Situation tasks

1. Calculate the amount of trituration of Atropine Sulfate 1:_____ needed for preparing powders according to the prescription:_____.
Rp.: Atropine sulphate 0,0015
Lactose 0,2
Dispence fme powders N 10
Label: Take one powder b. id. before meals.

2. Pharmacy receives prescription for preparing powder for topical use with difficult powdered substance. Which liquids can be used by pharmacist for grinding of this substance?
A. Ether
B. Purified water
C. Water for injection
D. Alcohol 95%
E. Alcohol 70%

3. Specify the basic technological operations at preparing of powders in pharmacy:
1. _____
2. mixing
3. _____
4. _____
5. _____

4. Calculate the total mass of powder according to the prescription:
Rp.: Zinc oxyde
Potato Starch
Talc aa 5,0
Make very fine powder Label: Sprinkle for feet

5. Pharmacist prepares powders with this substance in a separate mortar on the special work place, using the method of "three layers". What are the substances?
A. Sulphur
B. Riboflavin
C. Furacillin
D. Protargol
E. Copper sulfate

6. According to the Eur. Ph. standards powders comply with the following requirements:
A) Uniformity of_____
B) Limit of particle size (fineness)
C) Uniformity of content
D) _____

7. Calculate the amount of Ethanol 95% needed for preparing of powder according to the prescription:
Rp.: Camphor 0,2
Glucose 0,3
Dispence fine powders N 30

8. Match the correct pairs:

Amount of poisonous substances in the prescription for 1 powder	**Amount of triturations 1: 100 for the preparation of 20 powders**
A. 0.00025	1. 1.0

B. 0.0005	2. 0.5
C. 0.0002	3. 0.4
D. 0.0001	4. 0.3
E. 0.00015	5. 0.2

9. Specify the minimum amount of triturations of diphenhydramine hydrochloride (Dimedrolum) 1:10 that can be prepared. What amount of lactose is required for its preparation?

10. A pharmacist prepares powders with hard-grinded substance. Specify which substance is grinded with a volatile liquid
A. Magnesium oxide
B. Camphor
C. Zinc sulfate
D. Copper sulfate
E. Mentol

11. Calculate the amount of ingredients for preparing concentrated solution:
Ammonium Chloride Solution 20%- 500 ml (ρ= 1,0551 g/ml)

12. Calculate the amount of ingredients for preparing concentrated solution:
Ammonium Chloride Solution 20%- 2000 ml (ρ= 1,0551 g/ml)/

13. Calculate the amount of ingredients for preparing concentrated solution:
Sodium Benzoate Solution 10 % - 2000 ml (ρ= 1,0381 g/ml)

14. The measured concentration of the 1000 ml Magnesium Sulphate concentrated solution is 19,5%. Calculate the amount of Magnesium Sulphate, needed for obtaining required 20% concentration (ρ= 1,0930 g/ml)

15. How many grams of substance are needed for preparing 300 ml of a 3% (w/v) solution?

16. How many grams of substance are needed for preparing 250 ml of a 5% (w/v) solution?

17. How many grams of substance are needed for preparing 500 ml of a 10% (w/v) solution?

18. The measured concentration of 1000 ml concentrated solution is 21,5%. Calculate the quantity of Purified Water for dilution, if required concentration is 20%.

19. The measured concentration of 1000 ml concentrated solution is 22%. Calculate the quantity of Purified Water for dilution, if required concentration is 20%.

20. A pharmaceutist prepared 100 ml of 20% Magnesium sulfate solution. Calculate the volume of water, necessary for solution preparing (VIC=0,5 ml/g).

21. It is necessary to make 5000 ml concentrated solution of sodium bromide 20%. Calculate the amount of sodium bromide and purified water needed to preparing concentrated solution (VIC_{NaBr} = 0.26 ml/g): _____ g,_____ml.

22. To 2 L 21% Caffeine-sodium benzoate solution was added 100 ml of purified water. Indicate the concentration of obtained solution: _____%.

