

## DRUG TECHNOLOGY IN PHARMACY

### General questions of drug preparations. Solid dosage forms

1. A powder containing a substance with specific weight has been prepared in a pharmacy. Name this substance:  
**A. Basic bismuth nitrate**  
B. Talcum  
C. Sugar  
D. Sodium bicarbonate  
E. Bolus alba
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 powder with a hard to disintegrate substance has been made in a pharmacy. Specify this substance:  
**A. Camphor**  
B. Sodium chlorides  
C. Talcum  
D. Sugar  
E. Osarsolum (Acetarsol)
4. 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
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. A pharmacy received a prescription for external use powder containing a substance difficult to pulverize. What liquid can be used by a pharmacist to disperse this substance?  
**A. Ethyl alcohol**  
B. Purified water  
C. Water for injections  
D. Dimethyl sulfoxide  
E. Isopropyl alcohol
7. A pharmacist has prepared a solid dosage form - a compound powder. What technological operation is **NOT** a part of preparation process in this case?  
**A. Dissolution**  
B. Packing  
C. Mixing  
D. Comminution  
E. Dosing
8. Powders are a solid dosage form for internal or external use. What stage is **NOT** a part of powder production?  
**A. Granulation**  
B. Packing  
C. Mixing  
D. Comminution  
E. Sifting
9. A schedule of sanitation actions in pharmacies is regulated by the relevant

normative documents. 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**

**10.** 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 formulation**
- E. To triturate it thoroughly with sugar**

**11.** A pharmacy received the following prescription: 0,0002 g of scopolamine hydrobromide per 1 powder. How much of 1:100 trituration is required for the preparation of 10 powders?

- A. 0,2**
- B. 0,04**
- C. 4,0**
- D. 0,4**
- E. 2,0**

**12.** Powders make up an important group among the extemporal medicinal preparations. Which of the following components can be incorporated into a powder without being preliminarily ground?

- A. Basic Bismuth nitrate**
- B. Ascorbic acid**
- C. Camphor**
- D. Xeroform**
- E. Calcium gluconate**

**13.** A pharmacist is preparing powders according to the following formulation:

Rp.: Scopolamini hydrobromidi 0,0003  
Ephedrini hydrochlorodi 0,05  
Sachari 0,15  
M.f. pulvis  
D.t.d. № 10  
S. 1 powder thrice a day.

Calculate the mass of 1 powder providing that the trituration (1:100) is used:

- A. 0,20**
- B. 0,15**
- C. 0,23**
- D. 0,17**
- E. 0,203**

**14.** A pharmacy produces compounded drugs. What kinds of internal control of drugs production are required?

- A. Written, organoleptic, sell control**
- B. Written, interrogatory, sell control**
- C. Written, qualitative and quantitative analysis**
- D. Written, physics and chemical**
- E. Written and sell control**

**15.** A pharmacy received a prescription for powders with doctor's instruction to dispense powders in gelatin capsules. Which of the following substances is included in the composition of these powders?

- A. Ethacridine lactate**
- B. Magnesium oxide**
- C. Streptocide**
- D. Diphenhydramine**
- E. Glucose**

**16.** A pharmacy received a prescription:

Rp.: Dibazoli 0,05  
Papaverini hydrochloridi 0,15

Sacchari 2,5

M. fiat pulv.

Divide in partes aequales №10.

Specify the weight of a single powder dose:

**A.0,27**

**B.2,7**

**C.0,25**

**D.0,26**

**E.0,30**

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

**A.Effervescent powder**

**B.Soluble powder**

**C.Powders for oral use**

**D.Nasal powders**

**E.Powders for external use**

**18.** A pharmacist prepares trituration of atropine sulfate. What adjuvant should be used for this purpose?

**A.Lactose**

**B.Saccharose**

**C.Glucose**

**D.Starch**

**E.Talc**

**19.** 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**

**20.** A pharmacy received prescriptions for compound powders containing colouring agent. Which of

powder components given below is a colouring agent?

**A.Ethacridine lactate (Rivanol)**

**B.Camphor**

**C.Sulfanilamide**

**D.Bismuth nitrate**

**E.Silver proteinate (Protargol)**

**21.** 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**

**22.** Pharmacies prepare triturations of toxic and superpotent substances. They can be prepared in a following ratio:

**A.1:10 and 1:100**

**B.1:10 only**

**C.1:1000**

**D.1:500**

**E.1:100 only**

**23.** A pharmacist prepared 10 powders containing atropine sulfate in an amount of 0,00005 per dose. What trituration had been used?

**A.1:100**

**B.1:10**

**C.1:1000**

**D.1:50**

**E.1:20**

**24.** A pharmacist makes powders with papaverine hydrochloride. What hand scales should be used for weighing out 0,05 g of substance?

**A.HB 1,0 (balance beam scale, capacity 1,0)**

**B.HB 5,0 (balance beam scale, capacity 5,0)**

- C.HB** 20,0 (balance beam scale, capacity 20,0)  
**D.HB** 10,0 (balance beam scale, capacity 10,0)  
**E.HB** 2,0 (balance beam scale, capacity 2,0)

**25.** A pharmacy received a prescription for a topical powder including a substance that is hard to disperse. Which of the listed fluids may be used for dispersing the substance?

- A.Diethyl ether**  
**B.Purified water**  
**C.Water for injections**  
**D.Dimexid**  
**E.Isopropyl alcohol**

**26.** A pharmacist is preparing powders by the way of triturating one of the components with ethyl alcohol. Such technology of preparation is typical for the following substance:

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

**27.** Calculate the quantity of dried belladonna extract (1:2) required for preparing the following drug formulation:

Extracti Belladonnae 0,015  
Magnesii oxydi 0,5  
Natrii hydrocarbonatis 0,2  
Misce ut fiat pulvis  
Da tales doses №10  
Signa. 1 powder thrice a day.

- A.0,3**  
**B.0,15**  
**C.0,4**  
**D.0,6**  
**E.0,015**

**28.** This substance is of blue colour but unlike the colouring substances it doesn't leave any stain. The powders prepared out of it are made according to the general rules. What substance is it?

- A.Copper sulfate**  
**B.Ethacridine lactate**  
**C.Riboflavin**  
**D.Acrichine**  
**E.Furacilin**

**29.** Specify the type of capsules which are used for dispensing camphor powders:

- A.Parchment**  
**B.Cellophane**  
**C.Paraffin**  
**D.Waxed**  
**E.Common paper**

**30.** During production of powders in a pharmacy physiochemical properties of certain ingredients should be taken into consideration. What pharmaceutical substance can be incorporated into the powder mass without additional grinding?

