

1. Analytical normative documentation, technological processes and devices

1. A pharmaceutical enterprise starts to produce a new production. In which part of an industrial technological regulation the external look, physicochemical properties of the prepared product are described ?

- A. description of the technological process
- B. characteristics of prepared production**
- C. characteristics of raw material and intermediate product
- D. characteristics of auxiliary raw material
- E. informative materials

2. In which part of an industrial technological regulation the sanitary preparation of the working area is described?

- A. labour safety standards, fire safety and manufacture sanitation
- B. description the stages of the technological process and manufacture sanitation**
- C. informative materials
- D. general characteristics of manufacture
- E. safe exploitation of the manufacture, manufacture preservation of the environment

3. Choose an analytical normative document which qualifies the standards of composition of the medical preparation and process of its production:

- A. technological regulation, pharmacopoeia article**
- B. technical regulation
- C. state standard
- D. branch standard
- E. technical conditions

4. Various preparations are produced in a pharmaceutical factory according to technological rules. How long is industrial manufacturing rules are valid?

- A. 6 months
- B. 1 year
- C. 3 years
- D. 5 years**
- E. 8 years

5. Indicate an analytical normative document that is confirmed only for the limited term and determines the quality standards of the medicine:

- A. state standard
- B. technical regulation (TR)
- C. temporary pharmacopoeia article**
- D. branch standard
- E. technical conditions

6. *This normative document comprises requirements to concrete products and services, regulates relations between a supplier and customer. Give the term to the definition:*
- standard
 - technical conditions**
 - technical regulations
 - technological regulations
 - methodological guidelines
7. *Choose the most appropriate definition of output-input characteristics (factor of account):*
- correlation of the initial amount of materials to the mass of prepared product and by-product
 - correlation of the mass of product to the mass of initial materials
 - correlation of the mass of losses to the mass of initial materials
 - correlation of the mass of initial materials to the mass of final product**
 - correlation sum of the initial materials and prepared product to the mass of material losses
8. *Choose the economic requirements to the materials and apparatus :*
- Equipment investments, designing expenses, expenses for production and assembling**
 - accordance of the temperature
 - rate of movement
 - comfort of exploitation
 - stocked durability
9. *According to the demand of GMP WHO the production of sterile preparations at the factory are classified on "clean" areas. Choose classes of cleanness in accordance with the requirements of the characteristic of an air:*
- A, B
 - A, B, C, D**
 - I, II, III
 - I, II
 - A, B, B, Γ, Д
10. *What devices are commonly used for mixing of dry substances and powders?*
- mixers with a corps which is revolved
 - quasi-liquefaction apparatus**
 - mixers of centrifugal action
 - oscillation sieves
 - many-tier sieves

11. *Different types of dryers are used to dry the granules. What type of dryer does SP-30 belong to?*
- A. **dryers with a quasi-liquefaction layer**
 - B. sublimation dryer
 - C. infra-red dryer
 - D. dryer with a silica gel
 - E. dryer with the forced circulation of air
12. *Powders are prepared at the pharmaceutical enterprise. What apparatus is used for drying powders which have a residual moisture?*
- A. air-circulation dryer
 - B. chamber vacuum dryer
 - C. sublimation dryer
 - D. dryer SG-30
 - E. **vacuum drying oven (cupboard)**
13. *A pharmaceutical enterprise produces powders for preparing injections. What apparatus is used for drying these powders?*
- A. chamber vacuum dryer
 - B. **sublimation dryer**
 - C. spray(-type) dryer
 - D. dryer SG-30 with quasi-liquefaction layer
 - E. air-circulation dryer
14. *Different types of dryers are used at a pharmaceutical enterprise. What dryers belong to contact dryers?*
- A. **roll dryers**
 - B. band dryers
 - C. air-circulation dryers
 - D. pneumatic dryers
 - E. nebulizing dryers
15. *Different types of dryers are used in the process of preparing phyto- and organopreparations. Which type of dryer is used to dry thermolabile substances?*
- A. drum dryer
 - B. roll dryer
 - C. band dryer
 - D. drying oven
 - E. **freeze dryer**
16. *What kind of moisture is firmly bounded to the material and does not fully retire at drying:*
- A. equilibrium moisture
 - B. **crystalline moisture**
 - C. free moisture
 - D. external moisture
 - E. osmotic moisture

17. *What devices are used for fine grinding (atomizing) of medical matters at the pharmaceutical enterprise?*
- A. roll blenders
 - B. disintegrators
 - C. dismembrators
 - D. root cutter, grass cutter
 - E. **drum mills, vibration mills**
18. *What kind of equipment is used for fine grinding of medical matters at the pharmaceutical enterprises?*
- A. **dezintegrator, hammer mills**
 - B. roll blender
 - C. drum mills
 - D. gringing mill
 - E. vibration mills
19. *Choose an equipment for moderate grinding of raw plant material:*
- A. drum mills
 - B. vibration mills
 - C. **root cutter and grass cutter devices**
 - D. rod mill
 - E. jet(-type) mill
20. *Devices for grinding substances are classified according to the methods of grinding. What kind of equipment the roller blender belongs to?*
- A. rubbing machines
 - B. abrasive machines
 - C. percussive machines
 - D. **crushing machines**
 - E. shock centrifugal machines
21. *What kind of mixers don't have revolved details?*
- A. drum mixers
 - B. **mixers with pseudofluidized layer**
 - C. blade mixers
 - D. double-cone mixers
 - E. centrifugal mixers
22. *Describe the principle of operation of a jet-type mill:*
- A. **grinding of material takes place in an aerocarrier (air, rare gas), which works on a high speed**
 - B. particles of material vibrating in the self-weighted layer, concussion with bodies during grinding and abrasion
 - C. material is grinding into a circulating frame under the action of bodies which grind
 - D. material is grinding under the action of two centrifugal rollers which are revolved
 - E. grinding under the action of centrifugal force

23. *What kind of sieves can be used for sifting moist material?*
- A. mechanical sieves
 - B. screen grate
 - C. many-tier shake sieves
 - D. vibration sieves**
 - E. gyration sieves
24. *What is meant under the term "bulk weight"?*
- A. correlation of the mass of tablet to its height
 - B. correlation of height of powder in the die to the height of tablet
 - C. correlation of the mass to volume of freely-poured material**
 - D. correlation of the mass of tablet to its diameter
 - E. correlation of bulk density to real density
25. *Choose the correct mixer with rotation blades:*
- A. vehicle with quasi-liquefaction of friable material
 - B. a mixer of centrifugal action with a rotary-type frame
 - C. worm-blade mixer**
 - D. tumbler-blender
 - E. mixer T200 "Turbula"
26. *Choose the correct mixer with rotation frame:*
- A. ball mills**
 - B. worm-blade mixers
 - C. vehicle with quasi-liquefaction layer
 - D. dismembrators
 - E. rotory- pulsation apparatus
27. *A pharmaceutical enterprise buys equipment for sifting of friable materials. According to UP XI, linens for sieves must be made of:*
- A. kapron, cotton, gauze, unbleached calico
 - B. fabric net with square holes, latticed linens, silk fabrics**
 - C. fabric net with square holes, gauze, kapron fabrics
 - D. copper wire, latticed linens, silk fabrics, kapron
 - E. kapron fabrics, gauze, unbleached calico
28. *Different equipment is used by the pharmaceutical enterprises in the production of solutions. What vehicles are used for mechanical mixing of liquids?*
- A. reactors
 - B. pulsator
 - C. blade mixers, anchor mixers, turbine mixers**
 - D. liquid whistles
 - E. pump

29. *While using the acoustic interfusion a hard phase is grinding for account of:*
- initiation of the phenomenon of cavitation**
 - turbulent flow of liquid
 - electrodialysis
 - high-voltage discharge
 - electroplasmolysis
30. *Choose the convective dryers:*
- dryer with quasi-liquefaction layer , vacuum drying oven (cupboard)
 - vacuum drying oven , roller vacuum-dryer, dryer with infra-red rays
 - air-circulation dryers, band dryers, two rollers freeze-dryer
 - chamber-type, tunnel, band, drum, aerofountain, dryer with quasi-liquefaction layer , nebulizing dryer**
 - high-frequency dryer, freeze- dryer, chamber, tunnel dryer, drum dryer
31. *Different apparatuses are used for filtration of solutions. What filters are used for vacuum filtration?*
- centrifuges
 - druk filters
 - frame filters -presses
 - bag filters
 - nutsch filters**
32. *On the technological stage "Precondition of water" during the production of liquid medicinal preparations utilize a different equipment for the water purified obtaining. What is the main principle of work of three-stage horizontal aqueous-distiller?*
- on pumping out the steam by compressor from steam space with a next compression
 - steam, formed in one section is used for heating of next section**
 - on the coercible of repeated steam with the next entering to condenser
 - on creation of rarefaction 0,88 atm, simmer of water in pipes at the temperature 96-100°C
 - on boiling the water in pipes at the temperature 100°C
33. *On the technological stage "Precondition of water" in the production of solutions for injections utilize a different equipment for water for injections obtaining. What is the main principle of work of thermocompression aqueous-distiller?*
- creation of rarefaction 0,88 atm, simmer of water in pipes at the temperature 96-100C
 - steam, formed in one section is used for heating of next section
 - pumping out the steam by compressor from steam space with a next compression**
 - steam distillation, that formes the boiling water
 - deleting the steam from the surface of membranes in the stream of rare gas

34. *Choose the principle of work of the industrial apparatus for obtaining the water for injections:*
- A. revers osmosis
 - B. distillation**
 - C. ultrafiltration
 - D. dialysis
 - E. evaporation through a membrane
35. *Demineralized water is derived by the methods of division through a membrane. Choose the method in which the transition of water through a semi-permeable membrane is carried out under the action of external pressure:*
- A. back osmosis**
 - B. electro dialysis
 - C. evaporation through a membrane
 - D. dialysis
 - E. sorption
36. *What devices are used for determining the fractional (granulometric) composition of powders and granules?*
- A. device of "KHNIKHFII"
 - B. microscope with a micrometrical ruler
 - C. device of VP-12A
 - D. device 545-P-AK-3
 - E. standard collection of sieves**
37. *What devices are used to determine the flowability of powders and granules?*
- A. device of VP-12-A**
 - B. collection of sieves
 - C. microscope with a micrometrical ruler
 - D. device 545-P-AK-3
 - E. friabilityator
38. *Enumerate the conditions necessary for the process of coacervation:*
- A. change concentration of electrolyte
 - B. change concentration of high – molecular compounds
 - C. all the answers are correct**
 - D. change pH-medium
 - E. change the temperature
39. *Choose the method of determining the alcohol concentration in water-alcohol solutions:*
- A. cryoscopic method
 - B. by dry residue
 - C. by boiling temperature**
 - D. potentiometric method
 - E. gravimetric method

40. *Different devices are used for mixing the solutions. What apparatuses are used for mechanical mixing ?*

- A. pulsators
- B. compressors
- C. **blade mixers**
- D. liquid whistles
- E. pumps

41. *Barboter is a device which can be used for mixing:*

- A. gravitational
- B. acoustic
- C. mechanical
- D. **pneumatic**
- E. circulation

2. **Solid preparations (powders, tablets, granules, dragee, capsules, microcapsules)**

42. *In the process of grinding the plant raw material is used with the optimum value of humidity (5-6%). What should be done if the plant raw material is overdried?*

- A. **moistening, mixing, grinding and drying (without delay)**
- B. mixing, grinding and sifting through the collection of sieves
- C. raw material is moistened by 70% ethanol, heating, grinding
- D. if plant raw material is overdried this causes - spoilage in production
- E. raw material is grinding carefully after being moistened by a mixture of ethanol and glycerin

43. *By the fineness degree, substances can be divided into several groups (according to SU XI Pharmacopeia):*

- A. coarse powder, moderately coarse, moderately fine, very fine, colloid
- B. **coarse powder, moderately coarse, fine, moderately fine, very fine, microfine**
- C. coarse, moderately fine, fine
- D. coarse, moderately fine, colloid, very fine
- E. coarse powder, moderately coarse, very fine, microfine

44. *By the fineness degree, substances can be divided into several groups (according to the Ukrainian and European Pharmacopoeas):*

- A. **coarse powder, moderately fine, fine, very fine.**
- B. coarse powder, moderately coarse, moderately fine, very fine, colloid
- C. coarse, moderately fine, fine
- D. coarse, moderately fine, colloid, very fine
- E. coarse powder, moderately coarse, very fine, microfine.

45. *In manufacturing powders are prepared with the addition of essential oils. What operation is used for this purpose?*
- A. prepare spirit solutions and spray on the mixture of powders
 - B. mix with small amount of powder, and put into a mixer last
 - C. **mix with small amount of powder, and put into a mixer afterwards or prepare spirit solutions and spray on the mixture of powders**
 - D. prepare water solutions and spray on the mixture of powders
 - E. mix up with the two-bit of powder and load in a mixer above all things or prepare spirit solutions and spray onto mixture of powders
46. *What devices are used to determine the flowability of powders:*
- A. collection of sieves
 - B. **vibrating funnel**
 - C. disintegrator
 - D. friabilityator
 - E. dismembrator
47. *What devices are used for packing of powders:*
- A. **screw and vacuum dosage devices**
 - B. disintegrators
 - C. dismembratory
 - D. screw and piston dosagemachines
 - E. machines for tubes filling
48. *Choose physico-chemical properties of powders (granulated material):*
- A. porosity
 - B. **solubility**
 - C. bulk weight
 - D. force of extrusion
 - E. pressing
49. *What properties of powders does bulk weight refer to?*
- A. physical
 - B. chemical
 - C. **technological**
 - D. physical and chemical
 - E. biological
50. *Granulometric distribution of powder particles by size is called:*
- A. flowability
 - B. bulk density
 - C. specific density
 - D. porosity
 - E. **fractional composition**

51. *Exactness of dosage of tableting mass depends on:*
- flowability**
 - relative density
 - compaction ratio
 - porosity
 - lyophilic behavior
52. *Tablets are prepared at pharmaceutical manufacturing. Capability of powdery mass to run out of the funnel by its own gravitational force and to provide a uniform filling of die channel is called:*
- fluidity (flowability)**
 - relative density
 - porosity
 - humidity
 - bulk density
53. *Species are prepared at pharmaceutical manufacturing. Designate the technological operations for preparing antiasthmatic species:*
- grinding, mixing, standardization
 - sifting, mixing, spraying by sodium nitrite solution, drying
 - grinding, sifting, mixing, spraying by sodium nitrite solution, shaking the mixture, drying, standardization**
 - grinding, spraying by sodium nitrite solution, drying, standardization
 - grinding, sifting, mixing, drying
54. *Baby powder is prepared at pharmaceutical manufacturing. Designate the composition of powder:*
- 1 part of zincoxide, 1 part of starch, 8 parts of talc**
 - 2 parts of starch, 8 parts of talc
 - 1 part of zincoxide, 3 parts of starch, 6 parts of talc
 - 1 part of zincoxide, 5 parts of starch, 4 parts of talc
 - 3 parts of zincoxide, 3 parts of starch, 4 parts of talc
55. *Tablets are obtained by method of direct pressing of substances. Name terms necessary for this purpose:*
- powders for pressing must be multicomponent
 - powders for pressing must have isodiametrical crystals**
 - tableting machines must be of double pressing
 - a vacuum should be in the die
 - bulk weight must be higher than specific density
56. *Tablets are prepared in tableting manufacturing department by the method of direct pressing. Name parts of tableting machines which are included in "press-instrument":*
- charging funnel, die
 - lower and upper puncheons, die**
 - drives, upper puncheon
 - feeder-metering device, lower and upper puncheons
 - die, drives

