemical workshop of a factory manufactures pancreatin. What is the source material for obtaining pancreatin?
- A.** Pancreas of pigs or cattle
B. Gastric mucosa of pigs
C. Lungs of cattle
D. Heart of cattle
E. Egg white
- 141.** The following substance is used as an extractant in production of liquid extracts:
- A.** Ethanol
B. Acetone
C. Dichloroethane
D. Chloroform
E. Glycerine
- 142.** A patient with signs of morphine intoxication has been delivered into an admission room. Name the necessary antidote:
- A.** Naloxone
B. Collargol
C. Essentiale
D. Ectericidum
E. Trental (Pentoxifylline)
- 143.** A patient, who had been taking acetylsalicylic acid, has developed hemorrhages of mucous membranes. This phenomenon is associated with:
- A.** Inhibition of prothrombin synthesis
B. Increased absorption in gastrointestinal tract
C. Decreased absorption in gastrointestinal tract
D. Disorder of protein binding
E. Changed volume of distribution
- 144.** A dispensing chemist with calculated length of service of 7 years has fallen ill. What percent of the sum stated in her sick list would she receive?
- A.** 80%
B. 100%
C. 70%
D. 60%
E. 50%
- 145.** Quantitative determination of sodium tetraborate according to the State Pharmacopoeia of Ukraine regulations is performed by means of alkalimetry method in the presence of:
- A.** Mannitol
B. Acetic anhydride
C. 96% ethanol
D. Mercury (II) acetate
E. Formaldehyde
- 146.** Quantitative content of a certain medicinal substance can be determined by means of nitritometry only if hydrolysis had been performed prior to it. Name this substance:
- A.** Streptocide soluble
B. Norsulfazole
C. Benzocaine
D. Dicain (Tetracaine)
E. Procaine hydrochloride
- 147.** Specialists of a pharmaceutical enterprise confirm the identity of *Cassia acutifolia* herbal raw material. During reaction with alkali it developed cherry-red coloring. What substances were identified?
- A.** Anthraquinones
B. Tannins
C. Alkaloids
D. Glycosides
E. Iridoids
- 148.** Menthol has anesthetic and antiseptic effect. What herbal raw material is the source of menthol?

- A. *Folia Menthae piperitae*
- B. *Folia Uvae ursi*
- C. *Folia Eucalypti*
- D. *Folia Salviae*
- E. *Folia Absinthii*

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

- A. Spectrophotometry
- B. Potentiometry
- C. Cerimetry
- D. Argentometry
- E. Acidimetry

150. Thyme grass is used for the production of herbal drugs for the treatment of respiratory tract infections. Under the State Pharmacopoeia of Ukraine the herbal raw material is subject to chromatographic identification by means of thin layer chromatography. What substances are detected on the chromatographic plate after its treatment with due reagent?

- A. Thymol and carvacrol
- B. Atropine and hyoscyamine
- C. Quercetin and rutin
- D. Apigenin and luteolin
- E. Arbutin and methyl arbutin

151. Eucalyptus leaves contains essential oil and are used in production of bactericidal herbal drugs. According to the State Pharmacopoeia of Ukraine this herbal raw material can be identified with thin-layer chromatography. After the chromatographic plate is processed with reagent, the following should be identified:

- A. Cineole
- B. Quercetin
- C. Scopoletin
- D. Apigenin
- E. Glaucine

152. Yarrow grass is a component of herbal gastrointestinal remedies and is used to make herbal drugs. According to the State Pharmacopoeia of Ukraine the quali-

ty of this herbal raw material is assessed by the content of:

- A. Essential oil and proazulenes
- B. Alkaloids
- C. Polysaccharides
- D. Cardiac glycosides
- E. Vitamines

153. To analyze market activity and determine its place within the market a pharmaceutical company should evaluate its potential: strengths and weaknesses within the company itself (internal factors), as well as opportunities and threats received from the market environment (external factors). It can be done with:

- A. SWOT analysis
- B. Ansoff's matrix
- C. Boston Consulting Group
- D. Porter's matrix
- E. ABC analysis

154. Mercazolil (Thiamazole) is widely applied in medicine as an anti-thyroid agent. What heterocycle is its structure based on?

- A. Imidazole
- B. Triazole
- C. Pyrazole
- D. Pyrrole
- E. Imidazoline

155. A 48-year-old woman addressed a dispensing chemist with complaints of constipations developing after she had started treatment of her chronic cardiovascular disease. What drug can slow down intestinal peristalsis?

