## ЗАТВЕРДЖЕНО

Перший проректор з науково-педагогічної роботи ЛНМУ імені Данила Галицького доц. Ірина СОЛОНИНКО

## ЗАТВЕРДЖЕНО

на засіданні вченої ради фармацевтичного факультету спільно з вченою радою факультету іноземних студентів ЛНМУ імені Данила Галицького протокол № від \_\_\_\_24 р. голова вченої ради фармацевтичного факультету \_\_\_\_\_ доц. Данило КАМІНСЬКИЙ голова вченої ради факультету іноземних студентів доц. Євген ВАРИВОДА

## ЗАТВЕРДЖЕНО

на засіданні профільної методичної комісії з хімічних та фармацевтичних дисциплін ЛНМУ імені Данила Галицького, протокол № 2 від 29.02.2024 р. Голова методичної комісії

\_\_\_\_\_ проф. Світлана БІЛОУС

## LIST

of tasks for the objective structured practical examination (OSPE) specialty 226 «Pharmacy, industrial pharmacy» the examination discipline «Technology of drug preparations» OSPE station 2 «Industrial technology of medicinal products»

1. Powders of the following composition are produced by pharmaceutical company:

| Phenobarbital            | 0.05 |
|--------------------------|------|
| Bromisoval               | 0.2  |
| Papaverine hydrochloride | 0.03 |
| Calcium gluconate        | 0.5  |

Make working prescription for manufacturing 10 kg of powders if Fa = 1.05. Specify order of mixing powder ingredients and make the manufacturing scheme. Enumerate the quality parameters and specify the equipment for powder flowability testing.

- 2. Medicinal species are produced by pharmaceutical company. 190 kg of finished product were obtained in the result of manufacturing 200 kg of sedative species. Write the material balance equation and calculate output, losses, factor of account. Specify the fineness degree of the raw material in the composition of medicinal plant species and make the manufacturing scheme for medicinal species. Enumerate the quality parameters of medicinal species and specify the size reduction equipment for plant raw material.
- 3. Sodium chloride tablets are produced by pharmaceutical company. Make working prescription for manufacturing 1000 tablets if Fa = 1.05. Specify the production method and compose the manufacturing scheme. Specify quality parameters of tablets and the apparatus for dissolution testing.
- 4. Tablets "Papazol" that contain dibazol and papaverine hydrochloride 0.03 each are produced by pharmaceutical company. The average weight of a tablet is 0.1. Make working prescription for manufacturing 2000 tablets if Fa = 1.02. Specify the production method and make the manufacturing scheme. Enumerate the quality parameters of tablets and specify the apparatus for tablet friability testing.
- 5. Dimedrol tablets on 0.05/0.1 are produced by pharmaceutical company. Make working prescription for manufacturing 1000 tablets if output of finished product is 98%. Specify the production method and make the

manufacturing scheme. Enumerate the quality parameters of tablets and specify the apparatus for disintegration test.

- 6. Tablets "Ascorutin" that contain 0.05 g of rutin, 0.05 g of ascorbic acid, and 0.2 g of glucose, the average weight of a tablet is 0.35, are produced by pharmaceutical company. Make working prescription for manufacturing 10 kg of the tablets if Fa = 1.03. Specify the production method and make the manufacturing scheme. Enumerate the quality parameters of tablets and specify the apparatus for dissolution testing.
- 7. Tablets with ephedrine hydrochloride on 0.025/0.03 are produced by pharmaceutical company. Make working prescription for manufacturing 2000 tablets if Fa = 1.03. Specify the production method and make the manufacturing scheme. Enumerate the quality parameters of tablets and specify the apparatus for tablet friability testing.
- 8. Tablets with riboflavin on 0.005 are produced by pharmaceutical company. The average weight of a tablet is 0.01. Make working prescription for manufacturing 1000 tablets if Fa = 1.03. Specify the production method and make the manufacturing scheme. Enumerate the quality parameters of tablets and specify the apparatus for studying the resistance to crushing of tablets.
- 9. Tablets of the following composition are produced by pharmaceutical company:

| Zinc sulfate   | 0.0003 |
|----------------|--------|
| Lactose        | 0.0277 |
| Average weight | 0.038  |

Make working prescription for manufacturing 1000 tablets if output is 98%. Specify the production method and make the manufacturing scheme. Enumerate the quality parameters of tablets and specify the apparatus for dissolution test.