57. *While pressing a tablets sticks to the puncheon of press instrument in the die. Designate a reason for this:*
- A. heterogeneity of granules
 - B. to excess humidity of tableting mass and overpressure**
 - C. bad fluidity of tableting mass
 - D. high specific density of powders
 - E. powder has crystals of plate structure
58. *Tablets are manufactured at pharmaceutical enterprise. Designate what cases apply pressing with the use of vacuum in a die, and by a vibration in charging funnel:*
- A. covering of tablets with shells
 - B. by pressing substances with previous granulation
 - C. by direct pressing of substances**
 - D. the double pressing
 - E. by forming damp masses (tritulating)
59. *Tablets are manufactured at pharmaceutical enterprise. Designate the basic methods of tablets obtaining:*
- A. pressing, forming**
 - B. pressing, moulding
 - C. forming, drageering
 - D. pressing, drageering
 - E. pressing, granulation
60. *Tablets of sodium chloride are manufactured at pharmaceutical enterprise. They are applied for:*
- A. preparing of eye drops
 - B. preparing a solution for parenteral use
 - C. preparing the isotonic solution**
 - D. antiseptic action
 - E. anti-inflammatory action
61. *Designate technological operations for manufacturing tablets of sodium chloride:*
- A. auxiliary stage, tableting, standardization, packing, labeling**
 - B. auxiliary stage, mixing of dry powders, forming the tablets, standardization, packing, labeling
 - C. auxiliary stage, mixing of dry powders, tableting, standardization, packing, labeling
 - D. auxiliary stage, standardization, tableting, mixing of dry powders, packing, labeling
 - E. auxiliary stage, addition of gluing solutions and mixing, tableting, standardization, packing

62. *What substances are obtained by direct pressing method without auxiliary ingredients?*

- A. phenyl salicylate, lactose, hexamethylenetetramine
- B. hexamethylenetetramine, streptocidum
- C. sodium chloride, streptocidum, kalii iodide
- D. **sodium chloride, kalii bromide, ammonium bromide**
- E. streptocidum, lactose

63. *Tablets are manufactured at a pharmaceutical enterprise by direct pressing. What is calcium stearate used in tableting mass for?*

- A. **improvement of flowability of tableting mass**
- B. improvement in disintegration
- C. improvement of pressing of tableting mass
- D. prevention sticking on the puncheons of tableting mass
- E. increasing strength of tablets

64. *Granulation is:*

- A. fine pounding of powder mass
- B. **special increasing of powder particles for the next tableting**
- C. pressure of powder in a die
- D. capability of powdery mass to run out of the funnel
- E. is a distribution of powder particles by size

65. *What operations are included into the stage of damp granulation?*

- A. mixing the powders, granulation of damp mass
- B. moistening the powders, granulation of damp mass, standardization
- C. **mixing the powders, moistening (addition of gluing solutions), granulation of damp mass, drying damp granules**
- D. mixing the powders, moistening (addition of gluing solutions), standardization
- E. moistening the powders, granulation of damp mass, dusting

66. *In the process of production of tablets different methods of granulation are used. Designate the methods of structural granulation:*

- A. by atomizing drier, in vertical granulator, by quasi-liquefaction
- B. in pelleting boiler in vertical granulator, by quasi-liquefaction
- C. in pelleting boiler, by atomizing drier
- D. **in pelleting boiler nebulizingdrying, by quasi-liquefaction**
- E. in pelleting boiler, by quasi-liquefaction

67. *Designate the most productive method of structural granulation:*

- A. **quasi-liquefaction**
- B. granulation in pelleting boiler
- C. briquetting
- D. granulation in atomizing driers
- E. damp granulation in vertical granulator

68. *Designate technological operations for preparing tablets of Streptocide:*
- auxiliary stage, mixing of dry powders, addition of gluing solutions and mixing; rubbing the mass through the granulator, drying of granules, tableting, standardization, packing**
 - mixing dry powders, addition of gluing solutions, tableting, drying of granules, standardization, packing
 - auxiliary stage, mixing dry powders, rubbing the mass through the granulator, drying of granules, tableting, standardization, packing, labeling
 - addition of gluing solutions, rubbing the mass through the granulator, drying of granules, tableting, standardization, packing
 - auxiliary stage, tableting, standardization, packing
69. *What device can be used for drying of granules according to the technological regulation?*
- mixer-granulator
 - apparatus CT (DG) 30, CT(DG) 60, CII**
 - horizontal granulator
 - granulator "model 3027"
 - pelleting boiler
70. *Designate the method of administration of oriblettae – :*
- tablets for peroral use**
 - tablets for sub-lingual use
 - tablets for implantation
 - tablets for obtaining the solutions for injections
 - tablets for vaginal use
72. *Choose the name of tablets which are obtained from forming the damp mass:*
- coated tablets
 - effervescent tablets
 - tritulating tablets**
 - shell-coated tablets
 - modified-release tablets
73. *In a tablet workshop prepare tablets by the method of forming. Specify, in what cases prepare tablets by this method:*
- if the dose of active substance is very large
 - if an active substance reacts with water
 - if a medicinal matter is explosive
 - if pressure can not be used
 - if pressure can not be used; when the dose of active substance is insufficient, when the large amounts of excipients cannot be used**
74. *When are the tritulating tablets produced in pharmaceutical manufacturing?*
- in case if pressure cannot be used**
 - if a medicinal matter is a thermolabile
 - in case if moistening of tableting mass cannot be used
 - if the dose of active substance is very large
 - when tablets must dissolve in the mouth

75. *Tablets of nitroglycerin are produced at a pharmaceutical enterprise. What method is used for this purpose:*

- A. of direct pressing without auxiliary matters
- B. of forming**
- C. of direct pressing with addition of auxiliary matters
- D. of pressing with previous moist granulation
- E. of pressing with previous dry granulation

76. *Tablets of nitroglycerin are produced at a pharmaceutical enterprise. What device is used for this purpose?*

- A. pelleting boiler
- B. tableting machine "Drycota"
- C. rotary tableting machine RTM -24
- D. special tableting machine for forming tablets**
- E. eccentric tableting machine type of "shoe"

77. *Designate the technological operations and stages for producing tablets of nitroglycerin:*

- A. auxiliary stage, mixing of dry powders, moistening of mixture by binder solution, rubbing the mass through the perforated plate, extrusion of the rubbed mass by punches, drying of tablets, standardization, packing, labelling**
- B. mixing of dry powders, moistening of mixture by binder solution, forming of tablets, standardization, packing
- C. auxiliary stage, mixing of dry powders, rubbing the mass through the granulator, tableting, standardization, packing, labelling
- D. addition of binding solutions, rubbing the mass through the perforated plate, standardization, packing
- E. auxiliary stage, granulation, tableting, standardization, packing, labelling

78. *Tablets are produced in a tablet workshop by method of forming. What parameters of quality control are not used for these tablets?*

- A. disintegration
- B. mechanical strength**
- C. solubility
- D. quantification of active substances
- E. homogeneity of dosage

79. *Triturating tablets are produced at a pharmaceutical enterprise. Designate the type of these tablets in the instruction for application:*

- A. formed tablets**
- B. modified-release tablets
- C. perforated coated tablets
- D. multi-layer tablets
- E. dispersible tablets

80. *Tablets are produced in a tablet workshop by method of forming. What parameters of quality control are not used for these tablets?*
- A. **stability for compression and friability**
 - B. disintegration and dissolution
 - C. uniformity of dosage
 - D. uniformity of content
 - E. microbiological contamination
81. *Designate the method of administration of Solublettae :*
- A. **preparation of solutions for different pharmaceutical administration**
 - B. tablets for implantation
 - C. preparation of solutions for injections
 - D. tablets for sublingual use
 - E. peroral application
82. *Quality control of tablets on pharmaceutical factory foresees determination of average mass. Specify, the number of pills with mass less than 650 mg are taken for this test:*
- A. 5
 - B. 10
 - C. **20**
 - D. 100
 - E. 2
83. *What device can be used to control of original appearance (for determining sizes)?*
- A. **compass - beam**
 - B. compass
 - C. slide rule
 - D. micrometer
 - E. rule
84. *On a pharmaceutical factory conduct tests on determination of dissolution and disintegration of tablets. What temperature of dissolution medium is appropriate?*
- A. 18⁰C
 - B. 20⁰C
 - C. 30⁰C
 - D. **37⁰C**
 - E. 50⁰C
85. *Tablets are produced at a pharmaceutical enterprise. Determine the maximum disintegration time for uncoated tablets:*
- A. no more than 5 minutes
 - B. no more than 10 minutes
 - C. **no more than 15 minutes**
 - D. no more than 20 minutes
 - E. no more than 30 minutes

86. *Determine the maximum disintegration time for water-soluble, film-coated tablet:*
- A. **no more than 30 minutes**
 - B. no less than 1 hour
 - C. no less than 30 minutes
 - D. no more than 45 minutes
 - E. no more than 15 minutes
87. *Quality control of tablets for vaginal administration are tested in lactic acid medium. How much time is needed for dissolving of these tablets?*
- A. 5 minutes
 - B. **10 minutes**
 - C. 15 minutes
 - D. 20 minutes
 - E. 30 minutes
88. *Gastro-resistant (enteric-coated) tablets are produced in a tablet workshop. Determine the disintegration time for these tablets:*
- A. the time of disintegration is no more than 15 minutes
 - B. the time of resistance to the acid medium (0.1 M hydrochloric acid) is no less than 30 min., after washing out, the tablets must disintegrate during 30 min. in alkali medium (0.1 M sodium bicarbonate)
 - C. **the time of resistance to the acid medium (0.1 M hydrochloric acid) is no less than 1 h., after washing out, the tablets must disintegrate during 1 hour in alkali medium (0.1 M sodium bicarbonate)**
 - D. the time of disintegration is no more than 30 minutes
 - E. the time of disintegration is no more than 45 minutes
89. *Gastro-resistant (enteric-coated) tablets are produced at a pharmaceutical enterprise. Determine the time of resistance to the acid medium for these tablets according to Ukrainian and European Pharmacopoeias:*
- A. **during 1 hour**
 - B. during 2 hours
 - C. during 3 hours
 - D. during 4 hours
 - E. during 5 hours
90. *Gastro-resistant (enteric-coated) tablets are produced at a pharmaceutical enterprise. Determine the time of disintegration to the alkali medium for these tablets according to Ukrainian and European Pharmacopoeias:*
- A. no less than 50 minutes to the alkali medium (sodium bicarbonate)
 - B. **no more than one hour to the alkali medium (sodium bicarbonate)**
 - C. no less than 30 minutes to the alkali medium (sodium bicarbonate)
 - D. no more than 40 minutes to the alkali medium (sodium bicarbonate)
 - E. no more than 15 minutes to the alkali medium (sodium bicarbonate)

91. *According to Ukrainian and European Pharmacopoeias the content of stearic acid in tablets must be:*
- A. **no more than 1%**
 - B. no more than 3%
 - C. no more than 7%
 - D. no more than 7,5%
 - E. no more than 10%
92. *Auxiliary substances (excipients) are necessary for manufacturing of tablets. The amount of polysorbate 80 (plasticizer agent) in tablets should be:*
- A. no more than 0,5%
 - B. **no more than 1%**
 - C. no more than 3%
 - D. no more than 5%
 - E. 10%
93. *Tablets are produced at a pharmaceutical enterprise with auxiliary substances. What auxiliary substances must be controlled?*
- A. ethylcellulose
 - B. polyvinylpyrrolidone
 - C. **talc**
 - D. starch
 - E. saccharose
94. *Quality control of tablets produced at a pharmaceutical enterprise involves a quantitative determination of such subsidiary substances as talc and aerosil. What method is applied for such determination?*
- A. **gravimetric**
 - B. titrimetric
 - C. photolorimetric
 - D. spectrophotometric
 - E. chromatographic
95. *What auxiliary substances prevent sticking of tablets to punch of tableting machine?*
- A. film-forming substances
 - B. plasticizers
 - C. **gliding agents**
 - D. fillers (diluent)
 - E. colouring matters
96. *Where are the enterosoluble shells dissolved in the human organism?*
- A. in the rectum
 - B. in the stomach
 - C. in the mouth
 - D. **in the intestine**
 - E. in the larynx

97. *Choose the film shells for tablets which are dissolved in the gastric juice:*

- A. **gelatin**
- B. spermaceti
- C. ethylcellulose
- D. phthalate dextrine
- E. beeswax

98. *Designate the technological stages for covering tablets with pressed (dry) shells:*

- A. at first, a part of granules is added to the die, in order to obtain the under part of a shell; second - part of granule pass to the die and tablet covers the upper part of a shell; pressing
- B. **at first, a part of granules is added to the die in order to obtain the under part of a shell; next - add nucleuses of tablets. Then, second part of granules passes to the die and tablet covers with upper part of a shell; pressing**
- C. at first, a part of granules is added to the die, add of granulate, pressing
- D. at first, a part of granules is added to the die in order to obtain the under part of shell; next add nucleuses of tablets, pressing
- E. at first, a part of granules is added to the die, add nucleuses of tablets in die, pressing

99. *Which film shells do not exist in the production of tablets?*

- A. water-soluble
- B. soluble in the gastric juice
- C. intestino-soluble
- D. **liposoluble**
- E. insoluble

100. *Which parameter of quality control is not used in the production of tablets that are covered with shells?*

- A. uniformity of dosage
- B. **stability for friability**
- C. disintegration
- D. uniformity of content
- E. average mass

101. *Tablets covered with shells are produced in a tablet workshop. Designate classification of film shells:*

- A. **water-soluble shells; shells, which dissolve with gastric acid; shells, which dissolve in intestines; insoluble.**
- B. shells-dragee, insoluble
- C. pressed (dry) shells, water-soluble shells
- D. insoluble, soluble in the stomach
- E. insoluble, soluble in the intestine

102. Choose the adequate device for tablets manufacturing, covered with shells-dragee:

- A. cover with shells by atomizing drier
- B. using machines of double pressing
- C. cover with shells by centrifugal action device
- D. quasi-liquefaction
- E. **pelleting boiler**

103. Choose an adequate equipment for covering the nucleuses of tablets with shells:

- A. **pelleting boiler (caldron), device UZC-25, by quasi-liquefaction**
- B. by quasi-liquefaction, tableting machine "Drycota", device UZC-25
- C. pelleting boiler with nebulizing nozzle, rotary tableting machine RTM -24
- D. centrifugal action device, pelleting boiler with nebulizing nozzle, tableting machine RTM -24
- E. tableting machine RTM -24, device with quasi-liquefaction

104. For granulation a tableting mass the device for mixing of powders, moistening, granulation, drying of damp granules and powdering is used. Name this device.