- A. Verapamil
- B. Folic acid
- C. Losartan
- D. Ascorbic acid
- E. Enalapril

156. To identify medicinal substances containing calcium an analytical chemist uses solution of:

- A. Glyoxal-hydroxyanil
- B. Potassium thiocyanate
- C. β -naphthol
- D. Hexamethylenetetramine
- E. Potassium permanganate

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

- A. Red
- B. Blue
- C. Green
- D. Turquoise
- E. White

158. A drug has just entered the market and requires considerable investments, while does not return substantial profits, and is currently at the introduction stage. What group of products (strategic economic units) does this drug belong to according to the Boston Consulting Group?

- A. Problem children
- B. Dogs
- C. Stars
- D. Cash cows
- E. -

159. A 5-year-old boy suffering from pneumonia has problems with mucus expectoration. A doctor prescribed him a mucolytic drug that stimulates surfactant synthesis. Name this drug:

- A. Ambroxol
- B. Carbocisteine
- C. Mucaltin
- D. Acetylcysteine
- E. Potassium iodide

160. A patient with peptic ulcer disease has developed black-colored feces during combined pharmacotherapy. Name the drug that can be the cause of this development:

- A. Bismuth subcitrate
- B. Famotidine
- C. Omeprazole
- D. Lansoprazole
- E. Ranitidine

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

- A. Antispasmodics
- B. Hepatoprotectors
- C. Antacids
- D. Antibiotics
- E. Cholagogues

162. A bus driver addressed a pharmacy due to his suffering from allergic rhinitis. What antihistamine with minimal sedative action can you recommend?

- A. Loratadine
- B. Clemastine
- C. Astemizole
- D. Diphenhydramine
- E. Chloropyramine

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

- A. Benzylpenicillin potassium salt
- B. Doxycycline hyclate
- C. Chloramphenicol
- D. Streptomycin sulfate
- E. Lincomycin hydrochloride

164. A 36-year-old patient complains of general weakness, somnolence, increased brittleness of nails, loss of hair. The patient was diagnosed with iron-deficiency anemia. What drug should be prescribed for treatment?

- A. Ferric sulfate
- B. Cyanocobalamin
- C. Folic acid
- D. Myelosanum (Busulfan)
- E. Riboxin (Inosine)

165. What hypotensive drug is an agent of choice for the patients suffering from arterial hypertension with concomitant type I diabetes

mellitus?

- A. Lisinopril
- B. Hydrochlorothiazide
- C. Atenolol
- D. Labetalol
- E. Carvedilol

166. To identify ouabain (a cardiac glycoside) an analytical chemist performs a reaction with dinitrobenzene solution in alkaline medium. What molecule fragment can be determined by this reaction?

- A. Five-membered unsaturated lactone ring
- B. β -lactam cycle
- C. Pyridine cycle
- D. Benzene ring
- E. Purine cycle

167. A pharmacy employee has to work during night time. What document must be used as a basis for pay rise calculation by an employer in this case?

- A. Collective agreement
- B. Internal memorandum
- C. Employee's application
- D. Expense report
- E. Income summary

168. A pharmacy received a batch of drugs from a supplier. What type of drug quality control should be performed in the pharmacy by an authorized person?

- A. Incoming
- B. Chemical
- C. Physical
- D. Laboratory
- E. Complete chemical

169. A patient with essential hypertension complains of infrequent occurrences of dry cough. Clinical and X-ray examination of the respiratory organs revealed no pathologies. What drug from those taken by the patient can cause cough as a side effect?

- A. Captopril
- B. Diltiazem
- C. Hydrochlorothiazide
- D. Nebivolol
- E. Prestarium (Perindopril)

170. A business entity working in drug retail trade should keep the documents confirming the fact of a sale, where there are name, date, amount and series of a received drug stated, along with supplier information and license details. These documents are retained for:

- A. 3 years
- B. 1 year
- C. 2 years
- D. 6 months
- E. 5 years

171. A private pharmacy received a supply of a drug with 2,3-dihydro-2-methyl-1,4-naphthoquinone-2-sulfonate sodium as an active ingredient. Name this drug:

- A. Vicasol (Menadione)
- B. Rutin
- C. Riboflavin
- D. Ergocalciferol
- E. Cocarboxylase hydrochloride

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

- A. Nitroglycerine
- B. Drotaverine hydrochloride
- C. Propranolol
- D. Dipyridamol
- E. Acetylsalicylic acid

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

- A. Prednisolone
- B. Penicillin
- C. Fresh frozen plasma
- D. Rheopolyglukin (Dextran)
- E. Haemodes

174. A patient with osteoarthritis (gonarthrosis) and peptic gastric ulcer in anamnesis should be prescribed a NSAID (nonsteroidal anti-inflammatory drug). What NSAID would be the safest for this patient?

