

**Examination topics/sub-topics in the technology of galenic preparations for students of the Bachelor of Pharmacy program**

1. The technology of dosage forms as science. Objectives, tasks. Historical stages of development. Main terminology of pharmaceutical technology. General principles of preparation of dosage forms. Technical economical balance. Type of dosage forms, characterization, classification.
2. Normative-technical documentation for preparation of dosage forms in pharmacy and industry. Good manufacturing practice. General principles of eco-friendly pharmaceutical manufacture.
3. Pharmaceutical solutions, characterization, classification. Solvents. The theoretical basis of solubility. Liquid dosage forms.
4. Solutions with easily soluble substances. Special cases for preparation of solutions.
5. Preparation of concentrated solutions. Preparation of liquid dosage forms by concentrated solutions and solid substances.
6. Standard solution. Dilution of standard solutions. Standardization of standard solutions by determining the quantity of active substance and density.
7. Alcoholometry, dilution of alcohol, strengthening, and quantity measurement.
8. Solutions with non-aqueous solvents (alcohol, glycerol, oil).
9. Pharmaceutical drops (eye, ear. drops)
10. Solutions by unlimited swellable high-molecular substances. Preparation solutions by limited swellable high-molecular substances
11. Colloids and semi-colloidal solutions
12. Suspensions, characterization, classification, preparation technology, standardization.
13. Suspensions. Suspensions using hydrophilic and lipophilic substances.
14. Suspensions. Suspension from the substance with strongly expressed hydrophobic properties.
15. Emulsions, Characterization, classification, preparation technology, standardization, emulsifiers.
16. Emulsions. Oily emulsions. Plant emulsions.
17. Syrups, characterization, classification, preparation technology, standardization.
18. Simple sugar syrup, althea medical syrup. Standardization.
19. Aromatic waters, characterization, classification, preparation technology, standardization. Preparation and standardization of mint aromatic water.
20. Phytocompositions, characterization, classification, preparation technology, standardization. Preparation phytocomposition using salts.

21. Phytocomposition containing essential oils and alcohol soluble substances (camphora, menthol).  
Preparation divided phytocomposition. Divided phytocomposition.
22. Aqueous extracts (infusion, decoction) from plant materials, characterization, classification, preparation technology.
23. Infusion and decoction. Special case of preparation infusion and decoction from plant materials.
24. Tinctures, classification. Preparation methods of tincture: percolation, maceration, dissolution.
25. Tinctures. Special case of preparation tincture (mint tincture). Standardization, storage.
26. Tinctures. Determination alcohol content in tinctures. Determination technical economical balance based on composition of alcohol and active substances.
27. Extracts, characterization, classification. Preparation technology of liquid extracts. Standardization, storage.
28. Liquid extracts of valerian. Standardization of liquid extracts according to the composition of active substances and dry residual. Determination technical economical balance based on composition of alcohol and active substances.
29. Thick and dry extracts, preparation technology, standardization, storage.
30. Oily extracts, preparation technology, standardization, storage.
31. Extract concentrate, preparation technology. Extragent. Recuperation of extragent from plant material.
32. Preparations with maximal degree of purification. Characterization, preparation technology, purification methods, standardization.
33. Preparations with individual substance. Characterization, preparation technology, purification methods, standardization.
34. Biogenic stimulators of animal, plant, and mineral origin; Characterization, preparation technology, standardization.
35. Preparations from raw plant material: juice and extracts. Characterization, classification, preparation technology.
36. Organopreparations, characterization, classification, preparation technology.
37. Preparation technology of hormone-containing preparations (insulin, thyroidinum), standardization.
38. Preparation technology of enzyme-containing preparations (pepsin), standardization. Immobilized enzymes.

**Exam question examples:**

- What do we represent by Material Balance Equation?
- List classification of dosage forms by aggregate condition.
- List classification by therapeutic effect type.
- List advantages and disadvantages for different administration rout