

Sample test questions

Krok 2 *Pharmacy*



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

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

2. The analytical laboratory received calcium chloride. What volumetric solution should be used for quantitative determination of this medicinal substance?

- A. Sodium edetate
- B. Potassium bromate
- C. Hydrochloric acid
- D. Potassium permanganate
- E. Sodium hydroxide

3. 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

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

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

5. 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

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

- A. Ammonium oxalate
- B. Magnesium sulfate
- C. Potassium chloride
- D. Sodium nitrite
- E. Ammonium molybdate

7. Optical rotation angle of substances is determined under the temperature of 20°C , in 1-decimeter-thick layer, with wavelength of sodium spectrum D-lines ($\lambda = 589.3 \text{ nm}$), and is calculated with reference to a solution containing 1 g of the substance per ml. It is called:

- A. Specific optical rotation
- B. Optical density
- C. Refractive index
- D. Relative density
- E. Distribution coefficient

8. 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

9. A pharmaceutical analyst 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

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

- A. Complexometric titration
- B. Nitritometric titration
- C. Bromatometry
- D. Alkalimetry
- E. Acidimetry

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

- A. Potassium chromate
- B. Sodium chloride
- C. Magnesium sulfate
- D. Calcium chloride
- E. Zinc oxide

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

- A. $FeCl_3$
- B. $[NH_4]_2C_2O_4$
- C. $K_2[HgI_4]$
- D. K_2CrO_4
- E. $KMnO_4$

13. An analytical chemist analyses the substance of racemic menthol according to the State Pharmacopoeia of Ukraine. To identify the drug and determine its purity he measures optical rotation that should occur within the interval:

- A. From $+0.2^\circ$ to -0.2°
- B. From -48° to -51°
- C. From $+50^\circ$ to $+56^\circ$
- D. From $+10^\circ$ to $+13^\circ$
- E. From -102° to -105°

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

- A. Iron (III) chloride
- B. Potassium permanganate
- C. Sodium sulfate
- D. Silver nitrate
- E. Sodium nitrite

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

- A. Alkalimetry
- B. Nitritometric titration
- C. Bromometry
- D. Permanganatometry
- E. Complexometric titration

16. Quantitative content of theophylline can be determined by alkalimetric titration of nitric acid that is quantitatively obtained as the result of the following theophylline salt production:

- A. Silver
- B. Potassium
- C. Sodium
- D. Ammonium
- E. Lithium

17. In the process of isoniazid identification a pharmacy analyst thoroughly boiled the substance with 2,4-dinitrochlorobenzene. The substance turned yellow. After adding alkaline solution the substance turned first violet and then brownish-red. As the result of this reaction the following aldehyde derivative is produced:

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

18. 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

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

- A. Hydroxyquinoline
- B. Sodium tetraphenylborate
- C. Thioglycolic acid
- D. Sodium hypophosphite
- E. Barium chloride

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

- A. Azo dye
- B. Indophenol
- C. Thiochrome
- D. Iodoform
- E. Murexide

21. Xycaine quantitative content can be determined by means of argentometry (back titration). What indicator is required by this method?

- A. Iron (III) ammonium sulphate
- B. Sodium eosinate
- C. Bromphenol blue
- D. Starch
- E. Potassium chromate

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

- A.** Oxidation of the hydrazine group with bromine
B. Reduction of the hydrazine residue with bromine
C. Oxidation of the hydrazine residue with potassium bromide
D. Opening of the pyridine ring
E. Bromination of the pyridine ring
- 23.** The main method of quantitative determination of corticosteroids is:
- A.** Spectrophotometry
B. Potentiometry
C. Cerimetry
D. Argentometry
E. Acidimetry
- 24.** According to the State Pharmacopoeia of Ukraine, an analytical chemist determines quantitative content of potassium acetate by means of acidimetry in non-aqueous medium. Name the volumetric solution in this case:
- A.** Perchloric acid
B. Iodine
C. Potassium bromate
D. Sodium hydroxide
E. Sodium nitrite
- 25.** The chemical name of 2,2-(diphenylmethoxy)-N,N-dimethyl-ethanamine hydrochloride corresponds with the following medicinal substance:
- A.** Diphenhydramine hydrochloride
B. Ethylmorphine hydrochloride
C. Lidocaine hydrochloride
D. Ciprofloxacin hydrochloride
E. Papaverine hydrochloride
- 26.** An analytical chemist should use the following solution to identify sodium-containing substances:
- A.** Potassium pyroantimonate
B. Potassium permanganate
C. Sodium citrate
D. Potassium carbonate
E. Barium hydroxide
- 27.** An analytical chemist performs collargol identification by means of ashing. Obtained residue is then dissolved in hydrochloric acid. Specify the analytical effect that is observed in this case:
- A.** White precipitate
B. Black precipitate
C. Yellow precipitate
D. Blue precipitate
E. Light green precipitate
- 28.** Calcium gluconate is being tested for presence of admixtures of saccharose and reducing sugars with copper-tartrate reagent. If these admixtures are present the substance colors:
- A.** Red
B. Blue
C. Green
D. Turquoise
E. White
- 29.** The analyst determines quantitative content of sodium benzoate by means of acidimetry in non-aqueous medium according to the State Pharmacopoeia of Ukraine. What reagent is used as a solvent in this case?
- A.** Anhydrous acetic acid
B. Pyridine
C. Concentrated sulfuric acid
D. Dimethyl formamide
E. Sulfanilic acid
- 30.** What antibiotic has beta-lactam cycle in its structure?
- A.** Benzylpenicillin potassium salt
B. Doxycycline hyclate
C. Chloramphenicol
D. Streptomycin sulfate
E. Lincomycin hydrochloride
- 31.** The chemical name of 2-benzyl-1H-benzimidazole hydrochloride corresponds with the following medicinal substance:
- A.** Dibazol (Bendazolium)
B. Omeprazole
C. Indometacin
D. Phenazepam
E. Vicasol (Menadione)
- 32.** Identification of potassium iodide requires performing an oxidation reaction in acid medium, which produces free iodine that colors chloroform layer. What reagent is used for such a reaction?
- A.** Sodium nitrite
B. Silver nitrate
C. Barium chloride
D. Sodium carbonate
E. Ammonium oxalate
- 33.** An analytical chemist determines potassium ions admixture in a medicinal substance with sodium tetraphenylborate according to the State Pharmacopoeia of Ukraine. What analytical effect would confirm the presence of this admixture?
- A.** White opalescence
B. Yellow coloring
C. Blue coloring
D. Pink coloring
E. Brown coloring
- 34.** What corticosteroid medicinal substance

has two fluorine atoms in its chemical structure?