- A. **device with quasi-liquefaction for granulation of mixtures SG (DG)-30**
- B. pelleting boiler
- C. nebulizing dryer
- D. press-granulater
- E. vertical granulater

105. What are the filling agents used in tablets manufacturing for?

- A. providing of stability
- B. tableting strong active substances
- C. providing mechanical strength
- D. providing stability of tablets
- E. **providing uniform of mass**

106. What are filling (diluents) agents used in tablets manufacturing for?

- A. **providing uniform of mass if the dose of medicinal substance is small**
- B. providing specified organoleptic properties
- C. providing mechanical strength
- D. providing stability
- E. the better release of active substances

107. Choose a proper moistening agent for grounding the tablets:

- A. solution of sodiumcarboxymethylcellulose
- B. solution of polyvinylpyrrolidone
- C. **sucrose syrup**
- D. solution of gelatin
- E. starched paste (gelatinized starch)

108. Point the mechanism of action for loosening matters (for example pectin):

- A. absorption water, limitedly swells and disintegration of tablets**
- B. provides disintegration of tablets as a result of gasification
- C. increases water permeability of hydrophobic matters
- D. increases hydrophobic property of powders
- E. it is filling agent

109. What excipients provide mechanic destruction of tablets in liquids in the result of gasification?

- A. polysorbate 80 with aerosil
- B. citric acid and sodium bicarbonate**
- C. agar-agar, amylopectin
- D. sodium carboxymethylcellulose, talc
- E. starch, polyethylenoxide

110. Choose the correct loosening agent which possesses the gasgenerative action:

- A. sodium bicarbonate, aerosil, water
- B. citric acid , water, sodium carboxymethylcellulose
- C. citric acid , tartaric acid, sodium bicarbonate**
- D. tartaric acid, aerosil, water
- E. calcium stearate, citric acid , tartaric acid

111. Choose the correct excipient, which forms a film shell, soluble only in intestinal juice:

- A. parabenzates
- B. diethylaminomethyl cellulose
- C. benzylaminolcellulose
- D. acetylphthalilcellulose**
- E. sodium carboxymethylcellulose

112. Choose the correct excipients, which form a film shell, soluble in bowels:

- A. acetylphthalilcellulose, shellac, casein**
- B. polyethylenoxide, polyvinylpyrrolidone, methylcellulose
- C. benzilamino-, diethylaminoethyl cellulose
- D. ethylcellulose, monolaurate of polyethylene sorbitum, surface-active material
- E. polyethylenoxide, aminobenzoate, shellac

113. Choose the correct excipients which improve wettability and water permeability of tablet components:

- A. binders (agglutinants)
- B. fillers (diluents)
- C. loosening matters**
- D. antifriction matters
- E. corrective matters

114. Choose the correct swelling and loosening excipients:

- A. gelatin, sugar, sodium carboxymethylcellulose, polyvinylpyrrolidone, agar-agar
- B. tragacanth, alginic acid, sugar, sodium carboxymethylcellulose, agar-agar, polyvinylpyrrolidone
- C. starch, polysorbate 80, sodium carboxymethylcellulose, agar-agar
- D. **alginic acid, amylopectin, methylcellulose, agar-agar, polyvinylpyrrolidone, sodium carboxymethylcellulose**
- E. lactose, tragacanth, alginic acid, amylopectin, methylcellulose

115. Loosening excipients are added to tableting mass for the purpose of:

- A. providing uniformness of mass
- B. **providing mechanic destruction of tablets in liquids**
- C. improvement of granulation
- D. facilitation of extrusion of tablets from a die
- E. improvement of taste

116. Choose the correct excipients, which provide mechanical strength of tablets:

- A. **binders**
- B. loosening matters
- C. gliding matters
- D. corrective matters
- E. lubricants

117. Binders and fillers are used in the manufacturing of tablets. Choose the correct polysaccharide:

- A. **starch**
- B. pectin
- C. gums
- D. mucus
- E. inulin

118. Antifriction agents are added to tableting mass for the purpose of:

- A. improvement of disintegration
- B. increasing of pressing
- C. **decreasing friction between the particles of powders**
- D. improvement of taste
- E. providing mechanical strength

119. Designate technological steps for preparing a dragee by the method of pelleting:

- A. **grounding, layering, polishing, glossing**
- B. polishing, grounding, glossing, layering
- C. layering, polishing, grounding, glossing
- D. glossing, polishing, layering, grounding
- E. grounding, polishing, layering, glossing

120. *Which tablets are obtained without a shell?*

- A. dispersible tablets
- B. tablets, dispersed in an oral cavity**
- C. modified-release tablets
- D. coated tablets
- E. soluble tablets

121. *Tablets with pressed (dry) shells are produced in pharmaceutical manufacturing. Which device is used for this purpose?*

- A. double pressing tableting machine**
- B. pelleting boiler
- C. rotary tableting machine RTM -41 M
- D. adjusting device UPT-25
- E. eccentric tableting machine of the type of "shoe"

122. *Shell-dragee tablets are manufactured at pharmaceutical enterprises. Which device is used for this purpose?*

- A. pelleting boiler**
- B. double pressing tableting machine
- C. device with quasi-liquefaction
- D. continuous centrifuge
- E. nebulizing dryer

123. *Covering of tablets with sugar-floury shells are realized in pharmaceutical manufacturing. Choose the correct number of revolutions for pelleting boiler?*

- A. 15-20
- B. 18-20**
- C. 30
- D. 40
- E. no less than 45

124. *Choose the correct device which possesses a revolved case:*

- A. circulation, screw, cubical-shaped, Y-cone mixer, turbula
- B. y-cone mixer, turbula, ball mill, drum-type mixer**
- C. drum-type mixer, screw, cubical-shaped, ball mill
- D. vertical impeller mixers, screw, cubical-shaped, ball mill
- E. vibromixer, biconical mixer, cubical-shaped, Y-cone mixer, turbula

125. *What optimal method is used for obtaining tablets containing thermolabile substances (hormones, enzymes)?*

- A. granulation with pseudofluidizing (quasi-liquefaction)
- B. moist granulation
- C. dry granulation
- D. direct pressing
- E. granulation by nebulizing dryer**

126. Choose the correct auxiliary substances (excipients) necessary for covering tablets with suspension shells:

- A. magnesium carbonate
- B. aerosil
- C. polyvinylpyrrolidone
- D. sucrose syrup 70%**
- E. titania dioxide

127. Choose the correct composition of auxiliary substances (excipients) necessary for covering the nucleuses for tablets with shells:

- A. sugar, water, polyvinylpyrrolidone, aerosil, magnesium carbonate, titania dioxide, coloring agent**
- B. sugar, methylcellulose solution, titania dioxide, polyvinylpyrrolidone
- C. sugar, coloring agent, magnesium carbonate, magnesium oxide, sodium carboxymethylcellulose
- D. sugar, water-alcohol mixture, sodium carboxymethylcellulose, magnesium oxide, aerosil, coloring agent
- E. sodium carboxymethylcellulose, sugar, water, glycerin, magnesium oxide, aerosil, titania dioxide

128. Choose the correct anti-friction excipients:

- A. excipients to provide mechanic destruction of tablets in liquids as a result of gasification
- B. matters which improve the moistening and permeability of water
- C. matters, which improve the taste, colour and odour of tablets
- D. matters which provide mechanical destruction of tablets in liquids
- E. matters, with better friability of powders**

129. Tablets with suspension shells are produced at a pharmaceutical enterprise. Choose the correct excipients for glossing of tablets:

- A. beeswax, paraffin, magnesium carbonate
- B. beeswax, vaseline oil, talc**
- C. vaseline oil, sunflower oil, talc, starch
- D. stearin acid, talc, macrogol-400
- E. sunflower oil, beeswax, paraffin, talc

130. Shell-dragee tablets are produced at a pharmaceutical enterprise. The lack of sugar-floury drageering is:

- A. during a storage as a result of oxidizing and enzyme disintegration of peptide substances in a flour appear free organic acids which lead to rancidity**
- B. shell becomes damp
- C. shell reacts with tablet
- D. the color of shell is changed
- E. shell is divided into layers

131. Designate the structure of skeleton (framework) tablets:

- A. tablets covered with liposoluble shells
- B. tablets covered with film shells
- C. **have insoluble framework, which perforations consist of medicinal substance**
- D. tablets covered with shells-dragee
- E. active matters dispersed in polyethylene

132. Choose the correct filling for excipients:

- A. stearate acid, calcium and magnesium stearate
- B. gelatinized starch, solution of methylcellulose, sugar syrup
- C. sugar, polysorbate 80, aerosil
- D. **sucrose, glucose, magnesium oxide**
- E. acetylphthalilcellulose, polyvinyl alcohol, methylcellulose

133. What amount (%) of calcium and magnesium stearate is used in manufacturing of tablets?

- A. 0,2%
- B. **no more than 1%**
- C. no more than 3%
- D. no more than 5%
- E. no more than 10%

134. Solid preparations are manufactured in pharmaceutical enterprises. What auxiliary matter is applied as a filling, binding and gliding agent?

- A. **starch**
- B. sugar
- C. talc
- D. magnesium oxide
- E. polysorbate 80

135. The control of quality of tablets includes the determination of dissolution. What device is used for this purpose?

- A. basket apparatus, flowing device
- B. device with blade, swinging basket
- C. **basket apparatus, device with a blade, flowing device**
- D. flowing device
- E. swinging basket

136. The control of quality of tablets includes the determination of disintegrations of tablets. What device is used for this purpose:

- A. **swinging basket**
- B. flowing device
- C. device of "KHNIKHF1"
- D. device with blade
- E. tablet friability apparatus

137.*The control of quality of tablets includes the determination of the uniform of weight (mass) of tablets. Designate the percentage deviation, if the mass of 20 tablets is 20.8 gramm (according to Ukrainian standard):*

- A. $\pm 5\%$
- B. $\pm 7\%$
- C. $\pm 10\%$
- D. $\pm 15\%$
- E. $\pm 20\%$

138.*Drum friability apparatus is used to determine:*

- A. **stability for friability**
- B. uniformity of dosage
- C. stability for compression
- D. disintegration
- E. dissolution of tablets

139.*Tablets are manufactured in pharmaceutical enterprises. What device is used for determination of stability for cleaving?*

- A. device model 545R-ÅK-3
- B. device VP-12Å
- C. tablet friability apparatus
- D. basket apparatus
- E. **device of "KHNIKHF1"**

140.*Granules are manufactured in pharmaceutical enterprises. Indicate the time of disintegration of granules, covered with shell:*

- A. 15 min
- B. 20 min
- C. **no more than 30 min**
- D. 45 min
- E. 60 min

141.*Choose the correct dissolution test for a solid dosage form according to SU XI Pharmacopoeia:*

- A. amount of a medicinal matter dissolved in pepsin solution within 15 min must be no less than 75%
- B. amount of a medicinal matter dissolved in water within 30 min must be no less than 97%
- C. amount of a medicinal matter dissolved in water within 15 min must be no less than 75%
- D. **amount of a medicinal matter dissolved in water within 45 min must be no less than 75%**
- E. amount of a medicinal matter dissolved in sodium chloride solution 0,9% within 20 min must be no less than 75%

142. *Tablets are manufactured in pharmaceutical enterprises in sterile conditions. Choose the correct type of tablets if their sterilization was performed under a dry heat:*

- A. triturating tablets
- B. tablets for implantation**
- C. modified-release tablets
- D. framework
- E. tablets for sub-lingual use

143. *Granules are manufactured in pharmaceutical enterprises. Choose a proper device for obtaining the granules:*

- A. scales, grinding machine, sieves, scales, mixer, granulator, drying device, packing apparatus**
- B. sieve, mixer, granulator, scales, drying device, packing apparatus
- C. scales, mixer, granulator, drying device, packing apparatus
- D. grinding machine, sieve, scales, mixer, packing apparatus
- E. granulator, scales, drying device, sieve, packing apparatus

144. *“Revit” dragee are manufactured in pharmaceutical enterprises. The amount of initial raw material is 200 kg. The amount of final product is 198 kg. Calculate the output (η ,%) and technological losses (ε ,%):*

- A. output - 99%, losses - 1%**
- B. output - 100%, losses - 0%
- C. output - 98%, losses - 2%
- D. output - 97%, losses - 3%
- E. output - 99,5%, losses - 0,5%

145. *The quality control of tablets includes determination of appearance of tablets (visually). Tablet surface was rejected. Designate the case for this:*

- A. high speed of rotor
- B. badly equipping of puncheons**
- C. little amount of auxiliary matters
- D. fractional composition does not corresponding to demand UP
- E. badly fluidity of mass

146. *Drageering is:*

- A. a multiple covering of tablets with shells
- B. a multiple covering of auxiliary matters on granules with medicinal matters
- C. a multiple covering of substances by saccharine granules**
- D. a formation of wet mass with the help of medicinal and auxiliary matters
- E. multiple pressure of dry granulates

147. *The quality control of capsules includes determination of the uniform of weight (mass) of capsules. Designate the amount of capsules needed for this purpose (according to Ukrainian standards):*

- A. 3
- B. 5
- C. 10
- D. 15
- E. 20**

148. Indicate the principle of gelatin capsules obtained by a pressing method:

- A. obtaining gelatin drop with simultaneous inclusion into it a liquid medicinal substance
- B. immersion of cooled frameworks into a ready mass for capsules
- C. **obtaining gelatin tapes; two gelatin tapes forming a capsule, which is filled with medicinal substance**
- D. mechanical applying of shells on particles of a medicinal substance
- E. coacervation

149. Soft gelatin capsules without joints are manufactured in pharmaceutical enterprises. Choose the correct method for obtaining these capsules:

- A. **dropping method**
- B. dipping method
- C. pressing method
- D. moulding method
- E. dissolution method

150. In the process of soft capsules production the preparing of gelatin mass follows swelling of gelatin. Choose the correct method for obtaining such capsules:

- A. dropping method
- B. **pressing method**
- C. dipping method
- D. spraying method
- E. pelleting method

151. Gelatin capsules are manufactured in pharmaceutical enterprises by different methods. Point out the main principle of gelatin capsules obtained by dipping method:

- A. obtaining of a gelatin drop with simultaneous inclusion into it a liquid medicinal substance
- B. capsules formed by two concentric rollers with jags
- C. **use the metal form for obtaining capsules**
- D. obtaining gelatin tapes, forming capsules with the simultaneous filling and soldering
- E. principle of coacervation

152. Soft gelatin capsules are manufactured in pharmaceutical enterprises by a dropping method. What devices are used in this method ?