- A.Starch**  
**B.Camphor**  
**C.Menthol**  
**D.Salicylic acid**  
**E.Streptocid**

**31.** 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**

- 32.** 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:
- Nitroglycerine solution**
  - Activated carbon
  - Alcoholic iodine solution
  - Barium chloride
  - Calcium chloride
- 33.** Pharmacy premises can be divided into service rooms and workrooms. Name the workroom for storage of medical products:
- Material storage room**
  - Shop floor
  - Washing room
  - Aseptic block
  - Distillation room
- 34.** Medicinal dyes should be stored in a special cabinet. Which of the listed medical products is a dye :
- Brilliant green**
  - Hydrogen peroxide
  - Ethyl alcohol
  - Glucose
  - Ascorbic acid
- 35.** A patient has been administered powders containing menthol. What is the best way to achieve the required extent of menthol comminution?
- To triturate it with alcohol or ether**
  - To triturate it with glycerine or chloroform
  - To triturate it with purified water
  - To triturate it with other components of the formula
  - To triturate it thoroughly with sugar
- 36.** A pharmacy has received a batch of drugs from a pharmacy depot. Specify the drug subject to the controlled substance inventory in pharmacies:
- Dicaine**
  - Paracetamol
  - Analgin
  - Novocaine
  - Acetylsalicylic acid
- 37.** 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?
- Incoming**
  - Chemical
  - Physical
  - Laboratory
  - Complete chemical
- 38.** A pharmacy has a license for selling narcotic drugs. The warrant for the receipt of these drugs from the pharmacy warehouse is valid for:
- No longer than 10 calendar days from the date of issue**
  - No longer than 3 months from the date of issue
  - No longer than 1 calendar days from the date of issue
  - No longer than 1 year from the date of issue
  - No longer than 5 calendar days from the date of issue
- 39.** Which of the pharmacy departments is responsible for checking the quantity and quality of received goods, their storage and dispensing to other departments?
- Inventory department**
  - Compounding and production department

- C. Department of finished dosage forms
- D. Department of over-the-counter drugs
- E. Department of curative cosmetics

40. Prescriptions for controlled drugs dispensed under the reimbursement program (except for narcotic and psychotropic preparations in substance) are issued on the following prescription form:

- A. №1 in duplicate
- B. №1, single copy
- C. №1 and №3
- D. №3 in duplicate
- E. №3, single copy

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

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

42. A disabled veteran of the WW2 has been prescribed codeine powder. What is the maximum permissible amount of codeine that can be dispensed by the prescription?

- A. 1,2
- B. 0,1
- C. 1,0
- D. 0,6
- E. 0,2

43. Certain groups of drugs are subject to strict record keeping and storage in pharmacies. Specify a drug that relates to the group of narcotics:

- A. Dicaine
- B. Dephedrinum

- C. Clonidine
- D. Ethylmorphine hydrochloride
- E. Analgene

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

45. A pharmacy received a prescription for ethyl alcohol. What amount of alcohol can be dispensed to the patient with diabetes free of charge?

- A. 150 g per month
- B. 50 g per month
- C. There is no standard
- D. 200 g per month
- E. 100 g per month

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

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

47. A pharmacy sells drugs by retail. Omnopon relates to the following group of controlled drugs:

- A. Psychotropic
- B. Toxic
- C. Potent
- D. Narcotic
- E. General sale list

48. A pharmacy store was supplied with 100 packs of a product listed as Nitroglycerine. With regard to its physicochemical properties this preparation should be rated among the following drug group? 2012

- A. Explosion hazardous substances
- B. Volatile substances
- C. Highly inflammable substances
- D. Combustible substances
- E. **Explosive substances**

49. A pharmacy produces compounded drugs. What kinds of internal control of drugs production are required?

- A. **Written, organoleptic, sell control**
- B. Written and sell control
- C. Written, interrogatory, sell control
- D. Written, qualitative and quantitative analysis
- E. Written, physics and chemical

50. Before accepting the goods 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. 20 days
- C. 1 year
- D. 15 days
- E. 3 months

51. A pharmacy is engaged in retail sales of drugs. What group of drugs does atropine sulphate relate to?

- A. Narcotic
- B. Psychotropic
- C. Drastic
- D. Over-the-counter
- E. **Toxic**

52. A pharmacy received a prescription for powders with a too high single dose of phenobarbital not justified by proper documentation. What actions should a pharmacist take?

- A. Supply 1/3 of the maximum single dose
- B. Supply the highest single dose
- C. Supply 1/3 of the maximum single dose, multiplied by the number of powders
- D. **Put the stamp "invalid" and return the prescription to the patient**
- E. Supply the maximum single dose, multiplied by the number of powders

53. A pharmacy received a prescription for a topical powder including a substance that is hard to disperse. Which of the listed fluids may be used for dispersing the substance?

- A. Dimexid
- B. Isopropyl alcohol
- C. Purified water
- D. Water for injections
- E. **Diethyl ether**

54. Prescriptions for drugs being subject to the stocktaking and supplied on favourable terms or free of charge except for narcotic (psychotropic) drugs and tramadol are written out:

- A. On the form F-3
- B. On the pink form
- C. **In 2 copies of form F-1**
- D. On the form F-1
- E. On the forms F-3 and F-1

55. Cardioglycosides of Adonis vernalis are used for heart failure treatment. This plant raw material should be stored:

- A. **According to the list B**
- B. Under normal conditions

- C. In metal containers
- D. Protected from CO<sub>2</sub>
- E. According to the list A

**56.** Leaves of belladonna, henbane and datura containing tropane alkaloids must be stored according to the following list requirements:

- A. A list (poisonous drug substances)
- B. Essential oil materials list
- C. List of substances equivalent to narcotics
- D. **B list (these drug substances require caution in handling, storage or use)**
- E. General sales list

**57.** Medications in the storing rooms of a medicoprophyllactic institution should be placed on the shelves, in the cases, refrigerators or on the pallets or rickers.

Toxic medications should be kept in:

- A. **In a locked metal case**
- B. In a wooden case
- C. In the internal safe partition
- D. In a refrigerator
- E. In a safe

**58.** Water for injections is derived from the drinking or distilled water. It can be either used freshlymade or stored under the required temperature conditions. Water for injections is produced in the following premises:

- A. In the sales area
- B. **In a separate room of aseptic department**
- C. In the washing room
- D. In the assistant room
- E. In the prescription department

**59.** One of the substances listed below changes its appearance when stored in a brightly lit place and not

tightly sealed against air (assumes pink coloring). Name this substance:

- A. **Resorcin**
- B. Boric acid
- C. Sodium benzoate
- D. Sodium chloride
- E. Barium sulfate

**60.** A compound powder is being made ingredients taken in relatively equal measure. What ingredients should be comminuted first?

- A. **Macrocrystalline**
- B. Volatile
- C. Colored
- D. Coloring
- E. Microcrystalline

**61.** Powder moisture content affects its:

- A. **Flowability**
- B. Homogeneity
- C. Solubility
- D. Particle size
- E. Particle shape

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

- A. **Physical control**
- B. Written control
- C. Chemical control
- D. Survey control
- E. Organoleptic control

### **Dosing by volume Liquid dosage forms**

**63.** During the working day a pharmacist prepared five dosage forms. Which of them requires a complete chemical control?

- A. Ear drops with levomycitin
- B. Mixtura Pavlovi
- C. Antipruritic ointment



- D. 5% aethonium solution**
- E. Eye drops 10 ml of 2% ethylmorphine hydrochloride solution**
- 64.** The simple sugar syrup consists of:
- A.** 65 parts of sugar, 33 parts of water, 2 parts of 90% alcohol
- B.** 50 parts of sugar and 50 parts of water
- C. 64 parts of sugar and 36 parts of water**
- D.** 73 parts of sugar, 22 parts of water, 5 parts of 90% alcohol
- E.** 45 parts of sugar and 55 parts of water
- 65.** In order to fill a burette a pharmacist prepared 2 l of 10% benzoate solution. This operation should be recorded in the following register:
- A.** Commodity report
- B.** Packaging
- C. Laboratory**
- D.** Prescription
- E.** Spot (cash)
- 66.** Liquid dosage forms are prepared with concentrated solutions of pharmaceutical substances or under consideration of volume increase factor during substance dissolution when the following substance is used as a solvent:
- A.** Polyethylene glycol-400
- B. Treated water**
- C.** Glycerol
- D.** Aromatic water
- E.** Ethanol (ethyl alcohol)
- 67.** Standard stactometer divides 1 ml of water into:
- A. 20 drops**
- B.** 15 drops
- C.** 25 drops
- D.** 30 drops
- E.** 10 drops
- 68.** 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
- 69.** Stability of suspensions can be enhanced by substances which increase the viscosity of the dispersion medium. Specify the substance that exhibits such properties:
- A. Glycerol**
- B.** Purified water
- C.** Ethanol
- D.** Dimexid
- E.** Ether
- 70.** A doctor prescribed his patient an emulsion of olive oil which includes anesthesin. To incorporate anesthesin into the emulsion it must be dissolved:
- A. In oil before preparing the emulsion**
- B.** In the finished emulsion
- C.** In the purified water
- D.** In the primary emulsion
- E.** In the alcohol, and then added to the primary emulsion
- 71.** 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