- A. Fluocinolone acetonide
- B. Dexamethasone
- C. Triamcinolone acetonide
- D. Prednisolone
- E. Hydrocortisone acetate

35. 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

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

- A. Copper-tartrate
- B. Thiocyanogen bromide
- C. Ammoniacal silver nitrate solution
- D. Alkaline potassium tetraiodomercurate solution
- E. Sodium nitroprusside solution

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

- A. Ferroin
- B. Naphtholbenzein
- C. Crystal violet
- D. Methyl orange
- E. Methyl red

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

- A. Solution decoloration
- B. Precipitation
- C. Ammonia production
- D. Color change from yellow to black
- E. Precipitation and gassing

39. A certain drug explodes when heated to 180°C or upon impact and, therefore, must be handled carefully during receipt and storage. This drug is:

- A. Nitroglycerine solution
- B. Activated carbon
- C. Alcoholic iodine solution
- D. Barium chloride
- E. Calcium chloride

40. A certain drug can be quantitatively assessed by means of direct alkalimetry in glycerine, mannitol, or other polyhydric

alcohol medium. This drug is:

- A. Boric acid
- B. Benzoic acid
- C. Salicylic acid
- D. Glutaminic acid
- E. Acetylsalicylic acid

41. Bromatometry allows quantitative analysis of the following drug:

- A. Sodium salicylate
- B. Glutamic acid
- C. β -Alanine
- D. Benzoic acid
- E. Potassium acetate

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

- A. Amoxicillin trihydrate
- B. Metronidazole
- C. Papaverine hydrochloride
- D. Phenazone
- E. Dibazol (Bendazol)

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

- A. Pink
- B. Blue
- C. Yellow
- D. Green
- E. Violet

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

- A. Cyanogen bromide reagent
- B. Copper-tartrate solution
- C. Grade reagent
- D. Thioacetamide reagent
- E. Thioglycolic acid solution

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

- A. Caffeine
- B. Theobromine
- C. Caffeine and sodium benzoate
- D. Theophylline ethylenediamine
- E. Theophylline

46. 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

47. According to the State Pharmacopoeia of Ukraine, an analytical chemist can determine sulfate admixtures in sodium tetraborate by the effect of white opalescence that results from its reaction with the following solution:

- A. Barium chloride
- B. Ammonium oxalate
- C. Magnesium sulfate
- D. Sodium sulfide
- E. Silver nitrate

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

- A. Alkalimetry
- B. Nitritometric titration
- C. Complexometric titration
- D. Acidimetry
- E. Argentometry

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

- A. Phenolphthalein
- B. Tropeolin 00
- C. Mordant black
- D. Potassium chromate
- E. Ammonium iron (III) sulfate

50. What indicator is used in iodometry for quantitative determination of caffeine in caffeine and sodium benzoate?

- A. Starch
- B. Potassium chromate
- C. Eriochrome black
- D. Methyl orange
- E. Bromthymol blue

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

- A. Lactonic ring
- B. Imidazole ring
- C. Methylene group
- D. Chloride ions
- E. Methyl group

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

- A. Dimethyl formamide
- B. Anhydrous acetic acid
- C. Ethyl alcohol
- D. Benzene
- E. Chloroform

53. A control laboratory needs to analyze streptomycin powder for injections. According to the State Pharmacopoeia of Ukraine, to identify it sodium hydroxide is added into the dissolved powder, the resulting substance is heated, and then iron (III) chloride solution is added, which results in violet coloring of the substance. This test is known as:

- A. Maltol test
- B. Ninhydrin test
- C. Vitali-Morin reaction
- D. Biuret test
- E. Thiochrome test

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

- A. Scopolamine
- B. Codeine
- C. Morphine
- D. Platyphyllin
- E. Papaverine

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

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

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

- A. Enzymatic hydrolysis of cardiac glycosides
- B. Oxidation of phenolic compounds
- C. Volatilization of essential oils
- D. Oxidation of resins
- E. Oxidation of terpenoids

4. Proper harvesting of *Frangula alnus* herbal raw material greatly influences the quality and quantity of its active substances. Therefore the optimal time for buckthorn bark harvesting is the period of:

- A. Sap flow
- B. Fruiting
- C. Flowering
- D. Defoliation
- E. Dormancy

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

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

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

- A. Purple passionflower
- B. Three-lobe beggarticks
- C. Garden sage
- D. Elecampane
- E. Lesser periwinkle

7. 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

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

- A. Anthracene derivatives and tannins
- B. Flavonoids and essential oils
- C. Essential and fatty oils
- D. Coumarins and phenol glycosides
- E. Iridoids and vitamins

9. Motherwort grass is a component of hypotensive and sedative drugs. This herbal raw material should be harvested taking into account its renewal rate. Therefore it can be harvested:

- A. Once every 5 years
- B. Once every 2 years
- C. Once every 3 years
- D. Once every 10 years
- E. Every year

10. A certain type of herbal raw material is being harvested in spring during sap flow. Specify this material:

- A. Bark
- B. Flowers
- C. Buds
- D. Roots
- E. Infructescences

11. To determine the quantity of wild-growing medicinal plants, it is necessary to know their area of vegetation and yield per unit area. Yield of *Thymus serpyllum* grass can be determined by the following method:

- A. Projective cover method
- B. Permanent quadrat method
- C. Visually
- D. Model sample method
- E. Geodesically

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

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

13. What herbal drug produced from

alkaloid-containing raw materials can be recommended for neurasthenia, insomnia, menopausal disorders?

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

14. A teenager with hyporexia has been recommended to drink medicinal herbal tea of the following composition: *Herba Absinthii*, *Herba Millefolii*. Specify the characteristic microscopic features of *Artemisia absinthium*, which indicate its presence in the herb mixture:

- A. T-shaped hairs along the leaf edge
- B. Simple and capitate hairs
- C. Branched, simple and ciliated hairs
- D. Retor-shaped hairs
- E. Branched and capitate hairs

15. 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*

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

- A. Essential oil
- B. Vitamins
- C. Lipids
- D. Iridoids
- E. Saponins

17. Standardization of a certain herbal raw material is done by calculating its alkaloid content in terms of hyoscyamine. Name this herbal raw material:

- A. *Folia Belladonnae*
- B. *Radices Berberidis*
- C. *Herba Chelidonii*
- D. *Herba Thermopsisidis lanceolatae*
- E. *Fructus Capsici*

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

- A. Iridoids
- B. Essential oils
- C. Alkaloids
- D. Polysaccharides
- E. Saponins

19. 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

20. Menthol has anesthetic and antiseptic effect. What plant is the source of menthol?

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

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

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

22. Yarrow grass is a component of herbal gastrointestinal remedies and is used to make herbal drugs. According to the State Pharmacopoeia of Ukraine the quality of this herbal raw material is assessed by its content of:

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

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

- A. Toxic proteins
- B. Alkaloids
- C. Cardiac glycosides
- D. Glucosinolates
- E. Phenol-alcohols

24. The cholagogue derived from *Rosa canina* fruit is used in treatment of liver and gallbladder diseases. Name this drug:

- A. Cholosas
- B. Chophytol
- C. Phytolyt
- D. Allochol
- E. Altan

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

- A. *Semina Hippocastani*
- B. *Herba Meliloti*
- C. *Fructus Ammi majoris*
- D. *Fructus Pastinacae sativae*
- E. *Fructus Dauci carotae*

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

- A. Alkali
- B. Molisch's reagent
- C. Iron ammonium alum
- D. Iron (II) sulfate
- E. Fehling's reagent

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

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

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

- A. *Folia Catharanthi rosei*
- B. *Herba Vincae minoris*
- C. *Rhizomata Nupharis lutei*
- D. *Folia Berberidis*
- E. *Herba Selaginis*

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

- A. *Humulus lupulus*
- B. *Alnus incana*
- C. *Juniperus communis*
- D. *Rubus idaeus*
- E. *Olea europaea*

30. Essential oil of a certain plant contains up to 80% of cineole. Specify the herbal raw material that is collected from this plant:

- A. *Folia Eucalypti*
- B. *Folia Betulae*
- C. *Folia Menthae piperitae*
- D. *Folia Melissa*
- E. *Folia Absinthii*

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

- A. Legal's test
- B. Stahl's reaction
- C. Mayer's test
- D. Reaction of sublimation
- E. Dragendorff's test

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

- A. *Ricini oleum*
- B. *Helianthi oleum*
- C. *Maydis oleum*
- D. *Cucurbitae oleum*
- E. *Lini oleum*

33. Several species of *Polygonum* genus are used in medicine. One of these species has rootstocks rich in tanning agents, which are used to treat diarrrhea. Name this species:

- A. *Polygonum bistorta*
- B. *Polygonum hydropiper*
- C. *Polygonum persicaria*
- D. *Polygonum aviculare*
- E. *Polygonum alpinum*

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

- A. *Solanaceae*
- B. *Asteraceae*
- C. *Papaveraceae*
- D. *Apocynaceae*
- E. *Fabaceae*

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

- A. Production of phenolates with alkali-ammonia solution
- B. Oxidation of anthracene derivatives
- C. Anthraquinone reduction
- D. Salt precipitation
- E. Sublimation

36. A certain herbal raw material is used to make *Flamin* cholagogue. Name this

material:

- A. *Helichrysi arenarii flores*
- B. *Meliloti herba*
- C. *Violae herba*
- D. *Tanacetii flores*
- E. *Crataegi flores*

37. In the process of phytochemical examination of buckthorn bark, the reaction with alkaline solution resulted in red coloring, which indicates the presence of the following:

- A. Anthracene derivatives
- B. Saponins
- C. Alkaloids
- D. Flavonoids
- E. Slime

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

- A. Bellasthesin
- B. Olimetinum
- C. Solutan
- D. Urolesan
- E. Herbogastrine

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

- A. Acceptable admixtures
- B. Mineral admixtures
- C. Moisture content
- D. Ash values (Total ash)
- E. Extractive values

40. Buckthorn bark and its derivative drugs

are used as laxatives in medicine. According to the State Pharmacopoeia of Ukraine, during chromatographic identification of buckthorn bark it is necessary to detect:

- A. Glucofrangulins
- B. Panaxosides
- C. Lanatosides
- D. Ginkgosides
- E. Purpurea glycosides

41. *Helichrysum arenarium* herbal raw material has anti-inflammatory and choleric effect. What parts of this plant are harvested?

- A. Flowers
- B. Grass
- C. Rhizomes
- D. Fruits
- E. Roots

42. A substance was received for analysis. The substance is a round seed 1-1,8 mm in diameter, yellow with bluish tint. When mashed with water, emits characteristic irritant odor; is sharp and acrid to taste. The raw material can be identified as:

- A. Mustard seeds
- B. Flax seeds
- C. *Plantago psyllium* seeds
- D. Fenugreek seeds
- E. Nigella seeds

43. What effect will anthracene derivatives have, if -OH- groups are located in both benzene rings of anthraquinone?

- A. Laxative
- B. Diuretic
- C. Litholytic
- D. Sedative
- E. Choleric

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

- A. Dissolved in the saturated solution of potassium iodide
- B. Dissolved in the boiling water
- C. Reduced to fine powder
- D. Dispersed with glycerine
- E. Comminuted with alcohol

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

- A. Butyrol
- B. Vaseline (petroleum jelly)
- C. Cocoa butter
- D. Wax
- E. Spermaceti

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

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

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

- A. 4,0
- B. 3,0
- C. 1,5
- D. 0,5
- E. 6,0

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

- A. Sodium hydrochloride
- B. Sodium sulfate
- C. Hydrochloric acid
- D. Ascorbic acid
- E. Cysteine

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

- A. Novocaine
- B. Calcium chloride
- C. Potassium chloride
- D. Hexamethylenetetramine
- E. Sodium benzoate

7. A pharmacist needs to prepare eyedrops with pilocarpine hydrochloride. Specify the

optimal isotonic agent in this case:

- A. Sodium chloride
- B. Sodium sulfate
- C. Glucose
- D. Boric acid
- E. Sodium nitrite

8. A pharmacist has made a drug by the prescription:

Rp.: Sol. Protargoli 0,3I,0
D.S. For irrigation.

Specify the optimal technology of preparation:

- A. Grind protargol in the mortar with glycerine, add water
- B. Dissolve glycerine in the water, add protargol
- C. Dissolve protargol in the water, add glycerine
- D. Measure out protargol into the vial, dissolve it in the water, add glycerine
- E. Measure out subsequently glycerine, water, and protargol into the vial

9. The doctor prescribed a patient 100 ml of thermopsis grass infusion. How much of the dry concentrate of thermopsis grass (1:1) should the pharmacist measure out for this patient?

- A. 0.25 g
- B. 0.5 g
- C. 0.3 g
- D. 0.2 g
- E. 0.1 g

10. A patient needs the pharmacy to prepare him a camphor ointment. What concentration of camphor should be in the ointment according to the regulatory documents?

- A. 10%
- B. 20%
- C. 15%
- D. 5%
- E. 1%

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

- A. Diameter, length, and quantity of the suppositories
- B. Diameter and quantity of the suppositories
- C. Length and quantity of the suppositories
- D. Diameter and vehicle of the suppositories
- E. Quantity and vehicle of the suppositories

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

- A. Autoclave chamber with high-pressure saturated steam
- B. Sterile filtration through membrane
- C. Gas sterilization
- D. Dry-heat sterilization
- E. Irradiation sterilization

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

- A. Pyrogenic substances
- B. Redox substances
- C. Sulfates
- D. Chlorides
- E. Moisture

14. A pharmacy received an infusion formulation. What herbal raw material can be used to make this dosage form?

- A. Valerian roots with rhizomes
- B. Rhubarb roots
- C. Oak bark
- D. Arrow-wood bark
- E. Buckthorn bark

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

- A. Dry heat
- B. Flowing steam
- C. Pasteurization
- D. Ultraviolet irradiation
- E. Membrane filtration

16. A pharmacist has prepared a drug by the prescription:

Rp.: Olei Helianthi 7,4
Solutionis Ammonii caustici 2,5 ml
Acidi oleinici 0,1
M. D. S.: Ammoniac liniment. For infraction.