- A. automatic lines "KS-4", "Scherer", "Accogel Lederle"
- B. **automatic line of "Mark", by firm-manufacturer "Globex"**
- C. automatic line by manufacturer "Leiner"
- D. automatic line of "Servac"
- E. automatic lines by firm "Solton", "Parke, Davis & Co", "Elli Lilli", "Zanazi"

153. *In the process of production the gelatin capsules the gelatin mass was heated over 85°C. What negative phenomenon can occur as a result?*

- A. the solution is translucent
- B. denaturation of gelatin
- C. discoloration of a solution
- D. extraneous smell will appear
- E. **increasing viscosity of a solution and denaturation of gelatin**

154. *Choose a correct dissolution test for gelatin capsules:*

- A. within 30 min not less than 85% of active substances dissolved in water
- B. within 30 min not less than 75% of active substances dissolved in water
- C. **within 45 min not less than 75% of active substances dissolved in water**
- D. within 45 min not less than 85% of active substances dissolved in water
- E. within 15 min not less than 80% of active substances dissolved in water

155. *Which parameter of quality control is not used in the production of capsules?*

- A. average mass
- B. **taste**
- C. uniformity of dosage
- D. speed limit of disintegration
- E. speed limit of dissolution

156. *Microdragees are obtained in pelleting caldrons with a shell and without shell. These microdragees are used for filling hard gelatin capsules. Point to the right dosage form:*

- A. tablets "OROS"
- B. tubatines
- C. pearls
- D. **spansules**
- E. microcapsules

157. *Microcapsules are:*

- A. **small parts, which include solid, liquid or gaseous substances, covered with shells, are water-soluble (gelatin, starch, polyvinylpyrrolidone)**
- B. is a dosage medicinal form, which contains medicinal substance, placed into shell
- C. are solid medical of preparations each containing a single dose of one or more active ingredients and obtained by a compressing uniform volume of particles
- D. are solid medical preparations for internal application with insoluble framework
- E. are medical preparations consisting of solid, dry aggregates of powder particles sufficiently resistant to withstand a handling

158. *Microcapsules are obtained by a pelleting method. Choose the correct device used for obtaining microcapsules:*

- A. dismembrator
- B. mixer-granulator
- C. tablet friability apparatus
- D. **pelleting caldron**
- E. disintegrator

159. Choose proper chemical methods of production of micro-capsules:

- A. dispersion
- B. coacervation
- C. **polymerization, polycondensation**
- D. dissolution
- E. pelleting

160. Choose the correct physicochemical methods of micro-capsules production:

- A. pelleting
- B. **coacervation method**
- C. nebulized method
- D. film evaporation in quasi-liquefaction layer
- E. dispersion

161. Choose the correct physical methods of obtaining micro-capsules:

- A. **pelleting, spraying, dispersion in system "liquid-liquid", method of spray-coating in fluidized bed, centrifugal micro-capsulation**
- B. separation by phases, electrostatic method, pelleting, dispergating in system liquid-liquid
- C. by polymerization of monomers, interface polycondensation of monomers, centrifugal micro-capsulation
- D. coacervation method, two-complex coacervation, three-complex coacervation, interface polymerization of monomers
- E. centrifugal micro-capsulation, simple coacervation, two-complex coacervation, three-complex coacervation, pelleting

162. The methods of obtaining the microcapsules can be divided into three groups. What method is used for location a gaseous medicinal matter into a shell?

- A. coacervation
- B. **pelleting**
- C. atomization
- D. dispergating
- E. polymerization

163. This medical form of industrial production is used in children's practice for little children who are not able to swallow a pill. Choose the right medicinal forms:

- A. spansules
- B. drops
- C. **tubatins**
- D. medules
- E. granules

164. A pharmaceutical enterprise that produces medicinal forms for children - soft gelatinous capsules with the "elongated neck". Choose the right medicinal form:

- A. rectal capsule
- B. spansula
- C. microcapsule
- D. medula
- E. **tubatina**

165. Give a definition of a medicinal forms called tubatins:

- A. **soft capsules with elongated neck**
- B. capsules of spherical form obtained by a dipping method
- C. capsules of oviform obtained by pressing method
- D. hard capsules with a cover filled by microcapsules
- E. soft rectal capsules of a prolate drop form

166. Which technology is used for the production tablets of sodium chloride at a pharmaceutical enterprise?

- A. granulation with the nebulizing drying
- B. moist granulation
- C. **direct pressing**
- D. pelleting
- E. dry granulation

167. Choose a drug which is produced in granules:

- A. **plantaglicidum**
- B. diazolin
- C. mucaltinum
- D. revit
- E. linkomicini hydrochloride

168. A patient complains of the inflammation of the oral cavity. What medical preparation is the most appropriate in this case?

- A. **tablets of oral application**
- B. tablets covered with a shell
- C. effervescent tablets
- D. tablets dispersed in the oral cavity
- E. soluble tablets

169. Which group of qualitative descriptions of tablets corresponds to the following characteristics: form of tablets, geometrical appearance, mass, indexes of strength, porosity, volumetric density?

- A. **physical indexes**
- B. chemical indexes
- C. organoleptic
- D. bacteriological
- E. biological

170. A pharmaceutical enterprise produces effervescent tablets with vitamins. Choose the proper loosening excipients with gasification action:

- A. ascorbic acid and aerosil
- B. tartaric acid and magnesium stearate
- C. lemon acid and magnesium stearate
- D. **tartaric acid and sodium bicarbonate**
- E. lemon acid and aerosil

171. What parameters of quality control are not used for tablets for chewing?

- A. **disintegration**
- B. mechanical strength
- C. solubility
- D. uniform of mass
- E. appearance

3. Liquid medical forms (solutions, suspensions, emulsions, syrups, aromatic water)

172. What adsorbent is not used for purification medical solutions:

- A. aluminium oxide
- B. filtration paper
- C. **asbestos**
- D. talc
- E. kaolin

173. Which types of mixers are used for a high-speed mixing of solutions with a small viscosity?

- A. planetary
- B. turbine
- C. **screw**
- D. anchor
- E. drum

174. Alcohol solution of salicylic acid is produced in the pharmaceutical enterprise. What filters are used for filtration of alcohol solution?

- A. **pressure filters**
- B. vacuum filters
- C. centrifuges
- D. glass filters
- E. "Vladipor" filter

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

- A. bag filters
- B. nutsch filters
- C. glass filters
- D. membrane filters
- E. **druk filters**

176. *A pharmaceutical enterprise produces alcohol solutions. What technology is used for production of iodine alcohol solution 5%?*

- A. crystalline iodine is dissolved in water, add potassium iodide and ethyl alcohol, mix
- B. at the same time in water – alcohol solution dissolve an iodine and potassium iodide
- C. in large glass bottles pour an alcohol. The iodine is placed in gauze bag, add alcohol. After complete dissolution of iodine solution to filter
- D. **a crystalline iodine, potassium iodide and double amount (in ratio to potassium iodide) of purified water are placed into enameled reactor. Then 1/5 part of ethanol is added and mixed to complete dissolution of ingredients**
- E. dissolve potassium iodide by heating and mixing in alcohol. Then add crystalline iodine

177. *A pharmaceutical enterprise produces aqueous solutions. What solutions can be prepared by a chemical method ?*

- A. 8% aluminium acetate solution, lead acetate solution, hydrochloric acid solution
- B. **8% aluminium acetate solution, lead acetate solution, calcium hydroxide solution**
- C. calcium hydroxide solution, sodium hydroxide solution
- D. 8% aluminium acetate solution, polyvinyl alcohol solution
- E. lead acetate solution, nitric acid solution

178. *A pharmaceutical enterprise produces aqueous solutions. What solutions can be prepared by chemical method and electrolysis?*

- A. **aluminium acetate solution**
- B. lead acetate solution
- C. calcium hydroxide solution
- D. polyvinyl alcohol solution
- E. potassium arsenite solution

179. *The amount of basic acetate of aluminium in Burow's solution must be:*

- A. 0,1-0,125%
- B. 15,0-16,7%
- C. 16,7-17,2%
- D. 6,0-7,8%
- E. **8,7-9,2%**

180. *Camphor alcohol solution is added to Folwer's solution. What is the purpose of this?*

- A. **as an odorant**
- B. as stabilizer
- C. as solubilizer
- D. as corrigent
- E. as preservative

181. What syrup is used for the correction of taste properties of active substances in preparations?

- A. althaea surup
- B. sucrose syrup**
- C. rhubarb syrup
- D. liquorices syrup
- E. syrup of wild rose

182. Syrups which do not contain active matters are used in industrial production as:

- A. solvents for production of liquid preparations
- B. a basis for preparation of non-aqueous preparations
- C. emulsifying agents
- D. correctings matters, as agglutinative and thickening agent**
- E. stabilizers

183. Which type of mixers is the most effective for mixing sucrose syrup?

- A. turbine
- B. propeller
- C. anchor**
- D. pneumatic
- E. circulation

184. A sucrose syrup is filtered in a hot state. It has been done for the purpose of:

- A. accelerating the filtration**
- B. preventing a microbial contamination
- C. preventing crystallization of sugar
- D. evaporation
- E. increasing the viscosity

185. For the purpose of prevention of burn, inversion and caramelization of sucrose syrup, the following should be done:

- A. addition of lemon acid
- B. in a reactor with a steam shirt and anchor mixer**
- C. concentration of sugar 60-64%
- D. dissolution in boiling water
- E. using of lump sugar

186. Why the optimum concentration of sucrose prevents a microbial contamination in syrup?

- A. because of high pH
- B. in such solution under high osmotic pressure microorganisms are quickly dehydrated**
- C. because the surface tension decreases between solution and microorganisms
- D. as a result of preservatives
- E. because of low pH

187. *What function does invert sugar in syrup of a wild rose fulfil?*

- A. **as stabilizer of ascorbic acid**
- B. to prevent the jellification of syrup
- C. as solubilizer of ascorbic acid
- D. to prevent the coagulation of proteins and pectins
- E. to prevent fermentation of syrup

188. *On a pharmaceutical enterprise for preparation of syrup are used: 82 parts of saccharine syrup; 1 part of K_j (KBr); 12 parts of liquid extract to the thyme and 5 parts of a 96% ethanol. What is the name of this syrup?*

- A. **pertussinum**
- B. ambroksol
- C. cholosasum
- D. flaminum
- E. adonisdum

189. *Sugar syrup is produced at pharmaceutical industry. Choose the correct variant of Althaeas Syrup application:*

- A. as purgative
- B. **as an expectorant**
- C. at anaemias
- D. as vitamin
- E. as depressant

190. *Sugar syrup is produced in pharmaceutical industry. Choose the correct variant of Liquorices syrup (Sirupus Glycyrrhizae) application:*

- A. **as an expectorant and easy depletive**
- B. flavoured syrup
- C. as depletive
- D. at an avitaminosises in pediatric practice
- E. at anaemias

191. *A reactor with mixer is used for the preparation of pectoral elixir. Thick and dry extracts are dissolved in reactor. Which plant raw material is used in the production of this elixir?*

- A. adonis vernalis
- B. marsh mallow
- C. termopsis lanceolate (Bush pea)
- D. plantago major (Common plantain)
- E. **glycyrrhiza (Licorice)**

192. *Aromatic waters are prepared by method of distillation. What apparatus is used for this purpose?*

- A. mixer, distillating boiler, collector of distillate
- B. bubbler condenser, refrigerator, collector of distillate
- C. grass cutting device, distillating boiler, refrigerator
- D. mixer with blade mixers, filter, collector of distillate
- E. **distillating boiler with steam jacket, bubbler condenser, refrigerator, collector of distillate**

193. Aromatic waters are prepared at a pharmaceutical enterprise. What ratio is used for dill water obtaining ?

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

194. During the obtaining Bitter Almond Water add 20 parts of water into 12 parts of oilcake, and infuse 12h at a room temperature. This is done for the purpose of:

- A. **hydrolysis of amygdaline**
- B. hydrolysis of fats
- C. hydrolysis of proteins
- D. hydrolysis of sinigrin
- E. hydrolysis of sugars

195. A pharmaceutical enterprise produces suspensions. Choose an apparatus for the simultaneous dispergating and homogenization of the heterogeneous systems:

- A. mixer with blade mixers
- B. propeller mixers
- C. **rotory -pulsating vehicle**
- D. reactor-mixer
- E. dezintegrator

196. A pharmaceutical enterprise produces suspensions and emulsions. Choose the correct methods of its production:

- A. **mixing of phases, grind in a liquid medium , ultrasonic dispergating**
- B. mixing of phases, dropping method, maceration
- C. ultrasonic dispergating, method of "ЦАН/П", repercolation
- D. a grind in a liquid medium, dipping method , percolation
- E. dipping method

197. Choose the method of suspension production:

- A. percolation
- B. dropping method
- C. repercolation
- D. **a grind in a liquid medium**
- E. maceration

198. Which devices are used for ultrasonic dispergating of suspensions and emulsions?

- A. dismembrator, impulsive electroplasmolysator
- B. **fluid whistle, magnetostriction oscillator**
- C. dezintegrator, liquid whistle
- D. rotory-pulsating device, dismembrator
- E. disk-type homogenizer

199. Which devices are used in the production of suspensions and emulsions by a method of grinding in a liquid medium?

- A. disk-type homogenizer
- B. dismembrator, impulsive electroplasmolysator
- C. dezintegrator, liquid whistle
- D. liquid whistle, dismembrator
- E. **rotory-pulsating device, colloid mills**

200. Which devices are used in the production of emulsions? Choose the proper answer:

- A. **speed mixers, rotory-pulsating device, magnetostriction and electrostriction oscillators, impulsive electroplasmolysator**
- B. dismembrator, impulsive electroplasmolysator, dezintegrator
- C. magnetostriction and electrostriction oscillators, dezintegrator
- D. impulsive electroplasmolysator, magnetostriction oscillator
- E. impulsive electroplasmolysator, dismembrator, dezintegrator, speed mixer

201. During production of emulsions on a pharmaceutical enterprise a device with the effect of „cold boiling” of liquid is used. Name this device?