23. Volume incrise coefficient are used when_____:

24. Mention macromolecular compound of vegetable origin:
A. Dextrin
B. Pepsin

C. Collagen
D. Gelatin
E. Cellulose

25. Mention macromolecular compound of animal origin:
A. Dextrin
B. Pepsin
C. Collagen
D. Gelatin
E. Cellulose

26. For preparing liquid preparations, liquid components can be weigh or measure. Which of the noted liquid must be weighed:
A. Purified water
B. Ether
C. Olive oil
D. Glycerol
E. Sodium bromide 20% solution

27. Which of the liquids given below should be measured by volume in making liquid dosage forms?
A. 20% solution of sodium bromide
B. Vaseline oil
C. Diethyl ether
D. Eucalyptus oil
E. Glycerine

28. The dissolution process of macromolecular compounds is perfomed in two stages:
1)_____ 2) Dissolving

29. 15 mg of drug are ordered. The syrup contains 5 mg of drug per ml (cc). How many ml will you administer?

30. 10 mg of substance is ordered. The syrup contains 5 mg of drug per ml (cc). How many ml will you administer?

31. 15 mg of a substance is ordered. The syrup contains 3 mg of drug per ml (cc). How many ml will you administer?

32. The pharmacist has prepared 100 ml of 70% ethanol. Indicate the number of ethanol 96.3% he used: _____ ml.

33. The dissolving process of macromolecular compounds is performed in two stages:
A. Swelling
B. Dissolving
C. Solubilisation
D. Wetting
E. Only A and B

34. Mention the concentration of Acetic acid, stated in the monograph of Eur. Ph.:
A. 30%
B. 96%
C. 36%
D. 3%

E. 6%

35. According to the requirements of Eur. Ph. several categories of liquid preparations for oral administration are used:
A. _____
B. Elixirs
C. _____
D. _____
E. Linctuses

36. According to the requirements of Eur. Ph. next categories of heterogenic liquid preparations are used:
A. _____
B. Emulsions
C. _____

37. Specify the basic technological operations at preparing of liquid preparations in pharmacy:
A. _____
B. _____
C. filtration
D. _____
E. _____

38. Pick up matching pairs:

Concentration in percentage (m)	**Concentration in the ratio**
A. 0,01 %	1 - 1 : 10000
B. 0,2 %	2 - 1 : 10
C. 0,25 %	3 - 1 : 500
D. 0,5 %	4 - 1 : 400
E. 10 %	5 - 1 : 200

39. The patient takes 5% solution of iodine. How many mg of iodine will the patient take if a single dose of iodine solution is 5 drops and the patient takes drops twice a day (the volume of drops-0.04 ml): _____ mg?

40. Pick up matching pairs:

Names	**Concentration**s
A. Burov's liquid	1 – 30%
B. Formalin	2 – 8,3%
C. Perhydrole	3 – 37%
D. Hydrochloric acid diluted	4 – 8%

41. The patient takes oral drops of platyphylline hydrotartrate. Indicate the daily dose of platyphylline hydrotartrate if he takes 10 drops of 0.1% solution 3 times per day (1 drop-0.05 ml):

42. Indicate characteristic processes for colloidal solutions:
A. Coagulation
B. Coacervation
C. Syneresis
D. Ageing
E. Reopexia

43. Calculate the number of Glucosum to prepare a suspension containing 2 g of Streptocidum _____

44. The composition of oil emulsions includes water, oil or other hydrophobic liquid and emulsifier. Indicate the number of purified water, which needs to be taken for preparing a primary emulsion (emulsion frame) when preparing 200 g of emulsion (the stabilizer-gelatin): _____ml.