- A. Meloxicam
- B. Acetylsalicylic acid
- C. Ibuprofen
- D. Indometacin
- E. Metamizole sodium

175. In the course of clinical instrumental examination a 45-year-old patient has been diagnosed with chronic helicobacter-associated type B gastritis. What group of drugs should be prescribed first of all?

- A. Anti-Helicobacter pylori agents
- B. Prokinetic agents
- C. Antacids
- D. Reparative drugs
- E. Anti-muscarinic agents

176. When servicing customers it is necessary to maintain cash desk discipline. A cashier should make records in the cash book:

- A. Immediately after the cash transaction occurred
- B. Monthly
- C. Quarterly
- D. Weekly
- E. At the end of a workday

177. Name the way of injectabulettae application:

- A. For injection solutions of drugs
- B. Peroral
- C. For implantations
- D. Vaginal
- E. Sublingual

178. What factors affect tablet disintegration?

- A. Amount and nature of disintegrating agents
- B. Poor flowability
- C. High specific gravity of powders
- D. Tablet powder contains lamellar crystals
- E. Heterogeneity of granulated material

179. Cytitonus agitatus respiratory center during asphyxiation, state of shock, intoxication and respiratory arrest. Seeds of a medicinal herb are the source of this drug. Name this herb:

- A. *Thermopsis lanceolata*
- B. *Linum usitatissimum*
- C. *Plantago psyllium*
- D. *Cucurbita pepo*
- E. *Ricinus communis*

180. During qualitative chemical analysis of nicotinic acid substance the reaction was conducted, which resulted in blue coloring. What reagent was used?

- A. Copper (II) sulfate solution
- B. Sodium hydroxide solution
- C. Iron (III) chloride solution
- D. Thiocyanogen bromide reagent
- E. Nessler's reagent

181. Pharmaceutical market subjects that purchase drugs and medical products for further resale to make a profit are called:

- A. Dealers
- B. Manufacturers
- C. Consumer organisations
- D. Government authorities
- E. Individual consumers

182. A pharmaceutical firm is unable to satisfy the demand for a drug. Specify the type of marketing tasked with decrease of excessive demand for a product by raising prices and stopping advertising and promotion:

- A. Demarketing
- B. Creative marketing
- C. Promotional marketing
- D. Synchromarketing
- E. Remarketing

183. Cephalosporin structure is based on the condensed system containing two cycles - β -lactam and:

- A. Dihydrothiazine
- B. Thiazolidine
- C. Pyrrolizidine
- D. Phenothiazine
- E. Pyridine

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

- A. Levomycetin (Chloramphenicol)
- B. Sodium benzylpenicillin
- C. Streptomycin sulfate
- D. Biomycin
- E. Erythromycin

185. A 48-year-old patient has undergone incomplete amputation of the thyroid gland. Choose the drug for replacement therapy in case of hypothyroidism:

- A. L-thyroxin
- B. Hydrocortisone
- C. Insulin
- D. Metoprolol
- E. Prednisolone

186. Specify the medicinal substance with pronounced hydrophobic properties:

- A. Sulfur
- B. Basic bismuth nitrate
- C. Zinc oxide
- D. Sodium bromide
- E. Magnesium oxide

187. A 34-year-old patient suffering from systemic lupus erythematosus takes methylprednisolone. On examination the patient's blood calcium is revealed to be low.

A doctor suspects osteoporosis development. It is necessary to prescribe the patient calcium preparations and:

- A. Vitamin D_3
- B. B-group vitamins
- C. Vitamin C
- D. Vitamin A
- E. Vitamin E

188. A pharmacist has made an oil emulsion with vitamin E oil solution intended for internal use. What is the best approach to vitamin introduction into the emulsion?

- A. Dissolve in oil before making primary emulsion
- B. Suspend in the prepared emulsion
- C. Dissolve in water for emulsion dilution
- D. Dissolve in glycerine
- E. Dissolve in water to make primary emulsion

189. Name the professional, who is authorized to check financial and economic activity of an enterprise at the request issued by an enterprise or public authority:

- A. Auditor
- B. Chief accountant
- C. Pharmacy manager
- D. Inspector
- E. Compliance officer

190. A 52-year-old patient has been diagnosed with gouty arthritis, phase 2. What drug should be basic in treatment of this patient?