Specify the type of disperse system:

- A. Liniment-emulsion
- B. Combined liniment
- C. Liniment-solution
- D. Liniment-suspension
- E. Extractive liniment

17. A pharmacist has prepared a drug by the prescription:

Rp.: Streptocidi
Dermatoli ana 1,0
Lanolini
Vaselini ana 5,0
M.D.S.: Apply to the affected skin.

Specify the type of the disperse system:

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

18. To stabilize the suspension a pharmacist has used potassium soap. What substance does this suspension contain?

- A. Sulfur
- B. Phenyl salicylate
- C. Menthol
- D. Basic bismuth nitrate
- E. Camphor

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

- A. Suspension - solution - emulsion
- B. Solution - emulsion - suspension
- C. Emulsion - suspension - solution
- D. Solution - suspension - emulsion
- E. Emulsion - solution - suspension

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

- A. 40 minutes
- B. 25 minutes
- C. 30 minutes
- D. 45 minutes
- E. 15 minutes

21. What medicinal agents must be manufactured in aseptic conditions followed by thermal sterilization with high-pressure saturated steam?

- A. Injection solutions with thermostable substances
- B. Injection solutions with thermolabile substances
- C. Concentrated solutions for burette systems
- D. Liquid ingestible antibiotics
- E. 2% collargol solution for infants

22. 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

23. What is the function of anhydrous lanolin in the suppository mass used for suppositories prepared via hand rolling?

- A. Plasticizer
- B. Solvent
- C. Preservative
- D. Solubilizer
- E. Emollient

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

- A. Streptocid
- B. Starch
- C. Talcum
- D. Zinc oxide
- E. Bolus alba

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

- A. 1.21
- B. 1.20
- C. 1.31
- D. 1.11
- E. 1.25

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

- A. Dissolve it in hot solvent or heat it up to full dissolution
- B. First grind it into powder when it is dry or with small amount of solvent added
- C. Dissolve in the water free of redox substances
- D. Add equal amount of sodium chloride
- E. Dissolve in alkaline medium

27. A pharmacy received a prescription for compound powders containing a coloring agent. Which of the powder components given below is a colouring agent?

- A. Ethacridine lactate (Rivanol)
- B. Camphor
- C. Sulfanilamide
- D. Bismuth nitrate
- E. Silver proteinate (Protargol)

28. Infuser apparatus is used by a pharmacy to prepare:

- A. Infusions and decoctions
- B. Infusion solutions
- C. Suspensions
- D. Emulsions
- E. Ointments

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

- A. Vaseline (petroleum jelly)
- B. Glycerine
- C. Purified water
- D. Glycerine-water solution
- E. Dimethylsulfoxide

30. Standard stactometer divides 1 ml of water into:

- A. 20 drops
- B. 15 drops
- C. 25 drops
- D. 30 drops
- E. 10 drops

31. To prepare eyedrops with antibiotic a dispensing chemist has been using flowing steam sterilization under $100^{\circ}C$ for 30 minutes. What antibiotic allows for such sterilization?

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

32. A pharmacist prepares 180 ml of adonis grass infusion. How much herbal raw material should be taken to prepare this infusion?

- A. 6.0
- B. 10.0
- C. 2.0
- D. 15.0
- E. 18.0

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

- A. Pepsin
- B. Methylcellulose
- C. Gelatine
- D. Starch
- E. Protargol

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

- A. Collargol solution
- B. Sodium chloride solution
- C. Nonaqueous solution
- D. 5% glucose solution
- E. Burow's solution

35. A pharmacy has received a formulation for the solution with a substance that moderately expands in the cold water. Name this substance:

- A. Gelatin
- B. Glucose
- C. Calcium chloride
- D. Sodium chloride
- E. Protargol (Silver proteinate)

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

- A. Thermopsis grass
- B. Motherwort grass
- C. Oak bark
- D. Althaea roots
- E. Camomile grass

37. A pharmacist prepares a chamomile flowers infusion. Specify the proportion of raw material to infusion:

- A. 1:10
- B. 1:30
- C. 1:50
- D. 1:400
- E. 1:20

38. 50 ml of injection solution has been made in a pharmacy. Specify the process of solution sterilization:

- A. 120°C - 8 minutes
- B. 180°C - 30 minutes
- C. 160°C - 15 minutes
- D. 140°C - 12 minutes
- E. 110°C - 15 minutes

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

- A. 5 ml
- B. 10 ml
- C. 15 ml
- D. 20 ml
- E. 2 ml

40. A pharmacist has dissolved a medicinal substance in the 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

41. A powder containing a substance with specific weight has been prepared in a pharmacy. Name this substance:

- A. Basic bismuth nitrate
- B. Sugar
- C. Bolus alba
- D. Talcum
- E. Sodium bicarbonate

42. Weibel's liquid is necessary to stabilize the solution of a certain substance. Name this substance:

- A. Glucose
- B. Novocaine
- C. Potassium chloride
- D. Sodium chloride
- E. Magnesium sulfate

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

- A. Camphor
- B. Sodium chlorides
- C. Osarsolum (Acetarsol)
- D. Talcum
- E. Sugar

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

- A. Purified water
- B. Peach-kernel oil
- C. Chloroform
- D. Vaseline (petroleum jelly)
- E. Ethanol

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

- A. Lily-of-the-valley grass
- B. Wormwood grass
- C. Dandelion roots
- D. Plantain foliage
- E. Buckthorn bark

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

- A. Liquid whistle, magnetostrictive source
- B. Dismembrator, electrical impulse plasmolyzer
- C. Disintegrator, liquid whistle
- D. Rotor-pulsation apparatus, dismembrator
- E. Centrifugal mixer with rotating housing

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

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

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

- A. To make pills of a certain weight
- B. To create necessary adhesive force between particles
- C. To improve disintegration
- D. To improve the flowability of granular material
- E. To improve the taste

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

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

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

- A. Syringe
- B. Vacuum
- C. Devaporation
- D. Syringe and vacuum
- E. Syringe and devaporation

7. 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. Friabilators
- D. Laboratory identifiers
- E. Microscope

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

- A. Intestine
- B. Stomach
- C. Oral cavity
- D. Rectum
- E. Esophagus

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

- A. Visual optical
- B. Limulus test
- C. Amperometric
- D. Gravitational
- E. NMR and UV-visible spectroscopy

10. What stage is the last in making injection solutions?

- A. Labeling
- B. Sterilization
- C. Filtering
- D. Qualitative control
- E. Quantitative control

11. 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

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

- A. Flowability
- B. Relative density
- C. Compression ratio
- D. Compressibility
- E. Lyophilic property

13. Quality of dried extracts is assessed according to several criteria. Specify the

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

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

14. Tyndallization is used at a pharmaceutical factory as a sterilization method for thermolabile substances. Essentially this method consists of:

- 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

15. When an extractant is filtered through a herbal raw material to obtain an extract of the substances soluble in this extractant, this process is called:

- A. Percolation
- B. Maceration
- C. Remaceration
- D. Turbo extraction
- E. Steeping

16. 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

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

- A. Ethanol
- B. Acetone
- C. Dichloroethane
- D. Chloroform
- E. Glycerine

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

- A. Create pressure in the package
- B. Action prolongation
- C. Stabilization
- D. Emulsification
- E. Dispersion

19. 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

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

- A. Enfleurage
- B. Compression
- C. Extraction
- D. Hydrodistillation
- E. Dynamic sorption

21. A pharmaceutical company produces belladonna tincture. In the process of standardization, excessive content of active substances was detected. How can this situation be remedied?