- 72.** Suspensions as heterogenous systems can be characterized by kinetic and sedimentary instability. What substance is used for increasing suspension stability with hydrophobic substances?
- A. Gelatose**
  - B. Sodium chloride**
  - C. Boric acid**
  - D. Sodium sulphate**
  - E. Glucose**
- 73.** A pharmacist prepared solution of ethacrydine lactate. What is the peculiarity of this substance dissolving?
- A. Dissolving in hot water**
  - B. Dissolving in freshly distilled water**
  - C. Dissolving in cold water**
  - D. Grinding in a mortar with water**
  - E. Dissolving in potassium iodide solution**
- 74.** 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)**
- 75.** A pharmacy received a prescription for 3% alcohol solution of boric acid. What concentration of ethyl alcohol is required for preparing the drug form?
- A. 70%**
  - B. 60%**
  - C. 40%**
  - D. 90%**
  - E. 96%**
- 76.** A patient has been administered a solution containing boric acid and camphor. What solvent should his doctor prescribe in order to prevent physical incompatibility?
- A. Ethyl alcohol 70%**
  - B. Purified water**
  - C. Sunflower oil**
  - D. Glycerol**
  - E. Ethyl alcohol 40%**
- 77.** A pharmacist has prepared an emulsion. Specify the way of incorporation of the fat-soluble substances:
- A. They are dissolved in oil**
  - B. They are dissolved in purified water**
  - C. They are incorporated in undissolved form**
  - D. They are added to the finished emulsion**
  - E. They are added to the emulsifier**
- 78.** A pharmacy got the following recipe:
- Rp.: Mucilaginis Amyli 50,0  
Da. Signa. For the enema purposes. How much starch and distilled water did the pharmacist use in order to make this preparation?
- A. 1,0 g of starch; 50 ml of distilled water**
  - B. 5,0 g of starch; 45 ml of distilled water**
  - C. 10,0 g of starch; 40 ml of distilled water**
  - D. 1,0 g of starch; 49 ml of distilled water**
  - E. 2,0 g of starch; 48 ml of distilled water**
- 79.** A pharmacist prepares internal drops with the following formulation: 5 ml of adoniside, 10 ml of valerian and lily-of-the-valley tincture each, 0,1 g of

menthol, 2,0 g of potassium bromide. It will be efficient to dissolve potassium bromide in the following substance:

**A. In the adoniside**

**B. In the lily-of-the-valley tincture**

**C. In the valerian tincture**

**D. In the mixture of tinctures**

**E. Potassium bromide should be added into the selling vial last of all**

**80.** A pharmacy 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**

**81.** It is required to prepare furacilin solution (1:5000). What is the dissolution peculiarity of furacilin?

**A. It dissolves in the boiling water purified in the presence of sodium chloride**

**B. It dissolves in the cold purified water**

**C. It dissolves in a minimal amount of ethyl alcohol**

**D. It dissolves in the purified water after the trituration**

**E. It dissolves in the filtered purified water**

**82.** The method of suspension preparation depends on the properties of its components. Specify the substances having hydrophobic properties:

**A. Camphor, menthol**

**B. Sodium bicarbonate, sodium sulfate**

**C. Boric acid, calcium carbonate**

**D. Zinc oxide, talc**

**E. White clay, bentonite**

**83.** A pharmacist prepared 100,0 g

of oil emulsion using 5% solution of methyl cellulose as an emulsifier. Specify the required amount of oil and emulsifier for the drug preparation:

**A. 10,0 g, 20,0 g**

**B. 20,0 g, 30,0 g**

**C. 10,0 g, 10,0 g**

**D. 10,0 g, 30,0 g**

**E. 20,0 g, 10,0 g**

**84.** 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**

**85.** A pharmacist prepared the 2% aqueous solution by dissolving the drug substance triturated in a mortar. What substance is this technology typical for?

**A. Potassium permanganate**

**B. Calcium gluconate**

**C. Osarsolum**

**D. Boric acid**

**E. Potassium bromide**

**86.** A pharmacist has prepared a suspension with a hydrophobic substance. What stabilizer is required for its preparation?

**A. 5% solution of methyl cellulose**

**B. Sodium thiosulfate**

**C. Glucose**

**D. Sodium chloride**

**E. Polyethylene oxide**

**87.** A pharmacist has to prepare a drug by the prescription:

Rp.: Natrii hydrocarbonatis 2,0

Natrii benzoatis 1,5

Liquoris Ammonii anisatis 4 ml

Aquae Mentae 100 ml  
M.D.S. 1 tablespoon 3 times a day.  
Specify the component that is added in the first place:

- A. Mint water**
- B. Sugar syrup**
- C. Liquoris Ammonii anisatis**
- D. Sodium hydrogen carbonate**
- E. Sodium benzoate**

**88.** A pharmacist has to prepare 10% alcohol solution of iodine. What is the required concentration of ethanol for this purpose?

- A. 95%**
- B. 96%**
- C. 40%**
- D. 70%**
- E. 60%**

**89.** A pharmacist has to prepare an oil emulsion with menthol. Specify the appropriate way of the active substance incorporation:

- A. Dissolution in oil**
- B. Dispersion with the addition of ready emulsion**
- C. Dissolution in water intended for diluting the primary emulsion**
- D. Dissolution in the ready emulsion by heating**
- E. Incorporation into the ready primary emulsion**

**90.** 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**

**91.** 5% solution of methylcellulose is

used as a stabilizer for preparing a suspension of the following drug substance:

- A. Terpene hydrate**
- B. Magnesium oxide**
- C. Starch**
- D. Bismuth nitrate basic**
- E. Zinc oxide**

**92.** Concentrated solutions CANNOT be used in mixture making if:

- A. Aromatic water is solvent**
- B. Purified water is solvent**
- C. Mixture contains a potent agent**
- D. Mixture contains syrups**
- E. Mixture contains tinctures**

**93.** Which of the liquids given below should be measured by volume in making liquid dosage forms?

- A. 20% solution of sodium bromide**
- B. Vaseline oil**
- C. Diethyl ether**
- D. Eucalyptus oil**
- E. Glycerine**

**94.** To make a liquid №2 by Demyanovich prescription hydrochloric acid should be taken in the following concentration:

- A. 24,8 – 25,2%**
- B. 0,83%**
- C. 98%**
- D. 30%**
- E. 10%**

**95.** To increase hydrophobic suspension stability a stabilizer is added. Name this stabilizer.

- A. Polysorbate 80 (Tween 80)**
- B. Sodium chloride**
- C. Dimethyl sulfoxide**
- D. Glucose**
- E. Vaseline oil**

96. 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

97. 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

98. 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

99. 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%

100. Specify the medicinal substance with pronounced hydrophobic properties:

**A. Sulfur**

B. Basic bismuth nitrate

C. Zinc oxide

D. Sodium bromide

E. Magnesium oxide

101. 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

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

Rp.: Sol. Protargoli 1%-10 ml

Glyceroli 3,0

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

103. Choose the solvent necessary to

prepare concentrated solution of sodium bicarbonate in a pharmacy:

- A. Purified water**
- B. Peach-kernel oil**
- C. Chloroform**
- D. Vaseline**
- E. Ethanol**

**104.** A pharmaceutical company produces Lugol's iodine solution. By type of solvent this solution belongs to the following group:

- A. Glycerine solutions**
- B. Water solutions**
- C. Oil solutions**
- D. Alcohol solutions**
- E. Chloroform solutions**

**105.** 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**

**106.** 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**

**107.** 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**

**108.** 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**

**109.** A pharmaceutical company produces Lugol's iodine solution. By type of solvent this solution belongs to the following group:

- A. Glycerine solutions**
- B. Alcohol solutions**
- C. Oil solutions**
- D. Water solutions**
- E. Chloroform solutions**

**110.** 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**

**111.** 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

**112.** Phytochemical workshop of a factory manufactures pancreatin. What is the starting material for obtaining pancreatin?

