

Educational-qualification  
level Master

Training direction 1102 "Pharmacy"

Specialty 8.110201 "Pharmacy for foreign students" Semester 7

Subject **Industrial technology of drugs**

### **Questions for FINAL MODULAR CONTROL 1**

1. Categories of reference documentation. Industry associations.
2. Material balance. Indexes of material balance.
3. General rules of GMP.
4. Size reduction in the manufacture of medicines. Objectives. Ways and mechanisms of size reduction. Grinding equipment.
5. How to determine concentration of ethanol? Technique of alcohol recuperation.
6. Methods of tinctures obtaining. Quality control. Intensification of extracting processes.
7. Technology of liquid extracts obtaining by fractional maceration and percolation method.
8. Technology of liquid extracts obtaining by repercolation method. Quality control.
9. What are Soft extracts? Extragents. The extraction methods in manufacture of soft extracts
10. Purification of soft extracts. Condensation of extract. Standardization.
11. Technology of dry extracts production. Description of the stages.
12. Drying methods in dry extracts production.
13. Classification of ampoules. Ampoules glass. Quality control of ampoules.
14. Preparation of injection solutions. Description of the stages.
15. Manufacture of solutions for injections required stabilization. Methods of stabilization.
16. Aseptic prepared solutions for injections. Manufacture of lyophilized preparations for parenteral application. Blow-Fill-Seal (BFS) technology
17. Quality control of injection solutions
18. Manufacture of non-aqueous solutions for injections. The requirements for non-aqueous solvents.
19. Infusion solutions. Requirements for infusions
20. Conventional (traditional) eye medicinal forms. Advantages and disadvantages.

21. Physicochemical Drug Properties in ophthalmic medicinal forms.
22. Ophthalmic suspensions and ointments
23. Manufacture of eye drops. Stabilization of eye drops. Improvement of the ocular bioavailability
24. Calculate how much glucose with 9.8 % moisture should be added to obtain 40 % of the standard solution from 300.0 l of 38 % glucose solution for injections. The density of the solution is 1.1498 g/ml.
25. Make the working formula for manufacturing 2000 ml of sodium caffeine-benzoate 20 % solution for injections. The volume increase ratio is 0.65 ml/g.
26. Make the working formula for manufacturing 2000 ml of sodium caffeine-benzoate 20 % solution for injections. The density of 20 % solution is 1.073.
27. How can one prepare 200 l of 40° ethanol starting from 96° ethanol?
28. How much of 96.6 ° (94.72 % (m)) ethanol and water should we take to prepare 100 kg of 40° (33.3 % (m)) ethanol?
29. Calculate how much water should be evaporated from 200.0 kg of soft extract of Artemisia (Wormwood) containing 39 % moisture.
30. Calculate how much water should be added to 350.0 kg of soft extract of Artemisia containing 15 % moisture.
31. Determine the volume of anhydrous ethanol at the temperature of 20 °C in 200 l of 96.5 ° ethanol.
32. 400 kg of 96.2 ° ethanol are obtained. How much kilograms of 95 ° alcohol can you prepare?
33. Determine the concentration of ethanol by density if the weight of a picnometer with ethanol is 14.8405 g, the weight of a picnometer with water is 15.4506 g, the weight of an empty picnometer is 10.0145 g (t=20 °C).
34. Make the working formula for manufacturing 2000 ml of sodium caffeine-benzoate 20 % solution for injections. The density of 20 % solution is 1.073.
35. Technological flow-chart of calendula tincture.
36. Technological flowchart of Belladonna soft extract manufacture.
37. The flowchart for manufacture of Belladonna dry extract.
38. Technological flowchart of analginum solution 25 % in ampoules preparation.
39. Technological flowchart of 0.25 % Novocain solution for injections manufacture.
40. Technological flowchart solution for injections manufacture with special purification.
41. Technological flowchart for manufacture of 40 % glucose solution for injections in 50 ml vials (infusion solution).
42. The flowchart for technological process of prolonged ophthalmic drops.