- A. Dilute the tincture with extractant to normal concentration
- B. Precipitate excessive active substances
- C. Filter the tincture through adsorbent
- D. The tincture is a non-recoverable reject material
- E. This kind of deviation is not important

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

- A. Aqueous-alcoholic solutions
- B. Chloroform
- C. Ammonia solution
- D. Dichloroethane
- E. Water

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

- A. No prior granulation
- B. Prior granulation
- C. Formation of masses
- D. Prior homogenization
- E. Application of hydraulic press

24. A pharmaceutical company produces suppositories made from thermolabile medicinal substances. What method is used in their production?

- A. Pressing
- B. Steeping
- C. Pouring
- D. Rolling
- E. Dispersion

25. A pharmaceutical company produces liquid dosage forms. What principle is used in rotary pulsation apparatus to obtain an emulsion?

- A. Mechanical dispersion
- B. Ultrasonic dispersion
- C. Solubilization
- D. Coacervation
- E. Maceration

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

- A. 1:1000
- B. 1:2000
- C. 1:4000
- D. 1:10
- E. 1:1

27. A pharmaceutical company produces soft dosage forms. What indicator should be measured additionally for the soft dosage forms that are intended for application on heavily damaged skin?

- A. Sterility
- B. pH
- C. Identification
- D. Microbiological purity
- E. Quantitative determination

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

- A. Powders
- B. Tablets
- C. Suspensions
- D. Emulsions
- E. Dried extract

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

- A. To prevent them from adhesion to each other
- B. They are not durable enough
- C. To avoid prolonged contact with overlaying suspension
- D. To improve their appearance
- E. To speed up the process of applying the coating

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

- A. $V = V_{\text{tincture}} + m_{\text{rawmaterial}} \cdot K_{\text{alcoholabsorption}}$
- B. $m_{\text{rawmaterial}} = m_{\text{endproduct}} + m_{\text{losses}}$
- C. $E = \frac{m_{\text{losses}}}{m_{\text{rawmaterial}}} \cdot 100\%$
- D. $\mu = \frac{m_{\text{rawmaterial}}}{m_{\text{endproduct}}} \cdot 100\%$
- E. $V = V_{\text{tincture}} \cdot n + m_{\text{rawmaterial}} \cdot K_{\text{alcoholabsorption}}$

31. Name the optimal vehicle for soluble vaginal suppositories:

- A. Polyethylene oxide
- B. Cocoa butter
- C. Glycerine
- D. Fat
- E. Hard fat

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

- A. Intestinally absorbed
- B. Water-soluble
- C. Gastrically absorbed
- D. Fat-soluble
- E. -

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

- A. Introduce the substances as a suspension
- B. Introduce the substances as an emulsion
- C. Dissolve the substances in the water heated to 45°C
- D. Melt a part of fatty vehicle and dissolve the substances there
- E. Melt all of fatty vehicle and dissolve the substances there

34. In the process of industrial production, certain adjuvants are included in the soft dosage forms as pH regulators. Name these adjuvants:

- A. Citric acid, sodium phosphate salts
- B. Paraffin, spermaceti
- C. Glycerine, dimethyl sulfoxide
- D. Sodium lauryl sulfate, tween emulsifiers
- E. Benzalkonium chloride, benzyl alcohol

35. Polyethylene oxide base belongs to the following group:

- A. Hydrophilic
- B. Hydrophobic
- C. Amphiphilic
- D. Emulsion
- E. Fat

36. During storage, suspension instability manifests itself as:

- A. Sedimentation of particles
- B. Flocculation of particles
- C. Dissolution of particles
- D. Caking of particles
- E. Change of particles shape

1. 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

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

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

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

- A. Inventory department
- B. Compounding and production department
- C. Department of finished dosage forms
- D. Department of over-the-counter drugs
- E. Department of curative cosmetics

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

- A. Current
- B. Provisional
- C. Deposit
- D. Letter of credit
- E. Investment

5. Natural persons registered as small business entities with simplified taxation scheme are subject to limitation of the annual amount of sales proceeds. Specify the proceeds limit:

- A. 500 000 UAH
- B. 750 000 UAH
- C. 100 000 UAH
- D. 3 000 000 UAH
- E. 5 000 000 UAH

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

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

7. What pharmacotherapeutic characteristic

of a medicine allows its classification as over-the-counter drug?

- A. Medicine can cause no direct or indirect harm to the patient's health
- B. Medicine is available only for in-patient treatment
- C. Medicine contains substances that require additional research into their activity and side-effects
- D. Medicine is available only by prescription
- E. Medicine has entered the pharmaceutical market only recently and actual experience with its practical application is limited

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

- A. Authorized representative
- B. Supplier pharmacist
- C. Dispensing chemist
- D. Pharmacy head manager
- E. Analyst

9. A pharmacy receives centralized deliveries of goods from the warehouse. Specify the document that is **NOT NECESSARY** for accounting of goods receipt by the pharmacy:

- A. Cash receipt order
- B. Goods report (Inventory change report)
- C. Goods received record book by groups of goods
- D. Goods received record book by item and supplier
- E. Financial operating report of the pharmacy

10. An accountant conducts necessary calculations for remuneration of labor. Name the type of remuneration that is due for labor carried out according to the work standards and is paid within the amount determined by basic or piece wages for factory workers and salaries for office workers:

- A. Basic pay
- B. Bonus
- C. Increment
- D. One-off payment
- E. Financial aid

11. 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%

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

- A. Metal cylinders
- B. Packaging materials
- C. Paper boxes
- D. Glass-stoppered bottles
- E. Glassware

13. How often should a pharmacy make an inventory of its fixed assets?

- A. Once a year
- B. At least thrice a year
- C. At least once in a quarter
- D. Once every three years
- E. At least twice a year

14. Limit cash balance is the maximum amount of monetary funds that can remain in the cash desk of an organization at the end of a workday. This limit is established by the following authorities:

- A. Pharmacy management
- B. Chief physician
- C. Local authorities
- D. Tax Inspectorate
- E. -

15. Inspection of received medicines should be performed by an authorized employee. What is **NOT** a part of the responsibilities of this person?