- A. Heart of cattle
- B. Egg white
- C. Gastric mucosa of pigs
- D. Lungs of cattle
- E. Pancreas of pigs or cattle**

**113.** A pharmacist prepared an oil emulsion containing zinc oxide.

Specify the rational method of substance incorporation:

- A. Dissolution in water for preparation of the primary emulsion
- B. Dissolution in the finished emulsion
- C. Dissolution in oil
- D. Grinding with water for dilution of the primary emulsion
- E. Suspension-type incorporation into the prepared emulsion**

**114.** A pharmacist prepared a suspension. It must contain the following amount of fluid in order to comply with Deriagin's rule:

- A. 0,1-1,0 millilitre for 1,0 substance
- B. 0,4-0,6 millilitre for 1,0 substance**
- C. 1,5-0,7 millilitre for 1,0 substance
- D. 1-0,8 millilitre of 1,0 substance
- E. 0,9-2 millilitres for 1,0 substance

**115.** When should aromatic water be added into a mixture, if it functions as a dispersing medium?

- A. First**
- B. After concentrated solutions
- C. Last, because of its essential oil content
- D. Before ethanol-containing liquids are added
- E. After solid medicinal substances are

dissolved

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

- A. Mixed it with cold water, then poured the mixture into boiling water and boiled for 1-2 minutes**
- B. Dissolved it in a vial for dispensing in freshly-distilled filtered purified water
- C. Dissolved it in boiling water
- D. Mixed it with hot water and added cold water
- E. Dissolved it in cold water and heated

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

- A. Last in the order of increasing ethanol concentration**
- B. Last in the order of decreasing ethanol concentration
- C. After poisonous and narcotic substances are dissolved (before concentrates)
- D. First
- E. In the same order in which they are listed in the formulation

**118.** A pharmacist has prepared a collargol solution. Name the type of disperse system in this case:

- A. Colloid solution**
- B. Aerosol
- C. Suspension
- D. Emulsion
- E. True solution

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

- A. Dispersion with stirring**

- B. Continental method
- C. Solvent replacement method
- D. Physical condensation
- E. Chemical condensation

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

- A. Protargol
- B. Sodium chloride
- C. Camphor
- D. Basic bismuth nitrate
- E. Potassium iodide

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

- A. **Added the powder onto the water surface and waited until complete dissolution**
- B. Dissolved in cold water
- C. Dissolved in purified water in a vial for dispensing
- D. Dissolved in warm water
- E. Dissolved during comminution

#### **Water extracts from medicinal plant materials**

**121.** A patient purchased peppermint leaves at a pharmacy. What recommendations on infusing this herbal raw material must be given by the pharmacist?

- A. **The infusion is to be prepared in a tightly closed vessel**
- B. The infusion is to be prepared on an open fire
- C. The infusion is to be prepared at room temperature
- D. The extract is to be immediately filtered after infusing
- E. The extract is to be artificially cooled 15 minutes after infusing

**122.** It is required to prepare a decoction of bearberry leaves. Specify the ratio of raw materials to the extractant if not indicated in the formulation:

- A. **1:10**
- B. 1:20
- C. 1:30
- D. 1:5
- E. 1:400

**123.** How much water should be taken in order to prepare 200 ml of aqueous extract of motherwort (water absorption coefficient = 2 ml/g)?

- A. **240 ml**
- B. 220 ml
- C. 200 ml
- D. 160 ml
- E. 210 ml

**124.** A pharmacist has to prepare an aqueous extract of medicinal plants. What can be used as a substitute of plant material in the drug preparation?

- A. **Standardized extract concentrate**
- B. Tincture
- C. Liquid extract
- D. Thick extract
- E. Aromatic water

**125.** A pharmacist has prepared a tincture of althaea root. What is the proportion of herbal raw material and extractant?

- A. **1:20**
- B. 1:10
- C. 1:30
- D. 1:100
- E. 1:400

**126.** A pharmacist made a tincture of Adonis herb. A peculiarity of its preparation is that the active substances



are derived in:

- A. In the neutral medium**
- B. In the alkalescent medium**
- C. In the alkaline medium**
- D. In the subacid medium**
- E. In the acid medium**

**127.** 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**

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

- A. Prepared in a tightly closed vessel**
- B. Infused cold**
- C. Immediately filtered**
- D. Filtered without wringing of the solid residue**
- E. Acidated with hydrochloric acid**

**129.** 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**

**130.** A pharmacist prepared 150 ml of Adonis vernalis infusion using dry extract concentrate [1:1] that had to be weighed in the amount of:

- A. 5,0**
- B. 7,5**

- C. 10,0**
- D. 15,0**
- E. 22,5**

**131.** 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**

**132.** A pharmacist prepares an infusion at a ratio of 1:30. What herbal raw material will be used?

- A. Lily of the valley grass**
- B. Marshmallow root**
- C. Sage leaves**
- D. Oak bark**
- E. Shoots of Marsh Labrador tea**

**133.** A pharmacy received a prescription for infusion. What raw herbal material can be used to make this dosage form?

- A. Valerian rootstock**
- B. Rhubarb roots**
- C. Oak bark**
- D. Arrow-wood bark**
- E. Buckthorn bark**

**134.** Specify the amount of raw herbal material necessary to make a dosage form according to the following prescription: Take 200 ml of motherwort herb infusion. Dispense. Prescribed dosage is 1 tablespoon 3 times a day.

- A. 20,0**
- B. 10,0**
- C. 1,0**
- D. 5,0**

E.4,0

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

**A. Infusions and decoctions**

B. Infusion solutions

C. Suspensions

D. Emulsions

E. Ointments

136. 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

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

**A. Tincture of valerian**

B. Purified water

C. Potassium bromide

D. 20% sodium bromide solution

E. Simple syrup

138. 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

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

**A. Certain value of the solution pH**

B. Preliminary processing of raw materials for their saturation with 96% alcohol

C. Herbal raw material should be fresh

D. Slight heating

E. Intense heating

140. 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

141. 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

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

**A. Certain value of the solution pH**

B. Preliminary processing of raw materials for their saturation with 96% alcohol

C. Herbal raw material should be fresh

D. Slight heating

E. Intense heating

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

**A. Valerian rootstock**

B. Rhubarb roots

C. Oak bark

D. Arrow-wood bark

E. Buckthorn bark

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

- A. Rhizomata cum radicibus Valerianae**
- B. Cortex Frangulae**
- C. Radices Rhei**
- D. Cortex Quercus**
- E. Cortex Viburni**

**145.** Specify the amount of raw herbal material necessary to make a dosage form according to the following prescription: Take 200 ml of motherwort herb solution. Dispense. Prescribed dosage is 1 tablespoon 3 times a day

- A. 20,0**
- B. 10,0**
- C. 1,0**
- D. 5,0**
- E. 4,0**

**146.** What ratio is used in making hawthorn tincture?

- A. 1:10**
- B. 1:2**
- C. 1:5**
- D. 1:20**
- E. 1:1000**

**147.** It is required to prepare a decoction of bearberry leaves. Specify the ratio of raw materials to the extractant if not indicated in the formulation:

- A. 1:20**
- B. 1:5**
- C. 1:400**
- D. 1:10**
- E. 1:30**

**148.** A patient came to a pharmacy to purchase cowberry leaves. Which of the available herbal raw materials can be offered as a substitute?