- A. **magnetostriction oscillator**
- B. rotory-pulsating device
- C. disk mixer
- D. turbine nebulizer
- E. colloid mill with vibration and cavitation

202. Which solvent is used in the industrial production of 1% menthol solution?

- A. purified water
- B. **vaseline oil**
- C. ethyl alcohol
- D. glicerol
- E. dimexidum

203. A pharmaceutical enterprise produces camphor oil for external application. Which solvent is used in this case?

- A. **sunflower oil**
- B. peach oil
- C. vaseline oil
- D. olive oil
- E. plum oil

204. What method is not used in the production of essential oils in industrial technology?

- A. **extracting**
- B. press
- C. hydrodistillation
- D. extraction
- E. enfleurage and dynamic adsorption method

205. *Some liquid medical forms are used for irrigation of wounds and sore surfaces. Which forms are used for this purpose?*

- A. **irrigations**
- B. nasal medications
- C. liquid medications
- D. foams for cutaneous application
- E. shampoos

4. Parenteral preparations. Eye medical forms

206. *The main distinction between the water for injections and purified water is:*

- A. the absence of heavy metals
- B. the **absence of pyrogens matters**
- C. the absence of sulfates, chlorides
- D. the absence of nitrites and nitrates
- E. the absence of reducing agents

207. *Before making of ampoules preliminary calibration of a glass rod is done using a device by Filipin. What parameters are used while sorting the glass rod?*

- A. thickness of walls
- B. internal diameter
- C. **external diameter**
- D. length
- E. internal and external diameter

208. *The technological stage called "Filling and closing of containers" in the production of injection solutions includes the operations of filling and soldering the ampoules by the automatic machine of type 541A. What principles does this machine use?*

- A. **syringe method of filling, dosing unit devices, pneumatic pull-on of capillaries**
- B. vacuum method of filling, pull-on and soldering of capillary
- C. vacuum filling, delivery of rare gas, uniformly filling of capillary
- D. syringe method of filling, delivery of rare gas, uniformly filling of capillary
- E. vacuum filling

209. *What type of glass is not used in the production of ampoules?*

- A. CHC-1 (DNG-1, the dimming neutral glass -1)
- B. AB-1 (AB, boreless glass)
- C. HC-1 (NG -1, the neutral glass -1)
- D. HC-3 (NG -3, the neutral glass -3)
- E. **MTO (MCD, medical commodity decolorized)**

210. *In manufacturing before using ampoules it is necessary to delete residual voltage. What operation is used for this purpose?*

- A. cutting of capillaries
- B. drying in tunnel stoves
- C. washing by desalinated water
- D. **annealing of ampoules**
- E. softening glass by gas burners

211. *A pharmaceutical enterprise is checked up by ampoules and glass bottles for the absence of residual voltage in them. What device is used for this purpose?*

- A. **polariscope-polarimeter**
- B. spectrophotometer
- C. densimeter
- D. refractometer
- E. pH-metre

212. *For determination of residual voltage in ampule glass a definite method is used. What method is it?*

- A. **polarization-optical**
- B. by solution methylene blue
- C. by densimeter
- D. by "drum abrasion"
- E. by vehicle of Soxhlet

213. *Which type of glass can be used in the production of ampoules for oil injection solutions?*

- A. XT-1
- B. HC-3
- C. HC-1
- D. **AB-1 (boreless glass)**
- E. CHC-1

214. *Which type of glass can be used in the production of ampoules for light-sensitive solutions?*

- A. HC-3
- B. HC-1 (neutral glass)
- C. **CHC-1 (LPNG-1, light-protective neutral glass-1)**
- D. AB-1
- E. XT

215. *A department of a pharmaceutical plant produces solution for injection. Which type of glass can be used in the production of ampoules for novocaine solution?*

- A. OC-1, HC-1, YCII-2
- B. **HC-3 (neutral glass -3), HC-1 (neutral glass -1), YCII-1**
- C. HC-1, HC-2, HC-3
- D. HC-1, HC-2A, HC-3
- E. XT-1, CHC-1, AB-1

216. *A department of a pharmaceutical plant produces a solution for injection. Which type of glass can be used in the production of ampoules for cyanocobalamin solution 0,01%?*

- A. **light-protective neutral glass-1(CHC-2)**
- B. neutral glass (HC-1)
- C. neutral glass (HC-2)
- D. neutral glass (HC-2A)
- E. AB-1(boreless glass)

217. *The stage of preparing containers for filling includes the next operations:*

- A. opening of ampoules, washing of containers, drying, determination of thermal and chemical resistance of glass, annealing of ampoules
- B. washing of ampoules, drying and sterilization of ampoules, control of quality
- C. **opening of ampoules, annealing of ampoules, external and internal washing, drying and sterilization, control of quality**
- D. opening of ampoules, washing and drying of ampoules
- E. opening of ampoules, washing of internal and external surfaces, drying deleting of residual voltage

218. *In manufacturing an actual volume of filling the containers should be more than nominal. This is done in order to:*

- A. make it possible to take solution for analysis
- B. **provide a necessary dose at filling of syringe**
- C. delete the bubbles of air from solution
- D. take into account losses on a production
- E. provide stability of solution

219. *Quality control of ampoules includes the determination of chemical resistance of glass. Choose methods of determination of this parameter:*

- A. **use of different indicators, by means of pH-metr, gravimetric methods**
- B. visual, gravimetric
- C. polarization-optical method
- D. method of autoclaving with next titrating by hydrochloric acid solution
- E. method of influence to glass by sodium carbonate solution and sodium hydrogen carbonate solution

220. *What percentage of ampoules should be unbroken while determining thermal resistance of ampoules?*

- A. 50%
- B. 60%
- C. 75%
- D. 80%
- E. **98%**

221. *Select glass with a necessary heat-resistance in the production of ampoules. What provides this property of ampoule glass?*
- A. high-quality soldering of ampoules
 - B. maintenance of constant temperature**
 - C. easy cutting of capillaries
 - D. take a load in process of production and transportation
 - E. possibility of protection of photosensitive matters
222. *Which solvent is not used in the production of parenteral preparations?*
- A. mineral oils**
 - B. fat oils
 - C. water
 - D. ethanol
 - E. ethyl oleate
223. *In the production of ampoules select low-melting glass. What provides this property of ampoule glass ?*
- A. easy cutting of capillaries
 - B. take a load in the process of production and transportation
 - C. maintenance of constant temperature
 - D. high-quality soldering of ampoules**
 - E. possibility of protection of photosensitive matters
224. *What amount of ampoules is checked for containing the particular matters?*
- A. 100%**
 - B. 98%
 - C. 90%
 - D. 75%
 - E. 50%
225. *Quality of injection solutions supplied in ampoules can be assessed according to different indices. How many ampoules should be checked while determining the quality of soldering (tightness)?*
- A. 100%**
 - B. 98%
 - C. 95%
 - D. 90%
 - E. 50%
226. *Designate technological operations for preparing of eufillin solution:*
- A. dissolving, addition of preservatives, filling and soldering of ampoules
 - B. dissolving, filtration, sterilization
 - C. dissolving, standardization, filtration, filling, soldering of ampoules**
 - D. dissolving, stabilization, standardization, filtration
 - E. dissolving, standardization, filtration, sterilization

227. Designate technological operations for preparing parenteral preparations:

- A. dissolution, standardization, filtration, isotonicity, filling, soldering
- B. dissolution, filtration, addition of preservatives, stabilization, filling, soldering
- C. dissolution, filtration, filling, standardization, soldering
- D. dissolution, stabilization, filling, soldering, sterilization
- E. **dissolution, isotonicity, stabilization, addition of preservatives, filtration, filling, soldering**

228. Designate the main technological operations at the stage of ampoule filling:

- A. **filling, soldering of ampoules, control of quality**
- B. cleaning of ampoules, filling, soldering of ampoules
- C. cleaning of ampoules, drying and sterilization, control of quality
- D. cleaning of ampoules, drying, filling, soldering of ampoules, control of quality
- E. filling, sterilization, cleaning, control of quality

229. This method of cleaning the ampoules is based on the principle of precipitation of suspended solids by law of Stokes. Choose this method:

- A. **vibratory**
- B. ultrasonic
- C. thermal
- D. steam-condensation
- E. turbovacuum

230. Choose the methods of filling ampoules with solutions for injections:

- A. vacuum, by a syringe, vibratory
- B. by a syringe, ultrasonic, chamber
- C. by a syringe, condensation, vortical
- D. **vacuum, syringes and condensation**
- E. chamber, vibratory, ultrasonic

231. Choose the methods of filling and soldering of ampoules which contain oil solutions for injections:

- A. fillings by vacuum, soldering by method of pull-on of capillaries
- B. **filling by a syringe, soldering by method of pull-on of capillaries**
- C. filling by condensation method, soldering by fusing of capillaries
- D. filling by a syringe, soldering by fusing of capillaries
- E. filling by vacuum method, soldering by method of pull-on of capillaries

232. Choose the methods of filling of ampoules which contain oil solutions for injections:

- A. by condensation method
- B. by vacuum
- C. **by a syringe**
- D. by turbovacuum
- E. ultrasonic

233. *What antioxidants are used for stabilization of oil solutions for parenteral administration?*

- A. **butylhydroxytoluene, buthyloxyanizol, tocopherol**
- B. twin-80, quercitin, propyl gallate
- C. trilonum B, EDTA
- D. SPEN-20, PEO-400, PEO-1500
- E. aminophenol, paraaminophenol

234. *One of the basic requirements for solutions for injections according to Eur.Ph. is the absence of pyrogens. Which method does not allow to delete pyrogens from water for injections?*

- A. distillation
- B. ultrafiltration
- C. adsorption
- D. **boiling**
- E. thermocompression distillation

235. *Quality of oil injection solutions supplied in ampoules can be assessed according to different indices. A test for tightness of containers for oil solutions is:*

- A. **application of purified water or soap solution**
- B. the coloured solution methyl blue
- C. use of high-frequency electric-field
- D. use of low-frequency electric-field
- E. a vacuum in vacuum chambers

236. *Quality of water solutions for injection supplied in ampoules can be assessed according to different indices. A test for tightness of containers for water solutions for injections is:*

- A. by soap solution
- B. **by the coloured solution methyl blue**
- C. the use of ultrasound
- D. use of low-frequency electric-field
- E. by flowing method

237. *A department of a pharmaceutical plant produces injection solutions. What group of solutions does hexamethylenetetramine solutions for injections relate to?*

- A. easily oxidized solutions
- B. **solutions of thermolabile substance**
- C. solutions of salts derived from weak alkali and strong acid
- D. solutions of salts derived from strong alkali and weak acid
- E. solutions of substances requiring special rectification

238. *A department of a pharmaceutical plant produces injection solutions. Designate technological operations for preparing hexamethylenetetramine solution:*
- dissolution, standardization, filtration, filling, soldering of ampoules**
 - dissolution, filtration, sterilization
 - dissolution, filtration, filling and soldering of ampoules
 - dissolution, stabilization, standardization, filtration
 - dissolution, standardization, filtration, sterilization
239. *A department of a pharmaceutical plant produces injection solutions. What group of solutions does ascorbic acid solutions for injections belong to?*
- solutions of substances requiring special rectification
 - solutions of substances that should be subjected to terminal sterilization
 - solutions of salts derived from weak alkali and strong acid
 - easily oxidized solutions**
 - solutions of salts derived from strong alkali and weak acid
240. *A department of a pharmaceutical plant produces injection solutions. What group of solutions does eufillini solutions for injections belong to?*
- solutions of substances requiring special rectification
 - solutions of substances that should be subjected to terminal sterilization**
 - solutions of salts derived from weak alkali and strong acid
 - easily oxidized solutions
 - solutions of salts derived from strong alkali and weak acid
241. *A department of a pharmaceutical plant produces injection solutions. What filters are used for sterile filtration?*
- filter-fungus
 - nutsch filter
 - filter "KHNIKHF"
 - membrane filters "Vladipor", "Milipor"**
 - pressure filter
242. *A department of a pharmaceutical plant produces injection solutions. The component parts of this filter: a filter casing of a perforated spool-pipe with wrap around gauzes are included. What is the name of this vehicle?*
- frame filter
 - filter "KHNIKHF"**
 - filter-fungus
 - nutsch filter
 - Zeytc filter
243. *In manufacturing for sterilization of thermolabile substance solutions the method of tyndallization is used. Designate the main principles of this method:*
- triple heating of solution to 40-60°C with an interval for a day for thermostating**
 - autoclaving at the temperature of 119-121°C and pressure of 1,0-1,1 atm
 - sterilization by steam at 100°C
 - sterilization by dry heat for a long time at 180-200°C
 - sterilization by high-frequency current

244. *Point out the class of cleanness for production of solution in droppers-tubes:*

- A. class 1
- B. class D
- C. class C
- D. class A
- E. **class B**

245. *What stabilizer is added to caffeine sodium benzoate solution?*

- A. hydrochloric acid solution 0,1 M and sodium chloride
- B. sodium metabisulfite
- C. **sodium hydroxide solution 0,1M**
- D. hydrochloric acid solution 0,1 M
- E. sodium sulfite and sodium bicarbonate

246. *What stabilizer is added to novocaine solution 5%, 10%, 20%?*

- A. **antioxidants in combination with hydrochloric acid solution**
- B. hydrochloric acid solution 0,1 M
- C. buffer solutions
- D. stabilizer by Veybelya
- E. alkali

247. *What stabilizer is added to glucose solution?*

- A. **stabilizer by Veybelya**
- B. sodium hydroxide solution 0,1M
- C. hydrochloric acid solution 0,1 M
- D. carboxymethylcellulose
- E. stabilizer by Kurshman

248. *Point out the composition of Veybel reagent:*

- A. hydrochloric acid solution, sodium bromide, water
- B. water, hydrochloric acid solution, sodium hydroxide
- C. **hydrochloric acid, sodium chloride, water**
- D. hydrochloric acid, sodium nitrite
- E. hydrochloric acid, calcium chloride, water

249. *What stabilizer is added to salts derived from weak acid and strong alkali solution ?*

- A. **sodium hydroxide solution 0,1M**
- B. hydrochloric acid solution 0,1 M
- C. ascorbic acid
- D. butiloksitoluol
- E. trilon B

250. *What solvent can be used for production of ampoules for camphoroil solution 20% for injection ?*

- A. vaseline oil
- B. olive oil
- C. polyethylene glycol 400
- D. **peach oil**
- E. benzyl benzoate

251. Which oil is not used in the production of parenteral preparations?

- A. olive
- B. peach
- C. **vaseline**
- D. sunflower
- E. corn

252. In pharmaceutical manufacturing eye drops are prepared in a dropper-tube. Designate the method of sterilization of dropper-tubes:

- A. radiation sterilization
- B. chemical sterilization
- C. thermal sterilization
- D. **sterilization by gas**
- E. sterilization by filtration

253. Absence of particular matter can be achieved by filtration across filters. What filters can be used for sterile filtration?

- A. **filter-candles**
- B. nutsch-filters
- C. filter of "KHNIKHF"
- D. druk-filters
- E. filter-fungus

254. What infusion solutions are used in case of correction of composition of blood in the presence of dehydration, diarrhea and cerebral edema?