- A. To draw up orders for medicines and medical products, to conclude sales contracts
- B. To draw up conclusions regarding inspection of received medicines
- C. To keep a record book of received medicines
- D. To check the pharmacy stock for low-quality or fake medicines
- E. -

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

- A. Legal
- B. Social
- C. Informational
- D. Technological
- E. Economic

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

- A. Material storage room
- B. Shop floor
- C. Washing room
- D. Aseptic block
- E. Distillation room

18. Accounting records are classified by the type of asset accounting or by their sources. Active accounts keep record of the following:

- A. Monetary funds
- B. Equity capital
- C. Bank loans
- D. Debt settlement with the creditors
- E. Salaries payment

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

- A. No less than once in a shift
- B. No less than twice in a week
- C. No less than once in a week
- D. No less than thrice in a week
- E. No less than twice in a month

20. 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

21. What department of a wholesale firm is tasked with search for and analysis of potential suppliers' commercial offers, as well as concluding supply contracts and supervision of contract fulfillment?

- A. Supply department
- B. Marketing department
- C. Shipping department
- D. Stores development
- E. Finance department

22. The Income Statement of a pharmacy for the first quarter of 20XX contains the following entries: goods turnover - 45 000 UAH, production cost of products sold - 30 000 UAH, turnover costs - 10 000 UAH. Determine the income:

- A. 5 000 UAH
- B. 30 000 UAH
- C. 40 000 UAH
- D. 15 000 UAH
- E. 35 000 UAH

23. Under the current legislation, full or partial exemption of persons and legal entities from tax payment is called:

- A. Tax concession
- B. Tax rate
- C. Tax
- D. Tax system
- E. Subject to taxation

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

- A. Auditor's conclusion
- B. Income statement
- C. Balance sheet
- D. Cash flow statement
- E. Statement of changes in equity

25. In Ukraine the auditor position eligibility requires the candidate to be a Ukrainian citizen and have the qualification certificate for work as an auditor within the Ukraine's territory. The certificate is effective for:

- A. 5 years
- B. 3 years
- C. 2 years
- D. 1 years
- E. Indefinitely

26. The *Dobropharma* pharmacy manager makes plans for standard stock of various groups of goods, based on their purpose. Convenience goods belong to the following group:

- A. Current demand
- B. Specific demand
- C. Prior delivery
- D. Seasonal accumulation
- E. Single delivery

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

- A. Assets
- B. Liabilities
- C. Debit
- D. Credit
- E. Account

28. Doctor's prescription has several functions. What function of the prescription allows its participation in the process of payment in cases when medicines should be issued free of charge or at a reduced price?

- A. Economic
- B. Social
- C. Legal
- D. Medical
- E. Technological

29. To ensure the quality of medicines the pharmacy devotes much attention to quality control. The following document is the quality assurance of a drug:

- A. Quality certificate
- B. Registration certificate
- C. Certificate of compliance with hygiene regulations
- D. Sanitary-epidemiological certificate
- E. Sanitary passport

30. How long should a retail business that deals in medicines keep the quality

certificates issued by drug manufacturers?

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

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

- A. To pay the salaries one day earlier
- B. To pay the salaries after the holiday
- C. To pay the salaries on the holiday
- D. To pay the salaries 10 days earlier
- E. There are no regulations regarding payment of salaries in this case

32. 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

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

- A. Production cost
- B. Markup
- C. Margin
- D. Income
- E. Breakeven

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

- A. Cash expense order
- B. Cash income order
- C. Invoice
- D. Receipt
- E. Remains unregistered documentarily

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

- A. On separate shelves and in separate shopwindows
- B. By their pharmacotherapy group
- C. By their application
- D. Alongside medicines
- E. By their Anatomical Therapeutic Chemical Classification

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

- A. Diabetes mellitus
- B. Headache
- C. Cold
- D. Muscle pain
- E. Cuts and abrasions

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

- A. Brilliant green
- B. Hydrogen peroxide
- C. Ethyl alcohol
- D. Glucose
- E. Ascorbic acid

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

- A. Credit contract
- B. Full material liability contract
- C. License
- D. Balance sheet
- E. Auditor's conclusion

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

- A. Purchase order
- B. Product revaluation notice
- C. Report on the movement of packaging
- D. Consolidated register
- E. Receipt log book

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

- A. Collective agreement
- B. Contract of delivery
- C. Decree
- D. Statement
- E. Job description

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

- A. Phenobarbital
- B. Novocaine
- C. Solpadeine
- D. Digoxin
- E. Analgin (Metamizole)

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

- A. Payment order
- B. Check payable in account
- C. Accounting form
- D. Cash register receipt
- E. Cash order

43. A system of indicators characterizes financial and business activity of an organization and the state of its assets and sources on the certain day in the monetary unit. Name this system:

- A. Balance sheet
- B. Business transactions log book
- C. Double entry
- D. Turnover balance sheet
- E. Receipts and expenditures report

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

- A. Ascorbic acid, 500 mg №30
- B. Tramadol, capsules, 0,05 №10
- C. Clonidine, ampoules, 1 ml of 0,01% solution №10
- D. Phenobarbital, tablets, 100 mg №6
- E. Ketamine, 5% infusion solution, 2 ml №10

1. 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

2. A pharmacist has a labour dispute with the pharmacy administration about rescheduling his annual vacation leave. The employee can appeal against the decision of the pharmacy administration to the following body:

- A. Labour disputes committee (LDC)
- B. Trade union committee
- C. Highest management bodies of pharmaceutical service at the regional level
- D. The Ministry of Public Health of Ukraine
- E. Commercial court

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

- A. Market
- B. Marketing
- C. Sales
- D. Agreement
- E. Management

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

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

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

- A. Culture
- B. Success
- C. Profitability
- D. Capitalization level
- E. Self-development capability

6. For better coverage of various markets the "Lubnyfarm" company sells a portion of its production through its own chain of pharmacies, another portion is being sold through distributors, and the third - through pharmacies of another business owners. What marketing system of distribution is applied by this company?