- A. Herba Achilleae millefolii**
- B. Radix Taraxaci officinalis**
- C. Rizoma Calami**
- D. Rizoma et radix Sanquisorbae officinalis**
- E. Folium Uvae ursi**

**149.** Infusion of *Althaea* roots is being prepared for a patient. What pattern of infusion should be chosen in this case?

- A. 30 minutes at room temperature**
- B. 15 minutes of water bath infusion and 45 minutes of cooling at room temperature**
- C. 30 minutes of water bath infusion and 10 minutes of cooling at room temperature**
- D. 60 minutes at room temperature**
- E. 30 minutes of water bath infusion and immediate filtering without cooling**

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

- A. Decoction is made and filtered after complete cooling**
- B. Infusion is made in a slightly alkaline medium**
- C. Decoction is made and filtered immediately without cooling**
- D. Infusion is made by means of cold maceration**

E. Infusion is made and acidated with hydrochloric acid

151. A pharmacist has prepared a *Leonurus* tincture with sodium bromide. How was sodium bromide introduced into the preparation in this case?

- A. Dry substance was dissolved in the filtered extract in a stand
- B. Sodium bromide was mixed in a separate vessel with a part of the extract, than this mixture was added into the prepared tincture
- C. Concentrated solution was added into the prepared extract
- D. Dry substance was dissolved in the infusion apparatus
- E. Sodium bromide was dissolved in the tincture in a vial for dispensing

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

- A. Mint leaves, chamomile flowers
- B. Mint leaves, *Arctostaphylos* leaves
- C. Mint leaves, *Althaea* roots
- D. Mint leaves, buckthorn bark
- E. Mint leaves, flax seeds

### Semi-solid preparations for cutaneous application

153. A pharmacist-technologist received an ointment formulation.  
Rp.: Unguentum Resorcini 1,5% - 10,0  
Da. Signa. To be applied on the

affected skin areas.

The pharmacist incorporated dry medical substance into the ointment by the following way:

- A. Triturated with a few vaseline oil drops
- B. Triturated with a few ethanol drops
- C. Triturated with a few water drops
- D. Added to molten vaseline
- E. Triturated with a part of Vaseline

154. A pharmacist prepared a surface action ointment. What ointment base was used?

- A. Vaseline (petrolatum)
- B. Kutumova's basis
- C. Polyethylene oxide basis
- D. Gelatin-glycerol base
- E. Lanoline

155. A pharmacist made a medicinal preparation according to the following formulation:

Rp.: Chloroformii

Olei Helianthi

Methylii salicylatis ana 10,0

M.D.S. For infriktion.

Specify the kind of disperse system:

- A. Liniment - solution
- B. Liniment- combined
- C. Liniment - emulsion
- D. Liniment suspension
- E. Liniment- extractional

156. Specify the type of the following liniment:

Ol. Helianthi 7,4

Sol. Ammonii caustici 25 ml

Ac. Oleinici 0,1

M.f. linimentum

D.S. To be rubbed in.

- A. Liniment, emulsion o/w
- B. Combined liniment
- C. Liniment-solution
- D. Liniment-suspension

E. Liniment, emulsion w/o

**157.** The patient has been prescribed Linimentum Rosentali. It is composed of:

**A. Paraffin, alcohol, chloroform, iodine**

**B. Castor oil, calcium chloride, alcohol**

**C. Chloroform, methyl salicylate, turpentine**

**D. Iodine, potassium chloride, glycerin**

**E. Sunflower oil, ammonia, oleic acid**

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

**A. Menthol**

**B. Novocaine hydrochloride**

**C. Dermatol (bismuth subgallate)**

**D. Starch**

**E. Sulfur**

**159.** A pharmacist prepares a suspension ointment. What substance is soluble in water, but should be incorporated into the dermatological ointments as a suspension?

**A. Resorcinol**

**B. Zinc oxide**

**C. Sulfacyl sodium**

**D. Furacilin**

**E. Potassium iodide**

**160.** The ointment workshop of a pharmaceutical plant launches production of a new ointment. Specify the manufacturing operation that ensures equal distribution of the drug substance in the base:

**A. Packaging**

**B. Homogenization**

**C. Standardization**

**D. Preparation of the base**

**E. Pre-packing**

**161.** A pharmacy has to prepare a soft drug based on the gel made from inorganic substances. Which of these highmolecular compounds can be used for preparing such a base?

**A. Bentonites**

**B. Cellulose ethers**

**C. Starch**

**D. Polyethylene oxides**

**E. Collagen**

**162.** A pharmacist prepares an ointment on a hydrophobic base. What substance does he use in order to reduce the melting point of the base?

**A. Vaseline oil**

**B. Glycerol**

**C. PEG-40**

**D. Dimexide**

**E. Ethanol**

**163.** A pharmacist prepared a lipophilic ointment of suspension type. What substance is used for preparing this kind of ointments?

**A. Xeroform**

**B. Protargolum**

**C. Menthol**

**D. Tannin**

**E. Herbal extracts**

**164.** 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**

**165.** A pharmacist 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**

**166.** A pharmacy prepares ointments with extracts. What is the way to incorporate the dry and thick extracts into the ointments?

**A.To triturate them first with alcoholwater-glycerol [1:6:3] mixture**

**B.To incorporate them directly into the molten ointment base**

**C.To dissolve them in water first**

**D.To disperse them with a liquid which is compatible with the base**

**E.To disperse them with ethanol**

**167.** A pharmacist prepared the massage cream of the following composition:

Beeswax 12,0

Almond oil 68,5

Spermaceti 12,0

Anhydrous lanolin 7,5

Essential oil of lavender 3 drops.

Specify the cream type:

**A.Oily**

**B.Non-oily**

**C.Emulsion**

**D.Suspension**

**E.Combined**

**168.** A pharmacist has prepared a suspension ointment. Specify the substance used for this type of ointments:

**A.Zinc oxide**

**B.Protargolum**

**C.Menthol**

**D.Ichthyol**

**E.Potassium iodide**

**169.** A pharmacy received the following formulation:

Rp.: Xeroformii Picis

Liquidae Betulae ana 3,0

Olei Ricini 100,0

M.D.S. For wound anointing.

Specify the dosage form:

**A.Liniment**

**B.Hydrophilic ointment**

**C.Paste**

**D.Combined ointment**

**E.Solution**

**170.** It is required to prepare 50 g of zinc ointment for a patient. What amount of zinc and vaseline must be weighed out by a pharmacist?

**A.5,0 and 45,0 g**

**B.10,0 and 40,0 g**

**C.2,5 and 40,0 g**

**D.1,0 and 49,0 g**

**E.0,5 and 49,5 g**

**171.** A pharmacist prepared an ointment by the following formulation:

Rp.: Tannini 0,2

Lanolini 3,0

Vaselini 10,0

M. ut f. ung.

D.S. To anoint the affected skin areas.

What method of tannin incorporation was used?

**A.Water dissolution, emulsification with anhydrous lanolin**

**B.Trituration with liquid petrolate in a mortar by Deryagin rule**

**C.Dissolution in molten vaseline**

**D.Trituration with an alcohol in a mortar, blending with the base**

**E.Dissolution in liquid petrolate**

**172.** Oil liniments are produced with

fatty oils used as a base. What kind of oil should be used by a pharmacist if it was not specified in the formulation?