- A. **regulators of water-salt balance and acid-base balance**
- B. haemodynamic antishock preparations
- C. disintoxication solutions
- D. preparations for parenteral nutrition
- E. solutions with the function of transfer of oxygen

255. A department of a pharmaceutical plant produces infusion solutions. Polyvinylpyrrolidone, polyvinyl alcohol, haemodesum, neohaemodesum, polydesum solutions for infusion relates to the following group of solutions:

- A. **disintoxication solutions**
- B. haemodynamic antishock preparations
- C. regulators of water-salt balance
- D. preparations for parenteral nutrition
- E. solutions with the function of transfer of oxygen

256. For purification glucose injection solution from admixture is used in the following group of substances:

- A. hydrochloric acid with next adsorption by carbon activated
- B. **carbon activated**
- C. calcium hydroxide
- D. carbon activated with the next stabilizing by hydrochloric acid
- E. ferric oxide with next adsorption by carbon activated

257. *A department of a pharmaceutical plant produces magnesium sulfate solution for injections. Designate the peculiarity for preparing of this solution:*

- A. **preparation of solution of higher concentration and purification for admixtures of manganese and iron salts**
- B. preparation of solution without thermal sterilization
- C. preparation of solution of higher concentration and purification for admixtures calcium sulfate and iron
- D. dissolution at heating and purification for the admixtures of calcium oxalate
- E. purification for pyrogen and dye-stuffs

258. *What is the final stage of preparation of solutions for injections?*

- A. **marking**
- B. sterilization
- C. filtration
- D. high-quality control
- E. quantitative control

259. *The quality of solutions for injections supplied in ampoules can be assessed according to different indices. The test for mechanical particles of solutions for injections is:*

- A. amperometric
- B. lynulyus
- C. **optical**
- D. gravitational
- E. ultraviolet-spectroscopy

260. *Which solutions for parenteral administration require special purification if there is no substance of a sort "for injections"?*

- A. ascorbic acid, analgin
- B. hexamethylenetetramine
- C. sodium nitrite, calcium chloride
- D. **magnesium sulfate, calcium chloride, glucose**
- E. gelatin, novocaine

261. *The combined total to osmotic pressure of different solute substances is:*

- A. **osmolality**
- B. isohydryty
- C. isoionicity
- D. isoviscosity
- E. apyrogenicity

262. *In sterile manufacturing the activated carbon is used:*

- A. to create of the buffer system
- B. as an antioxidant
- C. to increase the chemical resistance of ampule glass
- D. **with the purpose of purification of some injection solutions**
- E. to provide stability of solution

263. *A department of a pharmaceutical plant produces eye-drops from thermolabile substances. Which optimal method is used for sterilization of these eye drops?*

- A. addition of ascorbic acid
- B. thermal sterilization
- C. **sterilization filtration**
- D. filling in the inert gas medium
- E. use of polymeric packings

264. *Which eye preparations are prepared only in manufacturing?*

- A. **eye insertions**
- B. eye-drops
- C. eye-washes
- D. semi-solid eye preparations
- E. eye irrigation

265. *Minimises – the eye medical forms, ...*

- A. gelatinous oval disks for single-shot application
- B. with prolongation action
- C. eye-washes
- D. **single-shot application**
- E. solutions for washing of eye lenses

266. *Laboratory quality control of injection medical forms and eye drops, is performed due to the test on:*

- A. mass of packing content, heavy metals, pH, identity, specific gravity
- B. **identity, transparency, pH, nominal volume, absence of mechanical particles**
- C. identity, absence of mechanical particles, homogeneity, packing impermeability
- D. general volume of preparation, percent of output for packing content, identity
- E. average volume, absence of the mechanical particles, homogeneity

5. Extraction preparations, preparations from fresh plants raw materials

267. *The driving force of extraction process is:*

- A. speed of molecular diffusion
- B. temperature of extragent
- C. speed of the transfer of substances through cells porous
- D. speed of molecular and convection diffusion
- E. **the difference between concentration in raw material and extragent**

268. *What is case of extraction from plant raw material?*

- A. convection and cellular diffusion
- B. molecular and cellular diffusion
- C. **molecular and convection diffusion**
- D. coacervation
- E. adsorption

269. *What equation combines in itself convection, free and internal molecular diffusion and can characterize speed of extracting?*

- A. equation of Laplace
- B. equation of Schukareva-Fika
- C. equation of Fika
- D. equation of mass - exchange**
- E. equation of Puazeylya

270. *The process of extraction consists of some stages. Point out the final stage of this process:*

- A. mass - exchange**
- B. maceration
- C. dissolution
- D. extraction of primary juice
- E. wash-out of plant raw material by extragent

271. *The process of extraction consists of the followings stages: leak through capillaries, formation of primary juice, and:*

- A. maceration
- B. dissolution
- C. mass - exchange**
- D. extraction of primary juice
- E. wash-out of plant raw material by extragent

272. *Tinctures are produced at the phytochemistry factory. The amount of active substances is higher than standard. What should be done with this tincture in order to standardize it?*

- A. dilute by extragent to the standard**
- B. the tincture should be considered an irretrievable loss
- C. the excess of active substances should be precipitated
- D. leave without a change
- E. filter through a sorbent

273. *Tinctures are produced by the method of maceration at the phytochemistry factory. How much time is needed for this purpose?*

- A. 3-4 hours
- B. 24 hours
- C. 47 hours
- D. 7 days**
- E. 14 days

274. *Tinctures are produced by method of fractional maceration at the phytochemistry factory. Point the time of obtaining first portion of prepared product:*

- A. 4 hours
- B. 6 hours
- C. 12 hours
- D. 24 hours**
- E. 48 hours

275. *Tinctures are produced by method of percolation at the phytochemistry factory. Point the time of swelling of raw material:*
- A. **4-5 hours**
 - B. 24 hours
 - C. 36 hours
 - D. 48 hours
 - E. 7 days
276. *Tinctures are produced by method of percolation at the phytochemistry factory. What ratio (raw material : extragent) is used for swelling of raw material?*
- A. 0,5:1, 1:5
 - B. **1:1, 1:0,5**
 - C. 1:5, 1:10
 - D. 1:2, 1:1
 - E. 2:1, 0,5:2
277. *Tinctures are produced by method of percolation at the phytochemistry factory. Point the speed of percolation:*
- A. **1/24 or 1/48 from the volume of percolator for hour**
 - B. 1/24 from the volume of percolator for 30 minutes
 - C. 1/20 from the volume of percolator for hour
 - D. 1/40 from the volume of percolator for hour
 - E. 1/48 from the volume of percolator for 30 minutes
278. *Tinctures are produced by method of percolation at the phytochemistry factory. Point the time of infusion of raw material:*
- A. 3-4 hours
 - B. 4-6 hours
 - C. **24-48 hours**
 - D. 1-3 days
 - E. 7 days
279. *Tinctures are produced by method of repercolation at the phytochemistry factory. Point the step for using the device:*
- A. scales, measuring tank, battery of percolators, sedimentation tank
 - B. scales, vibrating sieve, grass-cutting device, percolator, sedimentation tank
 - C. **grass-cutting device, vibrating sieve, scales, measuring tank, battery of percolators, sedimentation tank, druk-filter**
 - D. measuring tank, grass-cutting device, vibrating sieve, scales, percolator, sedimentation tank
 - E. measuring tank, grass-cutting device, scales, vibrating sieve, battery of percolators, sedimentation tank
280. *Tinctures are produced at the phytochemistry factory. Choose the correct methods of purification of tinctures:*
- A. dialysis, precipitation
 - B. change of solvent, precipitation, filtration
 - C. denaturation, filtration, sorption
 - D. **sedimentation at temperature 8-10°C, filtration**
 - E. purification in the "liquid-liquid" system

281. *What types of extractors are used for extraction in the "liquid-liquid" systems during extract purification?*

- A. centrifugal
- B. countercurrent**
- C. column
- D. fluid
- E. mixing

282. *Tinctures are produced by method of maceration at the phytochemistry factory. Choose correct technological steps:*

- A. infusion for 7 days with periodic mixing, extract obtaining, purification of extract, standardization, packing**
- B. soak for swelling, infusion for 24-48 hours, extract obtaining, purification of extract, standardization, packing
- C. infusion for 24-48 hours, extract obtaining, purification of extract, standardization, packing
- D. infusion for 7 days, extract obtaining, purification of extract, standardization, packing
- E. soak for swelling, infusion for 7 days, extract obtaining, purification of extract, standardization, packing

283. *Liquid extracts are produced by method of repercolation at the phytochemistry factory. Choose the correct method of repercolation if raw material is used in ratio 5:3:2.:*

- A. Bosin's method
- B. with a complete cycle
- C. with incomplete cycle
- D. according to the USA and Germany Pharmacopoeias**
- E. Chulkov's method

284. *Different methods are used in preparing extraction preparations. Point the specific characteristic for Chulkov's method of repercolation:*

- A. availability of initial phase and working period**
- B. division of raw material into unequal parts
- C. division of raw material into equal parts
- D. usage of three-percolator battery
- E. evaporation of the last extract by 15% in relation to mass of raw material

285. *Liquid extracts and tinctures are produced at the phytochemistry factory. Choose the correct method by determination of ethanol concentration:*

- A. by glass and metallic alcoholimeters
- B. biological, chemical
- C. distillation, by boiling temperature**
- D. by areometer and densimeter
- E. by densimeter

286. *Tinctures are prepared by method of percolation at the phytochemistry factory. Choose the correct amount of raw material and extragen, which must be taken for preparing 100 l of St. Johns Wort tincture (Hypericum Tincture), if absorption factor of raw material $F = 2,5$:*

- A. **20 kg of raw material, 150 l of extragent**
- B. 10 kg of raw material, 125 l of extragent
- C. 100 kg of raw material, 100 l of extragent
- D. 50 kg of raw material, 225 l of extragent
- E. 5 kg of raw material, 112,5 l of extragent

287. *Tinctures are prepared by all methods, except:*

- A. percolation
- B. maceration
- C. fractional maceration
- D. **dissolving raw material in ethanol**
- E. dissolving of thick or dry extracts in ethanol

288. *Tinctures - are:*

- A. **alcohol extracts from plant raw material, which are obtained without heating and deleting of extragent**
- B. water extracts from plant raw material
- C. water-alcohol extracts from plant raw material, which contain 25% of moisture
- D. oil extracts from plant raw material
- E. extracts from plant raw material, which are obtained using ether or chloroform

289. *One of the methods of quantitative analysis of active substances in the tincture is the biological standardization. It can be applied with the following groups of biologically active substances:*

- A. **cardiac glycoside and bitter matters**
- B. flavonoids and coumarins
- C. alkaloids and tannic matters
- D. chromones and saponins
- E. essential oils and anthracene-derivatives

290. *Which correlation is used for preparing tinctures from raw material, containing highly active substances (alkaloids, cardiac glycosides)?*

- A. 1:5
- B. **1:10**
- C. 1:25
- D. 1:40
- E. 1:100

291. *Choose the correct correlation which is used for preparing liquid extracts:*

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

292. Choose the correct correlation which is used for preparing liquid extracts-concentrates:

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

293. Choose the correct correlation which is used for preparing dry extracts-concentrates:

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

294. Choose the correct correlation which is used for preparing oil extracts:

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

295. Tinctures are produced by different methods at the phytochemistry factory.

Choose ineffective method with high losses at diffusion:

- A. percolation
- B. percolation with evaporation
- C. **maceration**
- D. percolation with raw material divided in parts
- E. ultrasound extraction

296. Belladonna tincture is produced at the phytochemistry factory. What amount of raw material is needed for the preparation of 100 l of tincture?

- A. 5 kg
- B. **10 kg**
- C. 20 kg
- D. 50 kg
- E. 100 kg

297. Tinctures are produced by method of percolation at the phytochemistry factory.

Choose the correct amount of raw material and extragen, which must be taken for preparing 100 l of Motherwort tincture (*Leonurus cardiaca* tincture), if absorption factor of raw material is $K = 1,5$:

- A. **20 kg of raw material, 130 l of extragent**
- B. 10 kg of raw material, 45 l of extragent
- C. 100 kg of raw material, 100 l of extragent
- D. 50 kg of raw material, 175 l of extragent
- E. 20 kg of raw material, 150 l of extragent

298. Calculate the amount of extraction solvent for preparing 50 ml Marigold tincture (*Calendula officinalis*), (extragent–70% alcohol), coefficient is 3,0:
- A. 80 l
 - B. 90 l
 - C. 100 l
 - D. 120 l
 - E. 140 l
299. How much Ethylic Alcohol with concentration 96% should be used for obtaining 200 ml of Valerianae tincture with concentration of alcohol 70%, if the absorption factor of raw material is $K = 1,3$?
- A. 10 ml
 - B. 183.75 ml
 - C. 200 ml
 - D. 240 ml
 - E. 500 ml
300. St. John's Wort tinctures (*Hypericum*) are produced at the phytochemistry factory. Choose the correct extragent for this purpose:
- A. 20% ethanol
 - B. 40% ethanol
 - C. 70% ethanol
 - D. 90% ethanol
 - E. 95% ethanol
301. This tincture is produced with addition of 5% essential oil. Designate which raw material is used for this purpose:
- A. peppermint leaves
 - B. eucalyptus leaves
 - C. arnica flowers
 - D. marigold flowers
 - E. belladonna leaves
302. Valeriana tincture is produced at the phytochemistry factory from fresh raw material. Choose the correct amount of raw material and extragen, which must be taken for preparing of this tincture:
- A. 70% ethanol in correlation 1:10
 - B. 90% ethanol in correlation 1:5
 - C. 90% ethanol in correlation 1:10
 - D. 70% ethanol in correlation 1:5
 - E. 95% ethanol in correlation 1:10

303. *Tinctures are produced by means of percolation at the phytochemistry factory. Choose the correct amount of raw material and extragen, which must be taken for preparing 100 l of Lily of the Valley tinctures (Convallaria tincture), if absorption factor of raw material is $K = 1,3$:*

- A. **10 kg of raw material, 113 l of extragent**
- B. 20 kg of raw material, 113 l of extragent
- C. 20 kg of raw material, 130 l of extragent
- D. 20 kg of raw material, 150 l of extragent
- E. 50 kg of raw material, 165 l of extragent

304. *Which method is used for determination of alcohol in tinctures?*

- A. by boiling-point
- B. distillation, biological
- C. chemical, biological
- D. **distillation, boiling-point**
- E. alcoholimeter and areometer

305. *Tinctures should be kept at temperature:*

- A. 0 °C
- B. to 6 °C
- C. to 8 °C
- D. **to 15 °C**
- E. to 25 °C

306. *Tinctures are prepared at the phytochemistry factory. What device is used for cutting raw material ?*

- A. **grass-cutting device**
- B. ekselsior
- C. vibromill
- D. dismembrator
- E. rollers

307. *What extragent is used for extraction of amount of alkaloids from the bark of roots of Snakewood (Rauwolfia serpentina), for the production of "Raunatin":*

- A. **10% solution of acetic acid**
- B. mixture of alcohol and chloroform
- C. water - ammonia solution
- D. 90% solution of ethanol
- E. 5% solution of acetic acid

308. *Which extracts are prepared in correlation 1:1 (active substances in raw material : prepared product)?*

- A. tincture
- B. soft extract
- C. **liquid extract**
- D. dry extract
- E. extract-concentrate

309. Which concentration of alcohol is used for preparing of Great nettle (*Urtica dioica*) liquid extract?

- A. 20%
- B. 30%
- C. **50%**
- D. 70%
- E. 90%

310. For preparing the liquid extract a reactor with a steam shirt and mixer is used. Choose the correct method:

- A. Bosin's method
- B. percolation with raw material divided in to parts according to USP
- C. **dissolving method**
- D. repercolation with dividing raw material into unequal parts with a complete cycle
- E. Chulkov's method

311. Extraction preparations are produced at the phytochemistry factory. Point the extract, which is obtained under the followings terms: extragent is water; device - rollers, reactor with steam jacket, filter:

- A. **aloe liquid extract (Aloe arborescent)**
- B. licorice (*Glycyrrhiza*) thick extract
- C. lantozid
- D. adonizid
- E. wormwood (*Artemisia absinthium*) liquid extract

312. Designate what extragent is used for preparing liquid extracts:

- A. **ethyl alcohol**
- B. acetone
- C. chloroform
- D. diethylated ether
- E. peach oil

313. Which liquid extract is prepared using 70% alcohol?

- A. **buckthorn extract**
- B. magnolia extract
- C. thyme extract
- D. water pepper extract
- E. aloe extract

314. Choose the correct method of liquid extract purification?

- A. by adsorption columns
- B. pressing
- C. **sedimentation followed by filtration**
- D. centrifugation
- E. by dialysis

315. Which extract is obtained using diethyl ether as an extragent?

- A. masculine fern soft extract
- B. bogbean soft extract
- C. belladonnae soft extract
- D. dandelion root soft extract
- E. adonizid

316. Hawthorn liquid extract is produced at the phytochemistry factory by means of percolation. Point the amount of the first extract (if total amount of extract is 200 l):

- A. 50 l
- B. 70 L
- C. 150 L
- D. **170 L**
- E. 200 L

317. Eleuterococ liquid extract is produced at the phytochemistry factory by means of percolation. What apparatus is used for extract purification?