45. Match the right pairs:

Medical substances	The principle of the emulsion introduction
A. Caffeine-sodium benzoate	1 - Dissolved in oil
B. Phenyl salicylate	2 - Dissolved in ether
C. Menthol	3 - Dissolved in alcohol
D. Sulfadimezin	4 - Dissolved in the prepared emulsion
E. White clay	5 - Dissolved in water

46. Choose the statements that refer to rough suspensions
A. The particle size of medicinal substances is 0.1- 1 μm
B. The another name is shaked suspensions
C. The particle size of medicinal substances is more than 1 μm
D. A precipitate forms quickly
E. A precipitate forms slowly

47. Choose the correct answers that refer to the properties suspensions
A. Suspensions are thermodynamically unstable systems
B. Suspensions are homogeneous by their appearance
C. Suspensions do not have the osmotic pressure
D. Suspensions are microheterogeneous dispersion systems
E. Suspensions are divided into two groups: rough and thin

48. Choose the factors that have influence on stability of suspensions
A. Radius of disperse phase particles
B. Properties of medicinal substances
C. Difference of density of a disperse phase and density of a dispersion medium
D. Viscosity of a dispersion medium
E. The presence of poisonous substances

49. Method dispersion is acceptable for the following substances
A. Zinci oxydum
B. Camphor
C. Menthol
D. Phenylsalicylate
E. Sulphuris praecipitate

50. Prescriptions of Solutions №1 and №2 by Demyanivich include №1 _____; №2 _____

For preparing 3% Solution of Hydrogen Peroxide as an intermediate blank is added the stabilizer _____ in a quantity of _____%

51. Calculate the volume of 0.02% of riboflavin solution if the amount of riboflavin is 0.002g in the prescription: _____ ml

52. Match the right pairs:

WPW	**The ratio of raw materials and exragent in the absence of instructions in the prescription**

A. Polygala roots	1. 1 : 400
B. Eucalyptus leaves	2. 1 : 10
C. Adonis herb	3. 1 : 30
D. Linden flowers	4. 1 : 20
E. Digital herb	5. 1 : 50

53. Match the right pairs:

WPW	**The ratio of raw materials and exragent in the absence of instructions in the prescription**
A. Valerian root	1. 1 : 400
B. Sage leaves	2. 1 : 10
C. Adonis herb	3. 1 : 30
D. Digital herb	4. 1 : 20
E. Lily herb	5. 1 : 50

54. Calculate the required amount of Adonis herb with biological activity 72 UA for preparing 180 ml infusion (a standard content of cardiac glycosides-60 UA): _____

55. Calculate the amount of solution ml of hydrochloric acid dilute 1:10 to prepare 180 ml of infusion of Uterine horns (standard content of alkaloids -0.05%): _____

56. Calculate the required quantity of Digital herb and purified water to prepare 200 ml of infusion, if the content of cardiac glycosides in the raw material is standard: _____

57. Calculate the amount of solution ml of hydrochloric acid dilute 1:10 to prepare 100 ml of infusion of Herb thermopsis (standard content of alkaloids -1,5%): _____

58. A pharmacist prepares a suspension ointment:
Rp.: Zinci oxydi 5.0
Vaselini 45.0
M.D.S.: Use on skin.
Which method will use pharmaceutist for grinding Zinc Oxide.

59. Which wool fat (lanolin) will you use if it is not indicated in the prescription_____.

60. Which of the following substances are available as vehicles (base) in hydrophilic ointments:
A. White Soft Paraffin
B. Macrogol 300, 400, 1500, 4000
C. Wool Fat
D. Gelatin
E. Only B

61. Solid insoluble substances included in semi-solid preparations according to the concentration should be triturated with the help of:
1) Small amount of liquid which is similar to the base (concentration till 5%)
2) _____( )
3) _____amount of melted base ( )

62. When water or an aqueous solution is the disperse phase and oil is the continuous phase the type emulsion cream is known as:
A. Oil-in-water cream
B. Water in oil cream
C. None of the above
D. Hydrophobic cream

E. Hydrophilic cream

63. Match the correspondence

Medicinal substance	The principle of the introduction into the hydrophobic base
A. Dermatol 3%	1. Dissolve in water
B. Diphenhydramine	2. Dissolve in the base
C. Menthol	3. Mix with the base
D. Protargolum	4. Disperse with auxiliary liquid
E. Zinc oxide 10%	5. Disperse with the part of the molten base

64. Indicate the amount of water purified and non-aqueous lanoline should be used for making 1000 g of aqueous lanoline: _____ ml _____ g.