- A. Sunflower oil**
- B. Petrolatum**
- C. Cod-liver oil**
- D. Sesame oil**
- E. Eucalyptus oil**

**173.** 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**

**174.** 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%**

**175.** Polyethylene oxide base belongs to the following group:

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

**176.** A pharmacy received a prescription for preparation of dermatological ointment with benzylpenicillin. Indicate the type of ointment that necessary to prepare:

- A. Suspension ointment**
- B. Liquid ointment**

- C. Hydrophilic ointment**
- D. Alloy ointment**
- E. Combined**

**177.** 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%**

**178.** Pharmaceutical plants produce ointments on various bases. Specify the ointment base having the most pronounced osmotic properties:

- A. Vaseline, lanolin**
- B. Silicon**
- C. Polyethylene oxide**
- D. Methyl cellulose**
- E. Hydrogenated fat**

**179.** A pharmacy received a prescription for an oil liniment including streptocidum. What is the type of disperse system of this preparation?

- A. Combined**
- B. Solution**
- C. Emulsion**
- D. Suspension**
- E. Alloy**

**180.** Dispersion degree of drug substances is of great importance for the preparation of ophtalmic ointments. What drug substance should be thoroughly triturated with sterile vaseline oil before incorporating it into the pharmacopoeia recommended ointment base?

- A. Ethyl morphine hydrochloride
- B. Mercuric oxide yellow**
- C. Pilocarpine hydrochloride
- D. Resorcin
- E. Zinc sulfate

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

- A. Camphor**
- B. Streptocide
- C. Benzoic acid
- D. Anesthesin
- E. Vinilin (polyvinyl butyl ether)

**182.** Polyethylene oxide base belongs to the following group:

- A. Hydrophilic**
- B. Hydrophobic
- C. Emulsion
- D. Lipid
- E. Biphilic

**183.** Tween-80 is being introduced into an emulsion system. What is the role of Tween-80 in emulsions?

- A. Emulsifier**
- B. Antioxidant
- C. Solvent
- D. Taste correction agent
- E. Preservative

### **Suppositories and pessaries**

**184.** 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

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

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

**186.** 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

**187.** Name the optimal vehicle for soluble vaginal suppositories:

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

**188.** 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

**189.** 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

**190.** A pharmacist prepared suppository mass with novocaine and cocoa butter, but it turned out to be crumbling. What substance to be added to form a plastic mass:

- A. Anhydrous lanolin**
- B.** Hydrous lanolin
- C.** Paraffin
- D.** Vaseline
- E.** Wax

**191.** 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

**192.** What is the function of anhydrous lanolin in the suppository mass used for suppositories prepared by hand rolling?

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

**193.** A patient has been prescribed handrolled rectal suppositories with 0,1 g of aminophylline. What is the amount of base required for each suppository, provided that the suppository weight is not specified in the formulation?

- A. 2,9 g**
- B.** 3,9 g
- C.** 2,4 g
- D.** 1,9 g
- E.** 1,4 g

**194.** Which of the following vaginal dosage forms relate to the officinal formula, that is, are prepared in a pharmacy?

- A. Pessaries**
- B.** Vaginal tablets
- C.** Vaginal capsules
- D.** Vaginal foams
- E.** Vaginal tablets for preparing solutions and suspensions

**195.** In course of preparation of suppositories by the pumping method the suppository mass became viscous and fluid after the incorporation of chloral hydrate into the cocoa butter. What substance should be added to the suppository mass in order to restore its density and plasticity?

- A. Wax**
- B.** Glycerine
- C.** Purified water
- D.** Dimexid
- E.** Starch

**196.** 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**

**197.** A pharmacist prepared a lipophilic ointment of suspension type. What substance is used for preparing this kind of ointments?

- A. Xeroform**
- B. Protargolum**
- C. Menthol**
- D. Tannin**
- E. Herbal extracts**

**198.** A pharmacist is preparing vaginal suppositories by method of pouring. Which hydrophilic base can he use for this purpose?

- A.Polyethylene oxide**
- B.Cocoa butter**
- C.Vitepsol**
- D.Hard fat**
- E.Butyrol**

**199.** A pharmacist has to prepare suppositories with a glycerine gelatin base by the molding method. What is the ratio of gelatin, water and glycerine required for the base?

- A.1:2:5**
- B.2:2:4**
- C.1:3:4**
- D.2:1:5**
- E.3:2:3**

**200.** A pharmacist has prepared vaginal suppositories. Specify the form

of these suppositories:

- A.Marbles**
- B.Torpedo**
- C.Cylinder**
- D.Cone**
- E.Sticks**

**201.** 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**

**202.** 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**

**203.** 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**

**204.** Analytical and control laboratory determines quality of fatty oils by using certain chemical indices. Specify the chemical index that is demonstrative of the fatty oil drying:

- A. Ester number
- B. Peroxide number
- C. Acid number
- D. Saponification number
- E. Iodine absorption number**

**205.** A patient has been prescribed hand-rolled rectal suppositories with 0,1 g of aminophylline. What is the amount of base required for each suppository, provided that the suppository weight is not specified in the formulation?

- A. 1,9 g
- B. 2,9 g**
- C. 2,4 g
- D. 1,4 g
- E. 3,9 g

**206.** A pharmacist is preparing rectal suppositories based on cocoa butter and containing dimedrol with mass concentration less than 5%. For rational incorporation of dimedrol into the base it should be solved:

- A. In the melted cocoa butter
- B. In olive oil
- C. In the minimum amount of treated water**
- D. In vaseline oil
- E. In alcohol

**207.** Lipophilic bases for suppositories include:

- A. Collagen base
- B. Glycerol soap base
- C. Polyethylene oxide base
- D. Gelatin-glycerol base
- E. Mixtures of hydrogenated fats**

### **Sterile dosage forms**

**208.** 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

**209.** A pharmacist has prepared eye drops with boric acid. What sterilization method was applied?

- A. Sterilization by saturation vapor pressure**
- B. Tyndallization
- C. Sterilization by dry heat
- D. Sterilization by gases
- E. By high-frequency current

**210.** 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

**211.** Eye drops are prepared with an ointment base which is an alloy of vaseline and lanolin. Specify the method of its sterilization:

- A. Dry heat**
- B. Ethylene oxide**
- C. Flowing steam**
- D. Pasteurization**
- E. Tyndallization**

**212.** A pharmacist prepares several different solutions with antibiotics under aseptic conditions. He can sterilize the solution of the following substance:

- A. Chloramphenicol**
- B. Benzylpenicillin-sodium**
- C. Neomycin sulphate**
- D. Benzylpenicillin-potassium**
- E. Polymyxin sulphate**

**213.** 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**

**214.** An edema can be relieved by means of hypertonic solutions. What phenomenon takes place in the blood cells after injection of such solution?

- A. Plasmolysis**
- B. Hydrolysis**
- C. Hemolysis**
- D. Lipolysis**
- E. Electrolysis**

**215.** A pharmacist has to sterilize 400 ml of calcium gluconate solution for injections. Specify the time of autoclave

sterilization of the solution at 120°C:

- A. 12 minutes**
- B. 20 minutes**
- C. 15 minutes**
- D. 10 minutes**
- E. 30 minutes**

**216.** Injection solutions of salts derived from weak acids and strong bases require stabilization. What stabilizers are used for these solutions?