- A. filters "Vladipor" and "Milipor"
- B. **batch-type sedimentation tank, druk filters**
- C. sedimentators of continuous action, nutch filters
- D. vacuum evaporat on device, filter "KHNIKHF"
- E. centrifuges, nutch filter

318. Liquid extract is produced at the phytochemistry factory by method of accelerated fractional maceration with of "ЦАҒДП". Choose correct amount of raw material (kg), which is necessary to put into each percolator taken separately for preparing 300 litres of the prepared product:

- A. 75:45:30
- B. 150: 150:97,5:52,5:90:80
- C. **100:100:100**
- D. 10:10:10
- E. 50:200:50

319. Liquorice soft extract is produced at the phytochemistry factory. Choose correct method and extragent for this soft extract preparing:

- A. repercolation, 40% ethyl alcohol
- B. percolation, 70% ethyl alcohol
- C. percolation, water-chloroform solution
- D. **bismaceration, 1% ammonia solution**
- E. repercolation, hot water

320. Standardization and quality control of soft extracts possess different parameters. Point the humidity content for this extract according to the Ukrainian standard (DFU):

- A. 5%
- B. 15%
- C. 20%

- D. 25%
- E. 100%

321. *Extraction of Dandelion roots and Wormwood grass is conducted by water which contains a preserving agent. Choose the correct preservative:*

- A. 0,25% water- ammonia solution
- B. **0,5% water-chloroform solution**
- C. chloric acid solution 0,1 M
- D. 0,1% nipagin water solution
- E. 3% acetate acid solution

322. *Liquorice soft extract is produced at the phytochemistry factory. Choose the correct method and extragent for this soft extract preparing:*

- A. water-chloroform solution; percolation
- B. **0,25% ammonia solution; bismaceration**
- C. 70% ethyl alcohol; repercolation or percolation
- D. 40% ethyl alcohol; method with “ЦАҺДП”
- E. water; vortical extraction

323. *Masculine fern soft extract is produced at the phytochemistry factory. Choose the correct method and extragent for this soft extract preparing:*

- A. **diethyl ether; circulation method**
- B. 0,25% ammonia solution; bismaceration
- C. water-chloroform solution; percolation
- D. 40% ethyl alcohol; method with “ЦАҺДП”
- E. water; vortical extraction

324. *Soft extract is produced at the phytochemistry factory and Soxhlet's (extraction) apparatus is used. Choose the correct extract:*

- A. **masculine fern soft extract**
- B. buckthorn soft extract
- C. valerian soft extract
- D. water pepper (Polygonum hydropiper) soft extract
- E. liquorice soft extract

325. *Wormwood (Artemisia absinthium) soft extract is produced at the phytochemistry factory. Choose the correct method and extragent for this soft extract preparing:*

- A. diethyl ether; circulation method
- B. 0,25% ammonia solution; bismaceration
- C. **water-chloroform solution; percolation**
- D. 40% ethyl alcohol; method with “ЦАҺДП”
- E. water; vortical extraction

326. *Soft extract is produced at the phytochemistry factory using different devices. Choose the correct device for thickening of soft extract:*

- A. **rotory direct-flow apparatus, circulation vacuum evaporator device, foam vaporizer**
- B. foam vaporizer
- C. spray dryer (the same: atomizing dryer, nebulizing dryer)

- D. drum vacuum dryer
- E. freeze-drying device

327. *Dry extract is produced at the phytochemistry factory by means of using different devices. Choose the correct device for drying of dry extract after the stage of thickening :*

- A. aerofountain dryer, drum dryer
- B. vacuum-dryer oven, ribbon dryer
- C. roller-vacuum dryer, chamber dryer
- D. **nebulizing dryer, freeze-drying device**
- E. drying by infra-red rays

328. *Soft extract is produced at the phytochemistry factory. Point the technological stage which is not used for this extract preparing:*

- A. **drying**
- B. extraction
- C. purification
- D. evaporation
- E. standardization

329. *Oil extract is produced at the phytochemistry factory. Choose more rational methods for this purpose:*

- A. opposite-flow extraction, percolation, repercolation, maceration
- B. fractional maceration, percolation, repercolation, maceration
- C. **fractional maceration, opposite-flow extraction, circulation extraction, by fluidized gases**
- D. circulation extraction by fluidized gases, percolation, repercolation, maceration
- E. fractional maceration, opposite-flow extraction, percolation, repercolation

330. *Extract-concentrates are produced at the phytochemistry factory. Designate what are they used for:*

- A. **for quick preparing of extracts and decoctions in pharmacy practice**
- B. for ready medicine
- C. for preparation of tinctures
- D. for preparation of soft extracts
- E. for preparation of dry extracts

331. *What solution is used for extract-concentrate production?*

- A. purified water
- B. **20-40% ethanol**
- C. ethyl alcohol
- D. ethyl ether
- E. water-chloroform

332. *What concentration of alcohol (as an extragent) is used for extract-concentrate production?*

- A. **20-30% alcohol**
- B. 40% alcohol
- C. 70 % alcohol
- D. 75% alcohol

E. 96% alcohol

333. *Standardization and quality control of dry extracts are included in different parameters. Point humidity content for this extract according to the Ukrainian standard (DFU):*

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

334. *Thermopsis (Bush pea) dry extract-concentrate is produced at the phytochemistry factory. The amount of active matter exceeds the norm. What substances are used for extract diluting?*

- A. pectin, glucose
- B. ethyl alcohol
- C. **lactic sugar, glucose**
- D. purified water
- E. sugar, sodium chloride

335. *Thermopsis (Bush pea) dry extract-concentrate is produced at the phytochemistry factory. The amount of active matter exceeds the norm. What substances are used for extract diluting:*

- A. ethyl alcohol
- B. **lactose**
- C. pectin
- D. purified water
- E. sodium chloride

336. *This dry extractis produced at the phytochemistry factory. At the stage of grinding add lactose as a filling agent. Choose the correct dry extract:*

- A. **belladonna dry extract**
- B. althaea root dry extract
- C. buckthorn dry extract
- D. senna dry extract
- E. thermopsis (Bush pea) dry extract

337. *Choose the correct raw material for oil production from wild rose:*

- A. fresh fruit of wild rose
- B. **wild rose dry seed free from fruit pulp**
- C. whole dry fruit of wild rose
- D. dry and grinded fruit of wild rose
- E. fruit and flowers of wild rose

338. *Before the isolation of alkaloids from plant raw material at first are released its from salts of different acids by moistening of grinded raw material:*

- A. **with alkali solution**
- B. with hydrochloric acid solution
- C. with ethyl alcohol

- D. with ether
- E. with chloroform

339. *A phytochemistry department of the pharmaceutical factory produces maximally purified preparations. Choose the correct method which is related to salting-out:*

- A. **process of precipitation of high molecular compound as a result of the action of the strong electrolyte saturated solutions**
- B. process influence of heating, ultrasound and UF-radiation for extract, as a result of the proteins are sedimented
- C. method which is based on properties of molecules of biopolymers which do not pass through semi-permeable membranes
- D. process of gas absorption by solid and liquid absorbers
- E. deleting of matters with the help of other matter

340. *Point the case which distinguishes new-galenic preparations from galenic:*

- A. percentage of active matters
- B. **possibility of parenteral introduction of preparations**
- C. using water- alcohol solutions for extraction
- D. using adsorption methods for purification
- E. using opposite-flow extraction

341. *A phytochemistry department of a pharmaceutical factory produces different extraction preparations. This extract is obtained by circulation method in the Soxhlet's apparatus. Extractant is a mixture of chloroform and 96% alcohol in the ratio 95:5. Choose this extract:*

- A. corglycone
- B. lantozyd
- C. thyme liquid extract
- D. **adonyzyd**
- E. plantaglucid

342. *What is the principle of Soxhlet's apparatus work at extracts producing?*

- A. **multiple circulation of extractant through raw material**
- B. molecular diffusion of extragent
- C. use of quasi-liquefaction
- D. influence of ultrasonic cavitation
- E. countercurrent extraction

343. *A phytochemistry department of a pharmaceutical factory produces extraction preparation of "Corglycone". Choose correct raw material for production of this preparation:*

- A. buckthorn bark
- B. grass of wormwood
- C. root of dandelion
- D. leaves of goose-grass
- E. **grass of lily-of-the-valley**

344. *One way of purification of tinctures is settling. What temperature is used for*

this purpose?

- A. not more 10°C
- B. 10-15°C
- C. 18°C
- D. 20°C
- E. 45°C

345. *A phytochemistry department of a pharmaceutical factory produces different extraction preparations. For the production of this preparation, involving water serving as an extractant and the following equipment: extractor with steam-jacket, rotory -film evaporator vehicle or froth evaporator, press-filter, nutch filter, vacuum-drying oven, ball mill. What preparation is it?*

- A. glycyrrhiza thick extract
- B. **plantaglucid**
- C. liquid extract of aloe
- D. lantozyd
- E. adonyzyd

346. *A phytochemistry department of a pharmaceutical factory produces extraction preparations. Production of this preparation involves 24% ethyl alcohol serving as extractant and the following equipment: battery of percolators, crystallizer, filter-press, vacuum evaporator. What preparation is it?*

- A. glycyrrhiza thick extract
- B. **plantaglucid**
- C. liquid extract of aloe
- D. lantozyd
- E. adonyzyd

347. *A phytochemical department of a pharmaceutical factory produces biogenic stimulators out of curative mud of the Kuyalnick estuary with addition of coumarinic and cinnamon acids. What preparation is it ?*

- A. biosedum
- B. peloidinum
- C. peloidodistillate for injections
- D. **FiBS**
- E. Gumizol

348. *What raw material is applied in the production of preparation of biogenic stimulator– FiBS?*

- A. straw from cultivated oat
- B. sawdust
- C. corn meal
- D. peat
- E. **estuary mud**

349. *A phytochemistry department of a pharmaceutical factory produces maximally purified preparations. Choose the correct method which is related to the dialysis:*

- A. process of precipitation of high-molecular substance as a result of the action of the strong electrolyte saturated solutions
- B. process influence of heating, ultrasound and UF-radiation for extract, as a result

of the proteins sedimentation

- C. **method which is based on properties of molecules of biopolymers which do not pass through semi-permeable membranes**
- D. process of gas absorption by solid and liquid absorbers
- E. removal one of the matters with the help of other matter

350. *A pharmaceutical factory produces preparations out of fresh raw material. What methods should be used at the stage of extracting?*

- A. repercolation, opposite-flow extraction
- B. percolation, maceration by 70%
- C. **ethyl alcohol maceration by 90% ethyl alcohol, bismaceration**
- D. extraction in the "liquid - liquid" system, maceration
- E. vortical extraction, circulation extraction

351. *A pharmaceutical factory produces herbal juice out of fresh raw material. Choose correct technological steps for this purpose:*

- A. **grinding of raw material, pressing, repeated grinding, repeated pressing, preservation of juice, purification**
- B. grinding of raw material, pressing, preservation of juice, purification
- C. grinding of raw material, pressing, repeated grinding, repeated pressing, purification, preservation of juice
- D. grinding of raw material, pressing, purification, preservation of juice
- E. grinding of raw material, pressing, preservation of juice

352. *At antacid gastritis out of applied juice of rib grass (Plantago lanceolata). Choose the correct method for production of this juice:*

- A. **pressing under high pressure**
- B. extracting by liquefied gas
- C. maceration by water - ethanol solution
- D. by dissolution of concentrates
- E. repercolation

353. *A pharmaceutical factory produces herbal juice out of fresh raw material. What kind of device would be the most effective for grinding the fresh raw material?*

- A. grass cutter device
- B. **whirligig-machine, rollers**
- C. root cutter device
- D. ball mills
- E. disintegrators

354. *A pharmaceutical factory produces herbal juice out of fresh raw material. What operation should be performed at the stage of juice purification:*

- A. **heating with following abrupt cooling**
- B. settling
- C. adsorption

- D. filtration
- E. crystallization

355. *A phytochemical department of a pharmaceutical factory produces biogenic stimulators out of different raw materials. Specify the mineral-derived biogenic stimulators:*

- A. **peloidinum, humisolum, torfotum, FIBS for injections**
- B. liquid extract of aloe, aloe liniment, aloe juice, biosedum
- C. vitreous body, suspension placenta for injections, plasmol, solcoseril
- D. liquid extract of aloe, aloe liniment, plasmol
- E. peloidinum, humisolum, torfotum, plasmol, solcoseril

356. *A phytochemical department of a pharmaceutical factory produces biogenic stimulators out of different raw materials. Specify the animal-derived biogenic stimulators:*

- A. **vitreous body, suspension placenta for injections, plasmol, solcoseril**
- B. liquid extract of aloe, aloe liniment, aloe juice, biosedum
- C. peloidinum, humisolum, torfotum, FIBS for injections
- D. liquid extract of aloe, aloe liniment, plasmol
- E. peloidinum, humisolum, torfotum, plasmol, solcoseril

357. *A phytochemical department of a pharmaceutical factory produces biogenic stimulators out of different raw materials. Specify the plant derived biogenic stimulators:*

- A. vitreous body, suspension placenta for injections, aloe juice, biosedum
- B. liquid extract of aloe, peloidinum, aloe juice, biosedum
- C. peloidinum, humisolum, torfotum, FIBS for injections
- D. **liquid extract of aloe, aloe liniment, aloe juice, biosedum**
- E. peloidinum, humisolum, torfotum, plasmol, solcoseril

358. *While producing organotherapeutical preparations, different kinds of grinding machines are used. Choose the machines for grinding of animal organs:*

- A. drum ball mills
- B. roller crusher
- C. rotory - pulsating device
- D. dismembrator
- E. **mechanized meat grinders by type "whirligig"**

359. *Biogenic stimulators are substances, which are formed in isolated tissues of animals or plants, placed in unfavorable condition. The factors which cause forming of biogenic stimulators include:*

- A. high temperature of air (37-40⁰C), darkness
- B. bright light, rarefaction (600 mm Hg)
- C. **low temperature of air (2-6⁰C), darkness**
- D. high humidity of air, high temperature of air
- E. low humidity of air, high temperature

360. A pharmaceutical factory produces hormonal preparations out of different animal organs. Insulin is a hormone produced by the:

- A. anterior lobe of pituitary gland
- B. **pancreas of cattle and pigs**
- C. thyroid gland
- D. adrenal cortex
- E. posterior lobe of pituitary gland

361. Pantocrinum is an alcoholic extract from the unossified horned animal:

- A. antelope
- B. goat
- C. sheep
- D. **maral**
- E. cow

362. While producing ethyl alcohol, at first, crude alcohol is obtained. Crude alcohol contains admixtures (fusel oils, aldehydes) and has an unpleasant smell. Thus, crude alcohol is repeatedly distilled, that is, rectified. Choose the principle of rectification process:

- A. **mixture composed of liquids and with the different temperature of boiling will be divided into separate fractions**
- B. distillation by deep vacuum
- C. washing of waste raw material with large amount of ethyl alcohol
- D. distillation with rare gases
- E. technological method of liquid extract production