- 10. Capsules are produced by pharmaceutical company. Calculate mass of glycerin for manufacturing 5000 hard gelatin capsules if weight of coat is 1.2 g, Fa = 1.02. Specify the production methods of capsules and make the manufacturing scheme for hard gelatin capsules producing by compression method. Enumerate the quality parameters of capsules and specify the apparatus for dissolution testing of capsules.
- 11. Aqueous solutions are produced by pharmaceutical company. Calculate amount of 36% hydrochloric acid for preparing 50 kg of 8.3% acid. Specify the production methods of aqueous solutions and make the manufacturing scheme. Enumerate the quality parameters of solutions and specify the filters that can be used for solutions.
- 12. Medicinal syrups are produced by pharmaceutical company. Make working prescription for manufacturing 100 kg of Althea syrup if Fa = 1.025. Specify features of manufacturing and make the manufacturing scheme. Enumerate the quality parameters of syrups and specify the filters that can be used for syrups.
- 13. Medicinal syrups are produced by pharmaceutical company. Normalize 50 kg of sugar syrup with concentration 75%. Specify the production methods of aromatic syrups and make the manufacturing scheme for sugar syrup. Enumerate the quality parameters of syrups and specify the mixers that can be used for syrup manufacturing.
- 14. Alcoholic solutions are produced by pharmaceutical company. Make working prescription for manufacturing 50 L of 1% salicylic acid solution if Fa = 1.02, density of the solution is 0.892 g/mL. Specify the features of manufacturing and make the manufacturing scheme. Enumerate the quality parameters of alcoholic solutions and specify the filters that can be used for filtering these solutions.
- 15. Alcoholic solutions are produced by pharmaceutical company. Write the material balance equation and calculate output, losses, factor of account if 48 L of finished product were obtained in the result of manufacturing 50 L of boric acid solution. Specify the production methods of alcoholic solutions and make the manufacturing scheme. Enumerate the quality parameters of solutions and specify the filters that can be used for filtering alcoholic solutions.
- 16. Alcoholic solutions are produced by pharmaceutical company. Write the material balance equation and calculate output, losses, factor of account if 490 L of finished product were obtained in the result of manufacturing 500 L of camphor solution. Specify the features in manufacturing alcoholic solutions in the industrial conditions and make the manufacturing scheme. Enumerate the quality parameters of alcoholic solutions and specify the filters that can be used for filtering the solution.
- 17. Solutions for injection in ampoules are produced by pharmaceutical company. Make working prescription for manufacturing 2000 ampoules on 2 mL of 0.5% Novocain injection if Fa = 1.005, density of the solution = 1.0042 g/mL. Specify the features of manufacturing of Novocain injection and make the manufacturing scheme. Enumerate the quality control parameters of solutions for injection and specify the method for testing sterility of the solution for injection.
- 18. Solutions for injection in ampoules are produced by pharmaceutical company. Make working prescription for manufacturing 5000 ampoules on 1 mL of 10% sodium and caffeine benzoate solution for injection if Fa = 1.02,  $VIC_{API} = 0.65$ . Specify the features of manufacturing of sodium and caffeine benzoate injection and

make the manufacturing scheme. Enumerate the quality control parameters of solutions for injection in ampoules and specify the equipment used at the stage of filtering.