- A. 0,1 M sodium hydroxide solution**
- B. 0,1 M acid chloride solution**
- C. Trilon B**
- D. Ascorbic acid**
- E. Butylhydroxytoluene**

**217.** 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**

**218.** A pharmacy produces some injection solutions that have to be apyrogenic. Solution of the following substance can be depyrogenized by method of adsorption with activated carbon?

- A. Glucose**
- B. Atropine sulfate**
- C. Papaverine hydrochloride**
- D. Scopolamine hydrobromide**
- E. Platyphyllini hydrotartras**

**219.** A pharmacy received an order for 2500ml of isotonic sodium chloride solution. How much sodium chloride and water for injections should be taken to prepare this dosage form?

- A. 22,5 g of sodium chloride and 2500**

**ml of water for injections**

**B.** 50,0 g of sodium chloride and 2450 ml of water for injections

**C.** 25,0 g of sodium chloride and 2500 ml of water for injections

**D.** 30,0 g of sodium chloride and 2500 ml of water for injections

**E.** 100,0 g of sodium chloride and 2400 ml of water for injections

**220.** 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 suspension type. 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

**221.** A pharmacist prepared eye drops containing silver nitrate. What substance must be taken to ensure isotonicity?

**A. Sodium nitrate**

**B.** Sodium chloride

**C.** Boric acid

**D.** Glucose

**E.** Sodium sulfate

**222.** A pharmacist prepares a solution for injections 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

**223.** 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

**224.** Specify the indicator which measures the total contribution of various solutes to the osmotic pressure of the solution:

**A. Osmolality**

**B.** Isohydricity

**C.** Isotonicity

**D.** Isoviscosity

**E.** Apyrogenicity

**225.** Pharmacies prepare injectable solutions. Which solution is prepared without any stabilizer?

**A. Sodium bicarbonate solution**

**B.** Sodium thiosulfate solution

**C.** Solution of caffeine sodium benzoate

**D.** Glucose solution

**E.** Novocaine solution

**226.** A pharmacist prepared an injectable solution of novocaine. What stabilizer had been used?

**A. Hydrochloric acid solution**

**B.** Sodium bicarbonate solution

**C.** Stabilizer of Weibel

**D.** Sodium sulfite solution

**E.** Sodium thiosulfate solution

**227.** A pharmacy received a formulation for eye drops containing 1% solution of pilocarpine hydrochloride. What substance should be used to ensure that the resultant solution is isotonic?

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

**228.** Which group of adjuvants includes polyvinyl alcohol used under the Pharmacopoeia?

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

**229.** 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**

**230.** A pharmacy received a prescription for vaseline-lanoline based eye ointment. What proportion of vaseline to lanoline should be chosen by a pharmacist to make the ointment base?

- A. 9:1**
- B. 1:1**
- C. 5:1**
- D. 8:2**
- E. 7:3**

**231.** A pharmacy makes infusion solutions. Specify the solution that restores water-salt metabolism.

- A. Ringer-Locke's solution**
- B. Polyglucinum**
- C. Neohaemodesum**
- D. Hydrolysine**
- E. Dextran**

**232.** 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**

**233.** What stage is the last in making injection solutions?

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

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

- A. 10 parts of anhydrous lanolin - 90 parts of vaseline For Eye Ointments**
- B. Vaseline For Eye Ointments**
- C. 40 parts of anhydrous lanolin - 60 parts of vaseline For Eye Ointments**
- D. 30 parts of lanolin - 70 parts of vaseline**
- E. Lanolin: vaseline - 1:1**

**235.** A pharmacist should make 200 ml of 3% sodium bicarbonate solution for injections. What are the specifics of making this solution?

- A. Vial should be filled to 2/3 of its volume; sterilization at 120°C for 12 minutes**
- B. No sterilization**
- C. Dissolve by heating; sterilization at 120°C for 12 minutes**
- D. Use stabilizing agent**
- E. Use water free of redox substances**

**236.** 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**

**237.** Specify the base for the preparation of antibiotic ointments:

- A. 6 parts of vaseline + 4 part of lanolin**
- B. 8 parts of vaseline + 2 part of lanolin**
- C. 5 parts of vaseline + 5 part of lanolin**
- D. 7 parts of vaseline + 3 part of lanolin**
- E. 5 parts of vaseline + 1 part of lanolin**

**238.** 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**

**239.** 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**

**240.** To prepare eye drops 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**

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

- A. 10 parts of anhydrous lanolin - 90 parts of vaseline For Eye Ointments**
- B. Vaseline For Eye Ointments**
- C. 40 parts of anhydrous lanolin - 60 parts of vaseline For Eye Ointments**
- D. 30 parts of lanolin - 70 parts of vaseline**
- E. Lanolin: vaseline - 1:1**

**242.** 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**

**243.** 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**

**244.** 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**

**245.** 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**

**246.** 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**

**247.** 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**

**248.** Considering thermolability of most animal-derived injection preparations, they are sterilized by means of:

**A. Filtration through membrane**

**B. Addition of buffer solutions**

**C. High frequency current**

**D. Autoclave chamber with high-pressure saturated steam**

**E. Ultrasound**

**249.** Novocaine metabolism in the organism results in generation of p-aminobenzoic acid. What metabolic process underlies this conversion?

**A. Conjugation**

**B. Hydrolysis**

**C. Oxidation**

**D. Dealkylation**

**E. Reduction**

**250.** A pharmacist has prepared an ointment intended for application on the open wound surface. Such kind of ointment should meet the following additional requirement:

**A. Prolonged action**

**B. Sterility**

**C. Isoviscosity**

**D. Isotonicity**

**E. Isoionicity**

**251.** A department of a pharmaceutical plant produces injection solutions. Ascorbic acid solution for injections relates to the following group of solutions:

**A. Solutions of salts derived from strong bases and weak acids**

**B. Solutions of substances requiring special rectification**

**C. Solutions of substances that should be subjected to thermal sterilization**

**D. Solutions of salts derived from weak bases and strong acids**

**E. Easily oxidized solutions**

**252.** A department producing sterile 7 pharmaceutical forms needs a method of eye drops sterilization applicable for drugs derived from thermolabile



substances. What is the optimal method of sterilization?

- A. Sterile filtration**
- B. Addition of ascorbic acid
- C. Use of polymeric packings
- D. Filling in the inert gas medium
- E. Thermal sterilization

**253.** Ophthalmic drops are produced on the base of concentrated riboflavin solution (1:5000). How much solution should be taken if the formulation says "0,001 of riboflavin" ?

- A. 1 ml
- B. 5 ml**
- C. 3 ml
- D. 2 ml
- E. 4 ml

**254.** In the production of injection solutions the activated carbon is used as:

- A. Antioxidant properties increasing
- B. Buffer system creation
- C. Purification**
- D. Chemical resistance of ampoule's glass increasing
- E. Ampoules residual stress relaxation

**255.** A pharmacist needs to sterilize 250 ml of glucose solution for injections. How many minutes should the solution undergo sterilization in the autoclave under the temperature of 120°C?

- A. 12**
- B. 15
- C. 30
- D. 25
- E. 8

**256.** Production of injection solutions involves an operation of solution filtration. What filters are used for sterile filtration?

- A. Mushroom filter**

**B. Filter candles**

**C.** Filter developed by the Kharkiv Chemo-pharmaceutic Research Institute

**D.** Nutsch filters

**E.** Pressure filters

**257.** A pharmacist prepared eyedrops with boric acid. What sterilization method was applied?

- A. Sterilization by dry heat
- B. Tyndallization
- C. Sterilization by saturation vapor pressure**
- D. Sterilization by gases
- E. By high-frequency current

**258.** A pharmacist made eye drops of pilocarpine hydrochloride and adrenaline hydrochloride solution. A peculiarity of the incorporation of the adrenaline hydrochloride solution is that it is added:

- A. To the half dose of solvent
- B. After dissolving of solids
- C. After sterilization, aseptically**
- D. In the first place
- E. After isotoning

**259.** A chemical department produces alcohol solution of boric acid. What filters are used for filtration of this solution?