- A. Multichannel
- B. Horizontal
- C. Corporate
- D. Contractual
- E. Administered

7. 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

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

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

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

- A. Demand making, conversion marketing
- B. Demand leveling, synchromarketing
- C. Demand increase, remarketing
- D. Demand decrease, demarketing
- E. Demand stimulation, promotional marketing

10. Highly convincing approach to informing the population about the company and its products, commercial promotion of high use value of the goods and proper conduct of business by the company, actions intended to prompt purchase of goods by both active and potential customers are all characteristic of:

- A. Advertisement
- B. Trademark
- C. Marketing
- D. Communications
- E. Supply

11. 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

12. 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

13. Lately the "Phytopharm" pharmaceutical company has been forced to decrease its production volume and range of goods. Not only does the company head manager demonstrate no managerial abilities, but he also appears to be completely disinterested in the running of the business and executes no control over it. Determine the leadership type of the head manager in this case:

- A. Liberal
- B. Democratic
- C. Directive
- D. Authoritarian
- E. Autocratic

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

- A. Motivation
- B. Organization
- C. Control
- D. Delegation
- E. Planning

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

- A. Direct
- B. Combined
- C. Mixed
- D. Mediated
- E. Indirect

16. A certain management style can be characterized by the following features: the authority is highly centralized; work duties of the employees are very structured; the ability of employees to make decisions is extremely limited; strict compliance with numerous rules and regulations is prioritized. Name this management style:

- A. Authoritarian
- B. Democratic
- C. Collective
- D. Liberal
- E. Direct

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

- A. Length of distribution channel
- B. Level of distribution channel
- C. Width of distribution channel
- D. Volume of distribution channel
- E. -

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

- A. Consumer-oriented sales promotion
- B. Middlemen-oriented sales promotion
- C. Personal sale
- D. Public relations, sponsorship
- E. Salesmen-oriented sales promotion

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

- A. Service
- B. Convenience goods
- C. Nondurable goods
- D. Specialty goods
- E. Unsought goods

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

- A. Dealer
- B. Broker
- C. Commission agent
- D. Consignee
- E. Agent

21. A pharmaceutical company has divided its customers into groups based on their gender, age, and size of their families. What approach to market segmentation is the basis of this customer division?

- A. Demographic
- B. Geographic
- C. Socioeconomic
- D. Psychographic
- E. Behavioral

22. To decrease business risks, a pharmaceutical company decided to expand its activity and penetrate into new market (to open a fitness center). Name this process:

- A. Diversification
- B. Intensification
- C. Conglomeration
- D. Modernization
- E. Integration

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

- A. Line
- B. Functional
- C. Line and staff
- D. Divisional
- E. Matrix

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

- A. Interpersonal conflict
- B. Intrapersonal conflict
- C. Dysfunctional conflict
- D. Intergroup conflict
- E. Conflict between individual and group

25. Product sales manager of a pharmaceutical company was tasked with sales program inspection and given 10 days to complete this task. The manager completed this task within 5 days and expects to be rewarded with a bonus. What theory of achievement motivation is based on expectation of a certain event?

- A. Vroom's expectancy theory
- B. Maslow's hierarchy of needs
- C. Herzberg's two-factor theory
- D. McClelland's theory of needs
- E. McGregor's Theory X and Theory Y

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

- A. Growth strategy
- B. Vertical integration
- C. Horizontal integration
- D. Conglomerate diversification
- E. Horizontal diversification

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

- A. Diversification
- B. Insurance
- C. Intensification
- D. Integration
- E. Consolidation

28. According to ecological survey, a certain pharmaceutical manufacturer holds the first place among the local "green" industries.

What marketing concept is chosen by this manufacturer in relations with its customers?

- A. Socio-ethical marketing
- B. Product development
- C. Intensification of commercial effort
- D. Production development
- E. Integrated marketing

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

- A. Exclusive
- B. Selective
- C. Intensive
- D. Sample
- E. Bulk

30. A pharmaceutical company plans to introduce traditional herbal remedies to new markets. What marketing opportunity according to Ansoff Matrix was used by the company?

- A. Market development
- B. Market penetration
- C. Product development
- D. Diversification
- E. Consolidation

31. *Calendula Ointment* is placed on the shelf next to *Dr. Theiss Calendula Ointment*. What approach to the shelf layout is used in this pharmacy?

- A. Among competitors
- B. Corporate block layout
- C. By package size
- D. Doubling product facings
- E. Seasonality

32. The chief manager of a pharmacy designs its organizational structure and job descriptions for its employees. These arrangements belong to the following management method:

- A. Organizational
- B. Economic
- C. Legal
- D. Simulation
- E. Psychosocial

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

- A. Strategy assessment
- B. Setting goals and tasks
- C. Environment assessment and analysis
- D. Analysis of organisation's internal strength and weaknesses
- E. Choice of strategy

34. A pharmacist approached the chief manager of the pharmacy with a proposition to introduce an additional service for their

customers - blood pressure measurement. What type of communication is it?

- A. Vertical ascending
- B. Vertical descending
- C. External
- D. Intra-level
- E. Horizontal

35. A manager of a wholesale pharmaceutical company is responsible for relaying various tasks to the employees and supervises the fulfillment of assigned tasks. What management level corresponds with these duties?

- A. Technical
- B. Administrative
- C. Institutional
- D. Top-level
- E. Middle-level

36. A "Sunrise" pharmacy chain has changed the placement of medical products on its shelves and in the shop windows, to study what effect would this merchandising tactics have on the sales amount. What method of marketing research was used by this pharmacy chain?

- A. Experiment
- B. Panel
- C. Survey
- D. Observation
- E. -

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

- A. To ensure business survival
- B. To maximize profits
- C. To create the image of high-quality medicine manufacturer
- D. To gain leadership due to high quality of manufactured medicines
- E. -

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

- A. Social responsibility
- B. Commercial activity
- C. Financial activity
- D. Industrial activity
- E. Charity

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

- A. Technologies
- B. Mission
- C. Tasks
- D. Structure
- E. Human resources

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

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

41. Employees of a wholesale pharmaceutical company have undergone an assessment for their compliance with the requirements of their respective positions. Specify the type of human resources assessment:

- A. Concluding
- B. Preliminary
- C. Concurrent
- D. Financial
- E. -

42. In the process of pharmaceutical company entering an offshore market the traditions and customs, religion, system of values, and education level of the local population were analyzed. What factors of international marketing environment were researched?

- A. Sociocultural
- B. Political
- C. Economic
- D. Legal
- E. Technological

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

- A. Bonuses
- B. In-store advertising
- C. Layout of medical products in shop-windows and on shelves
- D. Coupons
- E. -

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

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

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

- A. Nitroglycerine
- B. Metacycline
- C. Naphthyzin (Naphazoline)
- D. Panangin
- E. Riboxin (Inosine)

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

- A. Ferroplex
- B. Furagin (Furazidinum)
- C. Corticosteroids
- D. Heparin
- E. Vicasol (Menadione)

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

- A. Development of nitrate tolerance
- B. Progressing ischemic heart disease
- C. Progressing coronary atherosclerosis
- D. Myocardial infarction
- E. Impairment of coronary circulation

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

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

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

- A. Nitrates
- B. β -adrenergic blockers
- C. Calcium antagonists
- D. Anticoagulants
- E. Statins

7. 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

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

- A. Antimicrobial agents
- B. Glucocorticoids
- C. Nonsteroidal anti-inflammatory drugs
- D. Anticholinesterase drugs
- E. Antiarrhythmic drugs

9. 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

10. 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

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

- A. ACE inhibitors
- B. Calcium antagonists
- C. Antipsychotics
- D. Tranquilizers
- E. Antacids

12. During an asphyxiating attack the patient with bronchial asthma was given intravenously a drug that caused nausea, headache, excitation, and palpitations as

side effects. What drug can cause such reaction?

