SYLLABUS

for the state exam in Pharmaceutical Technology and Biopharmacy

1. Biopharmaceutical evaluation of the oral route of administration- physiological and pharmaceutical factors.
2. Liquid dosage forms for oral administration – solutions. Technological scheme of preparation and control.
3. Solubility enhancement methods.
4. Liquid dosage forms - emulsions. Technologies and biopharmaceutical evaluation.
5. Liquid dosage forms - suspensions. Technologies and biopharmaceutical evaluation.
6. Nasal dosage forms. Trans-nasal absorption. Technologies and biopharmaceutical evaluation.
7. Inhaled dosage forms. Fate of inhaled dose in the respiratory tract. Technologies and biopharmaceutical evaluation.
8. Parenteral preparations. Classification. Sterilization methods and control of sterility. Pyrogens and achieving apyrogenicity. Aseptic conditions.
9. Injection solutions. Technologies and biopharmaceutical evaluation.
10. Infusion solutions. Pharmacopoeial and additional requirements. Expression of concentrations. Labeling.
11. Eye Dosage forms. Technologies and biopharmaceutical evaluation.
12. Phytopreparations. Extraction methods.
13. Tinctures and extracts. Methods of preparation. Standardization and control.
14. Dosage forms for application to the skin. Percutaneous absorption. Biopharmaceutical evaluation.
15. Semi-solid dosage forms for application to the skin. Classification. Ointment bases. Technological scheme for preparation.
16. Formulations for rectal administration. Suppositories. Technologies and biopharmaceutical evaluation.
17. Dosage forms for vaginal administration. Pessaries. Technologies and biopharmaceutical evaluation.
18. Powders. Technologies and biopharmaceutical evaluation.
19. Granules. Methods of preparation of granules. Control.
20. Tablets. Methods of preparation of tablets. Technological and biopharmaceutical prerequisites for the selection of excipients.
21. Tablets. Influence of pharmaceutical factors on the biopharmaceutical behaviour of tablets.
22. Capsules. Technologies and biopharmaceutical evaluation.
23. Coated tablets – dragees. Technologies. Control.
24. Coated tablets – Film-coated tablets. Preparation. Control.
25. Technological and biopharmaceutical methods for the control of tablets, dragees, coated tablets and capsules.
26. Modified drug release. Therapeutic and biopharmaceutical prerequisites. Technological approaches by slowing the dissolution rate and reducing the solubility of the drug substance. Examples.
27. Technological approaches to prolong drug action by slowing down the diffusion rate of the drug substance. Examples.
28. Targeted drug delivery – nanoparticles and liposomes.
29. Microcapsules and microspheres. Technologies and biopharmaceutical evaluation.
30. Therapeutic systems. Types. Technological and biopharmaceutical prerequisites for development of controlled release dosage forms.
31. Reservoir (membrane) physical systems. Technologies and biopharmaceutical evaluation. Examples.
32. Monolithic (matrix) physical systems. Technologies and biopharmaceutical evaluation. Examples.
33. Biodegradable drug delivery systems "Chemical systems – immobilized systems, "prodrug" systems. Technologies and biopharmaceutical evaluation. Examples.
34. Stability and stabilization of dosage forms. Technological aspects. Examples.
35. Packaging and packaging materials. Technology Assessment. Examples Control.

***Bibliography***

***Main:***

* Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, Ninth Edition
* Aulton's Pharmaceutics, 4th Edition The Design and Manufacture of Medicines, Editor(s) Aulton & Taylor, ISBN :9780702042904

***Additional:***

* Remington, The Science and Practice of Pharmacy Edited by Allen, Loyd V., Jr, 22nd edition, ISBN: 978-0-85711- 062-6