65. Match the right pairs:

Soft ointment base	**Nature of base**
A. Wax	1. Fats
B. Oil Vaseline	2. Waxes
C. Sunflower oil	3. Hydrocarbon
D. Esylon-4	4. Gels of cellulose ethers
E. Sodium Carboxymethylcellulose (SCMc) Solution	5. Silicone

66. According to Pharmacopoeia single-phase ointments are divided into
A - _____
B - _____
C - _____

67. Match the correct pairs:

Soft ointment base	**Nature of base**
A. Bentonite	1. Gels of macromolecular carbohydrates and protein
B. Collagen base	2. Gels of inorganic substances
C. Gelatin-glycerol	3. Fats
D. Esylon-4	4. Silicone
E. Fat goose	5. Hydrocarbon

68. The oil emulsions include: water, oil or other liquid and hydrophobic emulsifier. Indicate how much fatty oil should be taken to prepare 120 g of emulsion: _____ g

69. Indicate the components of zinc paste
A - _____
B - _____
C - _____

70. Calculate the needed amount of fatty base for preparing 10 rectal suppositories containing 0,15g of Etamiphylline earch. ($1/E_F$ = 0,81):_____.

71. Calculate the needed amount of fatty base for preparing 12 rectal suppositories containing 0,15g of Etamiphylline earch. ($1/E_F$ = 0,81):_____.

72. Calculate the needed amount of fatty base for preparing 20 rectal suppositories containing 0,15g of Etamiphylline earch. ($1/E_F$ = 0,81):_____.

73. Indicate the amount of gelatin-glicerine basis components for making 30 vaginal suppositories with boric acid by 0.2 g each (the volume of the slot form by the fatty basis 4.0 g, 1/Ef = 0.63):

74. Calculate the needed amount of gelatin, glycerol and purified water for preparing 30 moulded pessaries containing 0,2 g of boric acid and 0,25 g of glucose. ($1/E_F$ = 0,63 for Boric Acid and 0,81 for Glucose).

75. Calculate the needed amount of gelatin, glycerol and purified water for preparing 20 moulded pessaries containing 0,2 g of boric acid and 0,25 g of glucose. (1/EF = 0,63 for Boric Acid and 0,81 for Glucose).

76. Match the right pairs:

Medicinal substances	**The principle of introducing in lipofilic suppository bases when using pumping method**
A. Novocain 2%	**1.** triturate with melted base
B. Streptotsid 0.25 g per one candle	**2.** As alcohol-water-glycerol solution
C. Dicaine1%	**3.** dissolve in a minimum amount of water
D. Beladonni extract soft	**4.** dissolve in a liquid similar to the base
E. Benzocaine 2%	**5.** grind and mix with very fine triturated base

77. Match the correct pairs:

Medicinal substances	**The principle of introducing in lipophilic suppository bases when using pumping method**
A. Ephedrine hydrochloride 1%	1. Mix with the base
B. Dermatol 0.15 g per one candle	2. As alcohol-water-glycerol solution
C. Ichthyol	3. Dissolve in a minimum amount of water
D. Camphor 4%	4. Dissolve in a liquid similar to the base
E. Norsulfazol 0.25 g per candle	5. Grind and mix with very fine triturated base

78. 200 ml 5% solution of calcium chloride for injections was prepared. Calculate the amount of solution calcium chloride 50% (1:2) and purified water required to obtain 200ml 5% solution_____.

79. 400 ml 5% solution of calcium chloride for injections was prepared. Calculate the amount of solution calcium chloride 50% (1:2) and purified water required to obtain 400ml 5% solution_____.

80. 100 ml 10% solution of calcium chloride for injections was prepared. Calculate the amount of solution calcium chloride 50% (1:2) and purified water required to obtain 100ml 10% solution_____.

