Questions for the State exam in Pharmaceutical Technology

1. Systematic classification of drug products and dosage forms. Latin nomenclature of dosage forms. Drug product as a dispersion system. Administration routes of drug products.

2. Pharmaceutical excipients – constitutive excipients (bases). Water in dosage forms technology. Production of water for pharmaceutical use.

3. Pharmaceutical excipients – stabilizers of drug product composition, modifiers of sensual perception, technical excipients.

4. Excipients stabilizing liquid dispersion systems. Surfactants, surface activity, chemical structure, classification and examples of surfactants. Surface and interfacial phenomena in liquid systems.

5. Pharmaceutical solvents. Solutions. Solubility. Solubilization. Solubilizers. Dissolution rate of solid substances, relation to bioavailability. Aromatic waters, aromatic spirits. Syrups.

6. Drug products obtained by extraction methods. Physical and chemical aspects of drug extraction. Extraction methods. Dosage forms prepared from medicinal plant drugs – procedures, properties, evaluation.

7. Polymers as pharmaceutical excipients. Gels and gel structure. Soaps.

8. Dispersion systems liquid in liquid. Excipients. Preparation of emulsions. Medicinal emulsions. Instabilities.

9. Dispersion systems of solid substances in liquid. Wetting of solid substances. Excipients stabilizing dispersion systems. Kinetic and aggregate instability. Medicinal suspensions.

10. Powders as raw material and as a dosage form. Basic operations and general procedures during powder preparation (comminuting, mixing, sieving). Powders for cutaneous application.

11. Pulmonary drug products. Pressurized containers for aero dispersions, propellant gases. Biogalenic aspects of inhalation drug products.

12. Eye preparations. Physical and microbiological aspects of ophthalmic drug products, excipients, production, evaluation. Nasal and ear preparations. Bioavailability of active substances from ophthalmic, nasal and ear products.

13. Parenteral products. Sterility, sterilization, cleanroom areas. Manufacture of injections. Technology, classification and use of infusion solutions.

14. Rheology and flow properties of drug products. Viscosity. Apparent viscosity.

15. Semisolid preparations for cutaneous application, classification, definitions. Biogalenic aspects of semisolid preparations, transfer of a drug into and through the skin.

16. Ointments, creams, pastes. Ointment and cream bases. Manufacture of semisolid preparations. Solution, emulsion, suspension systems.

17. Rectal and vaginal drug products, constitutive excipients, bioavailability of drugs. Preparation and quality control of rectal and vaginal products.

18. Granules. Creation of granules and compressed aggregates. Binding forces. Granulation, granulation methods.

19. Solid drug products for oral and peroral administration. Tablets. Quality control.

20. Coated tablets. Dissolution test.

21. Peroral capsules. Hard and soft gelatin capsules. (soft gelatin capsules with and without a seam).

22. Modified release drug products.

23. Dosage microforms. Excipients, production. Dosage forms containing microforms.

24. Therapeutic systems: peroral, transdermal, parenteral, ocular, intrauterine.

25. Stability and stabilization of drug products.

26. Pharmaceutical package and packaging.

27. Pharmaceutical bioavailability (absolute, relative). Main pharmacokinetics parameters and their consequences on developing of dosage forms. Chemical, biological and therapeutic equivalence of drug products.

28. Peroral and dermal liquid dosage forms.

29. Targeted bio distribution of drugs. Colloidal carriers of drugs. Liposomes, microemulsions, nanoparticles.

30. Liberation and absorption of drugs in relation to dosage form.