- A. Euphylline (Aminophylline)
- B. Prednisolone
- C. Ambroxol
- D. Suprastin (Chloropyramine)
- E. Papaverine hydrochloride

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

- A. Bismuth subcitrate
- B. Omeprazole
- C. Metronidazole
- D. Tetracycline
- E. Tinidazole

14. A 46-year-old pharmacy customer suffers from chronic bronchitis and needs a medicine to facilitate expectoration of thick viscous sputum. What drug is indicated in this case?

- A. Ambroxol
- B. Oxeladin
- C. Salbutamol
- D. Butamirate
- E. Codeine phosphate

15. 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

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

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

17. A patient with angina pectoris takes long-acting nitrates. Consult him what side-effect is the most common for these drugs:

- A. Headache
- B. Nausea
- C. Vomiting
- D. Diarrhea
- E. Constipation

18. A 60-year-old patient, who had suffered a myocardial infarction, was prescribed acetylsalicylic acid as an antiaggregant. Specify the optimal daily dosage of

acetylsalicylic acid for antiaggregatory effect:

- A. 100 mg
- B. 200 mg
- C. 300 mg
- D. 400 mg
- E. 500 mg

19. Genetically induced adverse reaction to a certain drug is caused by various enzyme defects. Name this reaction:

- A. Idiosyncrasy
- B. Withdrawal syndrome
- C. Steal syndrome
- D. Rebound effect
- E. Dysbiosis

20. A 25-year-old woman is in the third trimester of her pregnancy. During her regular examination, US detected a malformation in the fetus. Medical history of the patient shows that she was taking large doses of diazepam without prescription during her pregnancy. What type of side effect has occurred in this case?

- A. Teratogenic
- B. Embryotoxic
- C. Fetotoxic
- D. Carcinogenic
- E. Mutagenic

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

- A. Hypertensive crisis
- B. Migraine attack
- C. Exertional angina pectoris attack
- D. Cervical osteochondrosis
- E. Acute conjunctivitis

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

- A. Gentamicin
- B. Amoxicillin/clavulanate
- C. Cefazolin
- D. Ciprofloxacin
- E. Clarithromycin

23. A 36-year-old woman with herpetic rash on her lips has come to a pharmacy. Recommend her a drug for topical treatment:

- A. Acyclovir
- B. Fluconazole
- C. Levofloxacin
- D. Metronidazole
- E. Amikacin

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

- A. Isoniazid
- B. Acyclovir
- C. Metronidazole
- D. Doxycycline hydrochloride
- E. Benzylpenicillin (Penicillin G)

25. A patient has been receiving palliative treatment with morphine hydrochloride for a week. Following that the patient demands continuation of this treatment. What phenomenon has occurred in this case?

- A. Dependence
- B. Tolerance
- C. Cumulation
- D. Potentiation
- E. Summation

26. A 65-year-old man with community-acquired pneumonia was prescribed antibiotic agent amikacin. It should be kept in mind, that amikacin has the following side-effect:

- A. Ototoxicity
- B. Red coloring of urine
- C. Vomiting
- D. Increased blood pressure
- E. Decreased blood pressure

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

- A. Ursodeoxycholic acid
- B. Papaverine
- C. Domperidone
- D. Loperamide
- E. Platyphyllin

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

- A. Bismuth subcitrate
- B. Omeprazole
- C. Amoxicillin
- D. Clarithromycin
- E. Metronidazole

29. A patient receives heparin for acute myocardial infarction. On the third day the patient developed hematuria and

subcutaneous hematomas. What medicine should be prescribed as an antidote in this case?

- A. Protamine sulfate
- B. Vicasol (Menadione)
- C. Streptokinase
- D. Clopidogrel
- E. Acetylsalicylic acid

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

- A. Suppositories
- B. Tablets
- C. Capsules
- D. Spray
- E. Lozenges

31. A 74-year-old man came to the pharmacy. He had been prescribed ampicillin for antibiotic treatment of dysenteric gastroenterocolitis. What group of drugs should be recommended for dysbiosis prevention in this case?

- A. Probiotics
- B. Antacids
- C. Enzymatic agents
- D. Sorbents
- E. Immunosuppressants

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

- A. Aluminium-containing drugs
- B. Magnesium-containing drugs
- C. Calcium carbonate
- D. Simethicone
- E. Ranitidine

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

- A. Aluminium hydroxide
- B. Sodium bicarbonate
- C. Calcium carbonate
- D. Sodium alginate
- E. Magnesium oxide

34. A 60-year-old man has come to a pharmacy with complaints of impaired twilight vision, dry sclera, cracked and peeling skin. The dispensing chemist suspected hypovitaminosis and recommended the customer to take the following drug after consultation with the physician:

- A. Retinol acetate
- B. Tocopherol acetate
- C. Ergocalciferol
- D. Vicasol (Menadione)
- E. Ascorbic acid

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

- A. Hyperkalemia
- B. Hypocalcemia
- C. Hyponatremia
- D. Hypoglycemia
- E. Hypernatremia

36. A patient was prescribed an oral antibiotic for treatment and an antacid to remove heartburn symptoms. If the drugs are taken simultaneously their interaction can result in the following:

- A. Antibiotic malabsorption
- B. Relative overdosage
- C. Inhibition of hepatic microsomal enzymes
- D. Mutual potentiation
- E. Acceleration of metabolism and excretion

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

- A. Aminoglycosides
- B. Natural penicillins
- C. Synthetic penicillins
- D. Macrolides
- E. Combined penicillins

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

- A. Atorvastatin
- B. Nitroglycerine
- C. Lisinopril
- D. Nifedipine
- E. Hydrochlorothiazide

39. When dispensing an antacid agent and ofloxacin in tablets, the dispensing chemist warned the customer that these drugs

should be taken separately with 2-hour interval in between. Simultaneous taking of both drugs:

- A. Decreases ofloxacin absorption
- B. Increases ofloxacin absorption
- C. Increases antacid effectiveness
- D. Decreases antacid effectiveness
- E. Increases risk of dysbiosis

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

- A. β -adrenergic blockers
- B. Calcium antagonists
- C. α -adrenergic blockers
- D. Ganglionic blockers
- E. Diuretics

41. A patient with chronic heart failure, who has been taking cardiac glycosides, developed signs of glycoside intoxication. What antidote would be advisable in this case?

- A. Unithiol (DMPS)
- B. Vicasol (Menadione)
- C. Protamine
- D. Naloxone
- E. Methionine

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

- A. Nifuroxazide
- B. Furacilin (Nitrofurantoin)
- C. Nitroxoline
- D. Furadonin (Nitrofurantoin)
- E. Nalidixic acid

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

- A. Probiotics
- B. Antacids
- C. Prokinetics
- D. Uroseptics
- E. Cholagogues