- A. Paper filter
- B. Bag filter
- C. Pressure filters**
- D. Nutsch filter
- E. Membrane filter

**260.** The ampoule workshop produces solutions for injections. The aminophylline solution for injections relates to the following group of solutions:

- A. Solutions of easily oxidizable substances
  - B. Solutions of substances requiring special purification
  - C. Solutions are not subject to heat sterilization**
  - D. Solutions of salts composed of weak bases and strong acids
  - E. Solutions of salts composed of strong bases and weak acids
- 261.** 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. Radiation sterilization
  - C. Pressure steam sterilization
  - D. UV light sterilization
  - E. Dry heat sterilization
- 262.** Production unit for ampouled medicinal preparations produces procaine hydrochloride solution. This solution is stabilized by adding:
- A. 0,1 mol/l of sodium hydroxide solution
  - B. 20,0 of sodium hydrogen carbonate
  - C. 1,5 g of amino-propylene glycol
  - D. 0,1 mol/l of hydrochloric acid solution**
  - E. 0,1 mol/l of sodium hydrogen carbonate solution
- 263.** Hexamethylenetetramine solution sterility is achieved by:
- A. Filtering through bacterial filters**
  - B. Preserving agents
  - C. Gas diffusion sterilization
  - D. Tyndallization method of sterilization
  - E. Pressure steam sterilization
- 264.** 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
- 265.** 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
- 266.** 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
- 267.** Sodium and potassium oxides are introduced into the ampoule glass to:
- A. Decrease its melting point
  - B. Increase its mechanical stability
  - C. Increase its chemical stability
  - D. Increase its dimming ability
  - E. Increase its thermal stability
- 268.** 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

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

- A. **Apyrogenicity**
- B. Absence of heavy metals
- C. The way in which it was obtained
- D. Absence of mechanical inclusions
- E. pH value

### **Pharmaceutical incompatibilities**

**270.** A pharmacy got an order for manzanita decoction and hexamethylenetetramine. A pharmacist cancelled it with a stamp "Invalid prescription". What is the reason for the incompatibility?

- A. **Deposition**
- B. Eutectic
- C. Oxidization
- D. Moisture-repellant
- E. Insolubility

**271.** Absorption of tetracycline preparations will be reduced when they are administered simultaneously with antacids. This is an example for:

- A. **Pharmacokinetic incompatibility**
- B. Pharmaceutical incompatibility
- C. Pharmacodynamic incompatibility
- D. Drugs synergism
- E. Functional drugs antagonism

**272.** A pharmacy received a prescription for a mixture. What drug substances are incompatible?

- A. **Papaverine hydrochloride + aminophylline**

- B. Novocaine + diphenhydramine
- C. Sodium bromide + sodium chloride
- D. Codeine phosphate + extract of Thermopsis
- E. Phenobarbital + glucose

**273.** A pharmacist has revealed an incompatibility in the prescription. What drug substances form an eutectic mixture?

- A. **Chloral hydrate + camphor**
- B. Antipyrine + analgin
- C. Calcium chloride + sodium chloride
- D. Ephedrine hydrochloride + glucose
- E. Sodium hydrocarbonate + hexamethylenetetramine

**274.** A doctor gave a prescription for the tincture of digitalis with hydrochloric acid. What is the reason for their incompatibility?

- A. **Hydrolysis (with no visible changes)**
- B. Precipitation
- C. Gassing
- D. Change in colour
- E. Change in odour

**275.** A pharmacist refused preparation of nasal drops to a patient because of incompatibility between collargol and dimedrol written in the prescription. What is the reason for incompatibility between these ingredients?

- A. **Coagulation**
- B. Immiscibility
- C. Adsorption
- D. Dissection
- E. Eutectic formation

**276.** A pharmacist was preparing an ointment with ricin oil and Vaseline but failed to get homogenous system. What is the most likely cause of incompatibility between these

components?

- A. Component immiscibility**
- B. Restricted solubility**
- C. Release of water of crystallization**
- D. Coagulation**
- E. Adsorption**

**277.** A pharmacist revealed incompatibility in a prescription for powders with ascorbic acid and hexamethylenetetramine. What process takes place when these components are combined?

- A. Mixture dampening**
- B. Eutectic formation**
- C. Immiscibility**
- D. Substances adsorption**
- E. Crystallization water exudation**

**278.** A pharmacist revealed incompatibility in the formulation.

Rp.: Sol. Collargoli 1%- 10 ml

Sol. Adrenalini hydrochloridi 0,1%-1 ml

M.D.S. Nasal drops.

What chemical process underlies this incompatibility?

- A. Oxidization**
- B. Neutralization**
- C. Precipitation**
- D. Hydrolysis**
- E. Adsorption**

**279.** 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**

**280.** A pharmacy got an order for powders containing ascorbic acid and sodium hydrocarbonate. What process takes place between the ingredients?

- A. Precipitation**
- B. Stratification**
- C. Oxidation**
- D. Adsorption**
- E. Dampening**

**281.** A pharmacist revealed physical incompatibility in a recipe. Specify the combination of drug substances demonstrating eutectic when blended:

- A. Ascorbic acid and hydrocarbonate sodium**
- B. Basic bismuth nitrate and magnesium oxide**
- C. Glucose and phenyl salicylate**
- D. Streptocid and antipyrine**
- E. Camphor and menthol**

**282.** A pharmacist revealed physical incompatibility caused by coagulation. This process takes place in a solution if the combination of the following substances is present:

- A. Dimedrol and diazoline**
- B. Dimedrol and glucose**
- C. Dimedrol and novocaine**
- D. Dimedrol and sodium chloride**
- E. Dimedrol and collargol**

**283.** A pharmacist technologist revealed incompatibility in the following prescription:

Rp.: Mentholi 0,5

Natrii hydrocarbonatis

Natrii tetraboratis aa 1,5

Aquae purificatae 100 ml

M.D.S. 1 tablespoon twice a day.

In order to prepare this drug form the pharmacist should apply the following techniques:

- A. Change one of the component
- B. Change dosage form
- C. Apply fractional dissolution
- D. Apply another solvent
- E. **Add stabilizer**

**284.** A pharmacist-technologist has to prepare a medication with the following formulation:

Rp.: Mentholi 0,1

Glycerini 10,0 M.D.S.

Nasal drops.

What is the reason for their incompatibility?

- A. Adsorption of the medicinal agent
- B. Separation of the mixture
- C. **Insolubility of ingredients**
- D. Eutectic alloy formation
- E. Coagulation of colloidal system

**285.** A pharmacy got an order for a mixture containing manzanita decoction and belladonna extract. What is the reason for their incompatibility?

- A. Hydrolysis
- B. Liberation of gaseous substances
- C. Coagulation of colloidal systems
- D. **Sedimentation**
- E. Redox (oxidation-reduction) processes

**286.** Preparation of multicomponent powders with phenyl salicylate and camphor is accompanied by generation of some fluid. What is the reason for their incompatibility?

- A. Hygroscopic components
- B. Gases separation
- C. Adsorption
- D. Crystallization water exudation
- E. **Eutectic alloy formation**

**287.** A patient has been administered a solution containing boric acid and camphor. What solvent should his

doctor prescribe in order to prevent physical incompatibility?

- A. Glycerol
- B. Purified water
- C. Ethyl alcohol 40%
- D. Sunflower oil
- E. **Ethyl alcohol 70%**