81. Make up calculation for preparing eye drops according to the following prescription (E=0,12; K=1,89; for preparing eye drops use 1% Zinc sulphate solution):

Rp.: Zinc sulphate 0,25% -10 ml

Boric Acid sufficient amount to obtain isotonic solution.

Make up isotonic solution. Sterilize!

Label: Zinc Sulphate Eye drops.

82. Pharmacy receives prescription for preparing sterile solution in ratio of active substance and solvent 1:1000. What is a concentration of solution_____.

83. Ophthalmic ointments with pilocarpine are prescribed in a prescription. What is the optimal ointment base for that ointment.

84. Indicate, which stabilisator and for which purpose are used at stabilization of Novocain 0,5% solution for injection_____.

85. Pharmacy receives prescription for preparing sterile solution of Furacilinum in ratio of active substance and solvent 1:5000. What is a concentration of solution_____.

86. Isotonic concentration of the infusion according to the Vant-Goff law is calculated by the following formula:_____

87. Mention application of techniques that minimize contamination of parenteral preparations:
A. limiting traffic and number of personal in the working areas
B. manufacturing process would be provided in controlling areas
C. employing work particles that promote cleanliness
D. non of the above
E. only C

88. For sterilization of bases for eye ointment in dry-heat sterilizer following temperature regimes are used:
1. _____
2. _____

89. Isotonic concentration of solutions can be calculated by the following methods
1. _____
2. _____
3. _____

90. Which of represented substances aren't rational to use in compound of bases for eye semi-solid dosage forms:
A. Wool fat (Lanolin)
B. Polyethylene Oxide 1500 (PEO 1500)
C. Methyl cellulose
D. Sodium laurilsulfate
E. Sodium carboxy methyl cellulose

91. For sterilization of basis for eye ointments the following methods are used:
A. Saturated water vapour under the pressure and the temperature of 120°C for 8 min.
B. Saturated water vapour under the pressure and the temperature of 120°C for 12 min.
C. Dry hot air at the temperature of 180°C for 30 min
D. Dry hot air at the temperature of 200°C for 15 min.
E. Sterilization by filtration

92. Calculate an amount of Benzylpenicillin sodium (in g) for preparing a dusting if the amount of its according to the prescription is 1 500 000 activity units: _____ grams (1,000,000 AU corresponds to 0.6 g)

93. Match the right pairs:

Medical substance	Way to enter in pharmacopoeia ophthalmic basis
A. Collargol	1 - dissolved in water
B. Etylmorfine hydrochloride	2- dissolved in base
C. Pilocarpine hydrochloride	3 – grinded with the part of the base
D. Xeroform	4 - grinded with sterile vaseline oil
E. Mercury oxide yellow	5 - mixed directly with the base

94. Solutions for infusion use differ the number of solution criteria for injections. Indicate the characteristics relevant for infusion solutions:
A. Isotonicity
B. Introduction in significant quantities

C. The presence of preservatives
D. Isoionic
E. Isoosmotic

95. Definition of isotonic concentration (%) of solutions on the basis of Van't-Hoff equation is conducted by the formula _____.

96. Calculate isotonic concentration of Aethylmorphine hydrochloride solution by cryoscopic method ($\Delta t_{1\%}$ = 0,088°): _____ %.

97. Calculate the amount of sodium chloride, which needs to add for isotonicity to 1 l of 2% trymecaine solution (E trymecaine = 0.21): _____g.

98. Calculate isotonic concentration of sodium hydrocarbonate solution by Raoult law ($\Delta t_{1\%}$ = 0,38°): _____%.

99. Calculate the amount of sodium chloride, which needs to add for isotonicity to 1 l of solution that contains 2% novocaine and 0.1% atropine sulfate (E novocaine = 0.18; e atropine sulfate = 0.1): _____g.

100.6Calculate isotonic concentration of sodium hydrocarbonate solution by Van't-Hoff equation (M = 84,0; i =1,75): _____%.