- A. Allopurinol
- B. Hydrochlorothiazide
- C. Paracetamol
- D. Furosemide
- E. Penicillin

191. Speed of blend powder dampening can be significantly affected by package material. What capsules protect powders from damp air the best?

- A. Waxed
- B. Parchment
- C. Soft gelatine
- D. Polyethylene
- E. Paper

192. Anthracene derivatives have two main directions of pharmacological activity: purgative and litholytic. What leads to the difference in pharmacological activity of different anthracene derivatives?

- A. Hydroxyl group placement
- B. Amount of sugar residues
- C. Presence of methyl groups
- D. Presence of carboxyl groups
- E. Polymerization

193. A pharmacy manager has calculated a certain indicator of efficiency of pharmacy's economic activity as percentage ratio of profits to turnover in retail prices. What indicator is it?

- A. Profitability
- B. Turnover growth rate
- C. Turnover expenditure
- D. Inflation rate
- E. Trade stock standard

194. A pharmacy sells standard drugs to population. What is a prime cost of sold goods, if the retail price is 300 000 UAH, and the total markup is 120 000 UAH?

- A. 180 000 UAH
- B. 100 000 UAH
- C. 50 000 UAH
- D. 120 000 UAH
- E. 300 000 UAH

195. Pharmacy employees should meet universal qualification requirements. Who has the right to hold a position of a prescription drugs department manager?

- A. Dispensing chemist
- B. Pharmacist
- C. Sanitary assistant
- D. Packager
- E. Manager

196. During the period when a cash register is inoperable and undergoes repairs it is possible to perform payment operations using:

- A. Transactions logbook and receipts
- B. Payment orders
- C. Check book
- D. Credit and debit cash orders
- E. Accompanying notes

197. An analytical chemist performs identification of lidocaine hydrochloride. According to the State Pharmacopoeia of Ukraine the presence of chloride ions can be confirmed by means of reaction with silver nitrate solution resulting in:

- A. White caseous precipitate
- B. Green fluorescence
- C. Violet coloring
- D. Yellow precipitate
- E. Blue coloring

198. A pharmacist has dissolved a medicinal substance in sterile purified water to make an eye ointment. Specify this medicinal substance:

- A. Pilocarpine hydrochloride
- B. Xeroform
- C. Menthol
- D. Basic bismuth nitrate
- E. Purified sulfur

199. What tax is registered as a local one in a pharmacy budget?

- A. Single tax
- B. Corporate income tax
- C. Value-added tax
- D. Income tax
- E. Excise tax

200. An important indicator of business activity is profitability of a business. Specify the indices that can be used to measure the profitability:

- A. Profit/turnover
- B. Turnover/cost price
- C. Turnover/income
- D. Income/turnover
- E. Liquidity/solvency

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List of abbreviations

A/G	Albumin/globulin ratio
A-ANON	Alcoholics anonymous
ACT	Abdominal computed tomography
ALT	Alanin aminotransferase
AP	Arterial (blood) pressure
AST	Aspartat aminotransferase
BP	Blood (arterial) pressure
BR	Breathing rate
bpm	Beats per minute
C.I.	Color Index
CBC	Complete blood count
CHF	Chronic heart failure
CT	Computer tomography
DIC	Disseminated intravascular coagulation
DCC	Doctoral controlling committee
DM-2	Non-Insulin dependent diabetes mellitus
DTP	Anti diphtheria-tetanus vaccine
ECG	Electrocardiogram
ESR	Erythrocyte sedimentation rate
FC	Function class
FEGDS	Fibro-esophago-gastro-duodenoscopy
Gy	Gray
GIT	Gastrointestinal tract
Hb	Hemoglobin
HbA1c	Glycosylated hemoglobin
Hct, Ht	Hematocrit
HDL	High-density lipoproteins
IDDM	Insulin dependent diabetes mellitus
IHD	Ischemic heart disease
IU	International unit
MSEC	Medical and sanitary expert committee
NIDDM	Non-Insulin dependent diabetes mellitus
pCO ₂	CO ₂ partial pressure
pO ₂	O ₂ partial pressure
Pm	Per minute
Ps	Pulse rate
R	Roentgen
RBC	Red blood count
Rh	Rhesus
RR	Respiratory rate
S1 (S ₁)	Heart sound 1
S2 (S ₂)	Heart sound 2
TU	Tuberculin unit
U	Unit
USI	Ultrasound investigation
V/f	Vision field
WBC	White blood count
X-ray	Roentgenogram