363. Choose a rectifying column for rectification by vacuum:

- A. bubbled column
- B. packed column
- C. absorbing column
- D. **pellicle column**
- E. valve column

364. Rectifying column in opposition to absorbing column has:

- A. internal constructions (nozzles, plates)
- B. availability of hydraulic resistance
- C. calorification
- D. **availability of heat exchanger**
- E. large construction

365. This rectifying column has following working conditions: turbulent flow of steam and liquid phases, atmospheric pressure, vacuum. Specify this column:

- A. bubbled
- B. **pellicle, stream-droplet**
- C. packed
- D. absorbing
- E. bell-type

366. Choose the correct types of extractors for extraction in the "liquid-liquid" systems at the stage of extract purification:

- A. **countercurrent**
- B. columnar
- C. jet device
- D. mixers
- E. centrifugal

367. *At the production of phytopreparation, the extractant which has remained in raw material is deleted from raw material and returned in a manufacturing. How is this process called?*

- A. **recuperation**
- B. rectification
- C. extraction
- D. sublimation
- E. freeze drying

5. Aerosols, semi-solid preparations, plasters, suppositories

368. *Aerosol containers are filled in different ways. Which method is not used for aerosol container filling?*

- A. filling by pressure
- B. **filling by vacuum**
- C. low temperature method
- D. filling by liquefied gases
- E. filling by the soluble liquefied gases

369. *Aerosols are produced at pharmaceutical manufacturing. Choose the method of filling aerosol containers with propellants (with hladon):*

- A. **under pressure**
- B. by vacuum
- C. under atmospheric pressure
- D. at high temperature
- E. at low temperature

370. *Aerosol production involves the usage of propellants. Specify the role of propellants:*

- A. solvents for medicinal substances
- B. **creates of pressure in packing**
- C. stabilizers
- D. emulsifying agents
- E. dispersants

371. *Aerosol production involves usage of propellants that refer to the group of compressed gases. Choose disadvantages of these propellants:*

- A. explosion hazard and fire risk
- B. toxicity
- C. **low extent of evacuation**
- D. chemical inertness
- E. high cost

372. *Aerosol department of a pharmaceutical factory uses compressed gases as propellants. Which of the following substances refer to the group of compressed gases?*

- A. **nitrogen, nitrous oxide, carbon dioxide**
- B. organofluoric compound (freons)
- C. carbohydrates of propanoic series (propane, butane, isobutane)
- D. chlorinated hydrocarbon (methyl chloride)
- E. methylene chloride, ethylene chloride

373. *Aerosol department of a pharmaceutical factory uses liquefied gases as propellants. Choose the propellants that refer to the group of liquefied gases:*

- A. nitrogen
- B. nitrous oxide
- C. methylene chloride
- D. **freon, hladon**
- E. ethylene chloride

374. *Aerosol production involves the usage of propellants referring to different groups. Choose the propellants that refer to the group of volatile organic solvents:*

- A. nitrogen, nitrous oxide, carbon dioxide
- B. organofluoric compound (freons)
- C. carbohydrates of propane series (propane, butane, isobutane)
- D. chlorinated hydrocarbon (methyl chloride)
- E. **methylene chloride, ethylene chloride**

375. *Point technological operation for aerosol production on condition that filling of propellant is realized under pressure:*

- A. preparation of aerosol containers (spray can), preparation of concentrate, filling of propellant, tightening of aerosol containers, compactness check, impermeability check, drying and packaging
- B. preparation of concentrate, preparation of aerosol containers, filling of propellant, tightening of aerosol containers, compactness check, impermeability check, drying
- C. **preparation of aerosol containers (spray can), preparation of concentrate, tightening of aerosol containers, filling of propellant, compactness check, impermeability check, drying and packaging**
- D. preparation of aerosol containers, preparation of concentrate, filling of propellant, tightening of aerosol containers, drying, packaging, compactness check, impermeability check
- E. preparation of aerosol containers, preparation of concentrate, tightening of aerosol containers, filling of propellant, drying and packaging, compactness check, impermeability check

376. *Aerosol containers are made of glass. This glass containers must have protective film coating, and withstand internal pressure not less than:*

- A. 5 kgf/sm²

- B. 10 kgf/sm²
- C. 15 kgf/sm²
- D. **20 kgf/sm²**
- E. 25 kgf/sm²

377. *It is necessary to delete residual voltage by annealing in aerosol's manufacturing before using a glass container. Choose the temperature for this purpose:*

- A. 750-760 °C
- B. 320-330 °C
- C. 410-420 °C
- D. 570-580 °C
- E. **640-650 °C**

378. *Aerosol production involves usage of compounds relating to different groups (solvents, propellants, active substances). Which of the following substances relates to the group of propellants?*

- A. isopropyl myristate, neon, sulfur oxide
- B. **freon 11, carbon dioxide, propane, butane**
- C. propylene glycol monostearate, argon, helium
- D. myristic acid, benzocaine
- E. sulphuretted hydrogen, hydrogen, triethanolamine

379. *Quality of aerosols can be assessed according to different indexes. Point additional quality coefficient which is checked at laboratory of aerosols' controlling :*

- A. mass, pH, packaging impermeability
- B. alcohol content, uniform of volume, dry residue, heavy metals
- C. mass, heavy metals, dry residue, content of moisture
- D. **packaging impermeability, middle mass of preparation in one dose, percent of output of packing content**
- E. mass, pH, packaging impermeability, specific gravity

380. *Aerosols can be classified by size of dispersed phase. Which group of medicine forms does aerosols for application by protective film on a skin and wounds refer to?*

- A. ointment
- B. spray
- C. foam
- D. **skin glues (integumentary)**
- E. gas

381. *At the production of aerosol's containers an internal surface was covered by epoxy lacquer. What material is used for the production aerosol's containers?*

- A. **metal**
- B. glass
- C. plastic
- D. porcelain
- E. metaloplastic

382. *Designate technological operations for preparing of mustard plasters:*
- preparation of rubber glue, preparation of mustard mass, to spread paper with mass, drying, packaging, recuperation of petrol
 - preparation of mustard mass, to spread paper with mass, scission of roll, packaging
 - preparation of rubber glue, preparation of mustard mass, recuperation of petrol
 - preparation of mustard mass, to spread paper with mass, packaging
 - preparation of rubber glue, to spread paper with mass, drying, packaging
383. *A pharmaceutical factory produces aloe liniment by method of mechanical dispersion. What devices are used for this purpose?*
- mixers of centrifugal action
 - ball mills, mixers with a rotary-type corps
 - propeller and turbine mixers, rotary -pulsating vehicle**
 - worm-blade mixers
 - three-roller ointment malaxing device
384. *A pharmaceutical factory produces sterile liniments. What devices are used for this purpose?*
- colloid mills
 - rotary-pulsation vehicle
 - propeller mixers
 - turbine mixers
 - magnetostriction radiator**
385. *Ointments on the factory are exposed to homogenization. For this purpose use different types of equipment:*
- electro-caldrons of different brands
 - mixers with anchor mixers
 - three-roller ointment malaxing device, rotary-pulsating vehicle**
 - caldrons with steam heaters
 - ball mills
386. *A pharmaceutical enterprise produces sulphur ointment simple. To calculate technological losses (ϵ ,%), if the amount of initial raw material is 100,0 kg and amount of final product is 97 kg.*
- 0,3%
 - 3%**
 - 5%
 - 10%
 - 13%
387. *A pharmaceutical factory produces ointments. Define technological operations for preparing this medical form:*
- preparation of medical and auxiliary substances, addition of medical substances into base, standardization, homogenization, packaging and marking of the prepared products

- B. preparation of medical and auxiliary substances, homogenization, addition of medical substances into base, standardization, packaging and marking of the prepared products
- C. preparation of medical and auxiliary substances, homogenization, addition of medical substances into base, packaging and marking of the prepared products
- D. preparation of medical and auxiliary substances, addition of medical substances into base, homogenization, standardization, packaging and marking of the prepared products**
- E. preparation of medical and auxiliary substances, standardization, homogenization, addition of medical substances into base, packaging

388. Water-soluble bases for ointments-creams include:

- A. fats, hydrogenated fats, vegetable and mineral oils, wax, beeswax, hydrocarbon bases, silicon bases
- B. emulsive bases I and II types, semisynthetic derivatives of cellulose, polysaccharides of microbial origin
- C. semisynthetic derivatives of cellulose, polysaccharides of microbial origin, gelatin-glycerol bases, polyethylene oxide bases**
- D. gelatin-glycerol bases, polyethylene oxide bases, fats, hydrogenated fats, vegetable and mineral butters, wax, beeswax
- E. emulsive bases I and II types, hydrocarbon bases, silicon bases

389. Water-soluble bases for ointments-gels include:

- A. methylcellulose**
- B. hydrogenated fats
- C. silicon liquids
- D. vazelin
- E. beeswax

390. A pharmaceutical factory produces ointments. Ointments are exposed to homogenization on the factory. For this purpose rotary-pulsating apparatus use. How does this automat principle work?

- A. standardization of medical form, melting of base
- B. previous grinding of powder-like components, homogenization of semi-solid preparation**
- C. melting of base, previous grinding of powder-like components
- D. homogenization, packaging of semi-solid preparation
- E. packaging of semi-solid preparation, melting of base

391. Semi-solid preparation department of a pharmaceutical factory produces suppositories of different form. Give determination of pessary:

- A. rectal suppositories of cone-shaped
- B. vaginal suppositories with roundish end**
- C. rectal suppositories of torpedo-shaped
- D. vaginal suppositories of oviform
- E. vaginal suppositories of spherical form

392. Semi-solid preparation department of a pharmaceutical factory produces

ointments. What devices are used for packaging of the prepared products ?

- A. automats for uninterrupted forming, screw and piston dosing machines
- B. automat by Rezepin, piston and disk dosing machines
- C. rotary machines, eccentric machines, tube-filling dosing machines
- D. tube-filling screw and piston dosing machines, merry-go-round types tube-filling machines**
- E. tube-filling screw and piston dosing machines

393.Semi-solid preparation department of a pharmaceutical factory produces ointments. Melting of ointment basis is carried out by the special device :

- A. electro-caldrons EK-40, EK-60, EK-125, EK-250, caldrons with steam jacket ПК-125, ПК-250, steam-coil, steam “needle” or electro-panel**
- B. mixers with anchor, blade and turbine mixers, electro-caldrons of different brands, rotary-pulsating vehicle
- C. attrition mill, three-roller ointment malaxing device, rotary-pulsating vehicle
- D. steam-coil, steam “needle” or electro-panel, mixers with anchor, blade and turbine mixers
- E. rotary-pulsating vehicle, steam-coil

394.A pharmaceutical enterprise produces make zinc ointment 10 %. How much zinc oxide should be weighed to produce 200 kg of ointment, if $K = 1,02$:

- A. 10,0
- B. 10,2
- C. 20,0
- D. 20,4**
- E. 20,6

395.A pharmaceutical enterprise produces ointments. What base is applied for production of simple sulphur ointment?

- A. emulsion**
- B. vaseline
- C. base „for ophthalmic ointments ”
- D. lanolini
- E. polyethylene glycol

396.A pharmaceutical enterprise produces different dosage forms. State Pharmacopoeia of Ukraine regulates an index for “time of complete deformation” for:

- A. suppositories**
- B. tablets
- C. dragee
- D. granules
- E. capsules

397. Lipophilic bases for suppositories include:

- A. gelatin-glycerol gels, vegetable and hydrogenated fats, hard fat, beeswax, paraffin, mixtures of polyethylene glycols with different molecular mass

- B. mixtures of cocoa butter with hydrogenated fats, mixtures of polyethylene glycols with different molecular mass, gelatin-glycerol gels, vegetable and animal hydrogenated fats
- C. **cocoa butter, mixtures of cocoa butter with hydrogenated fats, vegetable and animal hydrogenated fats, hard fat, beeswax, paraffin**
- D. vegetable and animal hydrogenated fats, hard fat, beeswax, paraffin, gelatin-glycerol gels
- E. mixtures of polyethylene glycols with different molecular mass, gelatin-glycerol gels, vegetable and animal hydrogenated fats

398. Lipophilic bases for suppositories include:

- A. **cocoa butter, vitesol, hydrogenated fats**
- B. gelatin-glycerol basis, polyethylene glycols, soap-glycerin basis
- C. polyethylene glycols, cocoa butter
- D. hydrogenated fats, polyethylene glycols
- E. vitesol, soap-glycerin basis

399. Lipophilic bases for suppositories include:

- A. **hydrogenated fats**
- B. polyethylene oxide
- C. gelatin-glycerol
- D. collagen
- E. soap-glycerin

400. Which method is the most effective for industrial production of suppositories?

- A. pressing
- B. hand forming
- C. **moulding in forms**
- D. punching
- E. lyophilization

401. While producing of suppositories one of the stages is a preparation of concentrates. What is concentrated in this case?

- A. **prepared solutions or suspensions of medical matters, that are added into basis**
- B. concentrated solutions of medical matters that are prescribed in a small amount
- C. to store of medical matters within the pharmacy
- D. medical matters, that are soluble in basis
- E. medical water-soluble matters

402. Plaster is a medicinal form for external application which produced in the form of:

- A. **solid mass; liquid**
- B. solid mass
- C. liquid; soft consistency
- D. solid mass and in the form of gel
- E. liquid

403. What group of plasters does mustard plasters refer to:

- A. leaden
- B. resin-waxen
- C. **rubber plaster**
- D. leaden-resin
- E. leaden-waxen

404. *A pharmaceutical enterprise produces different kind of plasters. Choose only leaden plasters :*

- A. callosity plaster, court plaster
- B. **plaster for epilation, "Ureaplast", simple leaden**
- C. capsicum plaster, bactericidal court plaster
- D. callosity plaster, capsicum plaster
- E. capsicum plaster, "Ureaplast"

405. *Semi-solid preparation department of a pharmaceutical factory produces resin-waxen plaster. Choose bases for this type of products:*

- A. the natural uncured rubber with wax
- B. synthetic vulcanized rubber, wax
- C. soap leaden, wax
- D. **alloys of paraffin, vaseline, petrolatum, fat with resins and wax**
- E. alloys of colloid, furoplast, cleole with wax

406. *Choose only resin-waxen plasters :*

- A. **callosity plaster, court plaster**
- B. bactericidal court plaster
- C. capsicum plaster
- D. plaster for epilation
- E. collaplast

407. *A pharmaceutical industry produces different types of plasters. Specify the group names of plasters that are used for closing of wounds' edges and fixation to bandage:*

- A. liquid
- B. **epidermal**
- C. diadermatic
- D. callosity
- E. bactericidal

408. *A pharmaceutical industry produces plasters that contain medical matters. This matters penetrate through a skin and have general influence on an organism. What is plaster's name?*

- A. callosity
- B. liquid
- C. rubber
- D. **diadermatic**
- E. bactericidal

409. At producing of plasters the adhesive spreading machine is used. What is plaster's name?

- A. leaden-waxen
- B. resin-waxen
- C. leaden-resin
- D. liquid
- E. **rubber**

410. While producing of simple leaden plaster mix water and oil, pork fat and lead oxide and make in copper caldron. What process will occur at this time in a medium reaction?

- A. coagulation
- B. oxidation
- C. reduction
- D. adsorption
- E. **saponification**

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