- 19. Solutions for injection in ampoules are produced by pharmaceutical company. Make working prescription for manufacturing 20 L of 20% magnesium sulfate solution for injection in ampoules if Fa = 1.005, VIC<sub>MgSO4</sub> = 0.5 mL/g. Specify the features of manufacturing of 20% magnesium sulfate solution for injection and make the manufacturing scheme. Enumerate the quality control parameters of solutions for injection and specify the method for leak testing of ampoules filled with magnesium sulfate solution.
- 20. Glucose solution for injection in ampoules is produced by pharmaceutical company. Write the material balance equation and calculate output, losses, factor of account if 970 ampoules of the solution were obtained in the result of manufacturing 1000 ones. Specify the features of manufacturing of glucose solution for injection in ampoules and make the manufacturing scheme. Enumerate the quality control parameters of solutions for injection and specify the methods for leak testing of ampoules filled with aqueous solution.
- 21. 1% atropine sulfate eye drops are produced by pharmaceutical company. Write the material balance equation and calculate output, losses, factor of account if 19.3 L of finished product were obtained in the result of manufacturing 20 L of the solution. Specify the features of manufacturing of eye drops in the industrial conditions and make the manufacturing scheme for eye drops. Enumerate the quality control parameters of eye drops and specify the equipment for filtering aqueous solutions.
- 22. Extraction preparations are produced by pharmaceutical company. Calculate mass of raw material and volume of extraction solvent for manufacturing 100 L of Valerian tincture if output of finished product is 95%, Cab = 2.5. Specify the production methods of tinctures and make the manufacturing scheme. Enumerate the quality control parameters of tinctures and specify the equipment for filtering tinctures.
- 23. Extraction preparations are produced by pharmaceutical company. Calculate mass of raw material and volume of extraction solvent for manufacturing 20 L of Hawthorn tincture if Fa = 1.05, Cab = 2.0. Specify the production methods of tinctures and make the manufacturing scheme. Enumerate the quality control parameters of tinctures and specify the equipment used at the stage of extract obtaining by percolation method.
- 24. Extraction preparations are produced by pharmaceutical company. Calculate mass of raw material and volume of extraction solvent for manufacturing 10 L of Valerian tincture if Fa = 1.05, Cab = 2.5. Specify the production methods of tinctures and make the manufacturing scheme. Enumerate the quality control parameters of tinctures and specify the equipment used at the stage of tincture obtaining by percolation method.
- 25. Extraction preparations are produced by pharmaceutical company. Calculate mass of raw material and volume of extraction solvent for manufacturing 10 L of Water pepper liquid extract if output is 99%, Cab = 3.0, n = 7. Specify the production methods of liquid extracts and make the manufacturing scheme for producing liquid extract by percolation method. Enumerate the quality control parameters of liquid extracts and specify the equipment that can be used for filtering liquid extracts.
- 26. Extraction preparations are produced by pharmaceutical company. Calculate mass of Althea roots for manufacturing 20 kg of dry extract concentrate if Fa = 1.02. Specify the extraction solvents used for manufacturing extracts concentrates and make the manufacturing scheme for dry extracts concentrates. Enumerate the quality parameters of dry extracts concentrates and specify the equipment used at the stage of extract obtaining by bismaceration method.
- 27. Adonisyd is produced by pharmaceutical company. Calculate mass of Adonis herbs with biological activity 60 AU in 1 g for manufacturing 20 L of Adonisyd (1 mL of preparation 25 AU). Specify the production method and make the manufacturing scheme. Enumerate the quality parameters and specify the apparatus used to obtain the preparation.
- 28. Organ preparations are produced by pharmaceutical company. 49.5 kg of finished product were obtained in the result of manufacturing 50 kg of pepsin. Write the material balance equation and calculate output, losses, factor of account. Specify the features in manufacturing and make the manufacturing scheme. Enumerate the quality parameters of organ preparations and specify the size reduction equipment for raw material.
- 29. Pancreatin tablets are produced by pharmaceutical company. 118 kg of finished product were obtained in the result of manufacturing 120 kg of the tablets. Write the material balance equation and calculate output, losses, factor of account. Specify the pharmacotherapeutic group of the preparation and make the manufacturing scheme for tablets by compression with previous granulation. Enumerate the quality parameters of tablets and specify the disintegration time for enteric-coated tablets.
- 30. Semi-solid preparations are produced by pharmaceutical company. Make working prescription for manufacturing 20 kg of 10% zinc oxide ointment if Fa = 1.02. Specify the features of manufacturing ointments in the industrial conditions and make the manufacturing scheme for zinc oxide ointment. Enumerate the quality parameters of ointments and specify the homogenization equipment for ointments.

- 31. 10% camphor ointment is produced by pharmaceutical company. Make working prescription for manufacturing 10 kg of the ointment if Fa = 1.05. Specify the type of the ointment by disperse classification and make the manufacturing scheme. Enumerate the quality parameters of semi-solid preparations and specify the equipment for pH measurement.
- 32. 10% streptocide ointment is produced by pharmaceutical company. Make working prescription for manufacturing 50 kg of the ointment if output is 98%. Specify the features in manufacturing of heterogeneous ointments in the industrial conditions and make the manufacturing scheme. Enumerate the quality parameters of semi-solid preparations and specify the equipment for packing ointments.
- 33. Semi-solid preparations are produced by pharmaceutical company. Make working prescription for manufacturing 20 kg of 10% zinc oxide ointment if output is 99%. Specify the type of the ointment by disperse classification and make the manufacturing scheme. Enumerate the quality parameters of ointments and specify the homogenization equipment for ointments.
- 34. Suppositories are produced by pharmaceutical company. Write the material balance equation and calculate output, losses, factor of account if 978 suppositories were obtained in the result of manufacturing 1000 ones. Specify the production methods of suppositories in the industrial conditions and make the manufacturing scheme. Enumerate the quality parameters of suppositories and specify the apparatus for dissolution testing of hydrophilic base suppositories.

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