Final exam – practical questions

-2013-

Industrial pharmaceutical practices

1. Summarize the working principles and the operation of the electric balances, and the types of calibration of electrical balances.
2. Characterize the operation principle of distillation. Parts of the equipment /laboratory distillator and thermocompression method/. Summarize the construction of the reverse osmosis (RO) apparatus.
3. Summarize the principles, the construction of the ion-exchange device and the proper technology of operation and regeneration, the dosage form investigation of the product.
4. Operation method and basic rules of centrifugation. Two main types of the rotors.
5. Summarize the working principle, the parts and the application fields of the spray-drying equipment.
6. Summarize the types and the construction of mixers used for liquid mixing.
7. Summarize the general way of preparing *stock solutions*.
8. Summarize the types and the construction of mixers used for mixing semisolid materials.
9. Summarize the devices, which are used for preparing emulsions (types, working principle).
10. Investigations of the stability of suspensions and the redispersibility of the sediment. Flocculation.
11. Preparation process of *pastes*, the process of smoothing, dosage form investigations.
12. Characterization of the moulding process /suppository/. How can be the suppository base prepared for the moulding? Characterize the hydrophilic, lipophilic and lipo-hydrophilic suppository bases.
13. How can you define the replacement factor in case of preparation of moulding suppositories?
14. Summarize the types of grinders (working principle, particle size range, application).
15. Summarize the types of mills (working principle, particle size range, application).
16. Summarize the general particle size measurement methods. Sieve-analysis. Microscopic measurement.
17. Characterize the laser diffractometry as a novel particle size measurement method.

18. Sieve-analysis process. Construction of the size distribution curve and the cumulative plot.
19. Summarize the mixers used for solid mixing. Tumblers.
20. Summarize the operation of eccentric tablet machines.
21. Summarize the operation of rotation tablet machines.
22. Which investigational methods are official in the Pharmacopoeia for determination of the quality of granules?
23. Summarize the process of wet granulation with colloid solution.
24. Summarize the main parts and the operation of the centrifugal granulator.
25. Summarize the process of solvent granulation.
26. Summarize the working principle of the fluid-granulator.
27. How can be investigated the disintegration of tablets?
28. Summarize the dissolution rate investigating equipment and the procedure of the measurement.
29. Summarize the construction of the Sartorius resorption model and the procedure of the investigation.
30. Summarize the devices and the methods for investigation of mechanical hardness of tablets.
31. Summarize the principle of determination of pressure force. What is the lubrication coefficient and how should it be determined?
32. Summarize the working steps of sugar coating and the practical aspects of each step.
33. Summarize the practical aspects of film coating.
34. Summarize the working principle of fluidization coating apparatus.
35. How can you determine the compressibility of powders? Summarize the calculation of Hausner factor (Hf) and Carr index.
36. How can you determine the minimal film-forming temperature?
37. Summarize the personal and material conditions for aseptic pharmaceutical preparation.
38. Summarize the construction of the laminar air flow workplace.
39. Summarize the composition of ocular solvents and the practical aspects of their aseptic preparation.
40. Summarize the sterilization with dry heat and the pharmacopoeial requirements.
41. Summarize the construction of the certoclav and the process of sterilization with humid heat.

42. Summarize the structure and the use of membrane-filters (devices). Integrity tests.
43. Summarize the practical methods for controlling sterilization.
44. Preparation and investigation of *Aqua destillata pro injectione*.
45. Composition, preparation and application of elecrolyte containing infusions.
46. Composition, preparation and application of *Infusio glucosi*, *Infusio glucosi salina*.
47. Composition, preparation, investigation and application of *Infusio dextrani*.
48. Composition, preparation and requirements of peritoneal dialysing solutions.
49. Summarize the methods and equipments for dividing solution injections.
50. Summarize the methods for controlling injections.
51. Summarize the practical aspects of powder ampoule preparation techniques.
52. Summarize the working principle of the lyophilizator and the properties of lyophilized products.
53. Summarize the working principle of Andersen cascade impactor.

Investigation of dosage forms

1. Characterization of ointments with physical investigations.
2. Consistency investigation of ointments.
3. Determination of drop mass of dosage forms, which are divided into drops.
4. Investigation of characteristic properties of emulsions.
5. Characterization and influencing opportunities of sedimentation of flocculated and deflocculated suspensions.
6. Main investigations of classification of tablets.
7. Investigation of transmittancy of different types of bottles.
8. Investigation of ointments in the aspect of drug liberation with agar-diffusion method.
9. Main physical investigations of suppository bases.
10. Investigation of decomposition of *Infusio glucosi.*