III Pharm D. Question Bank

Pharmaceutical Formulations

Chapter 1: PHARMACEUTICAL DOSAGE FORMS

2 Marks

1. Define elixirs and linctuses.
2. Define ointment and paste.
3. Classify liquid dosage forms with examples.
4. Give four advantages of liquid orals.
5. Classify pharmaceutical dosage forms.
6. Define dusting powders and dentifrices.
7. Give two examples each for non sterile semisolids and sterile ophthalmic formulations.
8. How are liquid dosage forms classified? Mention examples for each.
9. Define biphasic dosage forms. Give two examples.
10. Classify dosage forms with one example each.

Chapter No. 2:TABLETS

10 marks:

1. (A) With a neat labeled diagram, explain rotary compression process of tablet manufacturing. (B) Describe the defects in film coating process.
2. A) Discuss the tablet compression cycle by multistation rotary press.
   B) Write the reasons and remedies for capping and lamination.
3. Describe dry granulation technique and list advantages and disadvantages.
4. Classify granulation techniques. Describe the wet granulation method along with equipment used in each step.
5. Give a detailed account of the different excipients and their functions used in the tablets.

5 Marks:

1. Describe quality control tests for tablets.
2. Describe formulation of chewable and sublingual tablets.
3. Describe the steps involved in sugar coating with suitable examples of ingredients used in each step.
4. Describediluents and disintegrants used in tablet preparation.
5. Emphasize on different stages involved in sugar coating of compressed tablets.

2 Marks:

1. Differentiate disintegrants and super disintegrants with examples.
2. Significance of bland excipient in buccal tablets.
3. Differentiate diluents and directly compressible vehicles by giving examples.
4. What are disintegrants?Give two examples.
5. What are chewable tablets? Give their advantages
6. What are enteric coating polymers? Name any two examples.

7. What tablet troches and lozenges?
8. List the lubricants used in tablets.
9. List in-process quality control tests for tablets.
10. Write a note on chewable tablets.
11. List the manufacturing defects of tablets.

Chapter 3: CAPSULES

CAPSULES Question Bank

5 marks questions

1. Give the quality control tests for hard gelatin capsules.
2. Write the filling of hard gelatin capsules.
3. Explain the formulation of hard gelatin capsules.
4. Explain the working of rotary die machine.
5. Explain the different steps involved in the production of hard gelatin capsule shell.
6. Explain in detail extraction of gelatin.
7. Describe briefly the manufacturing of soft gelatin capsules.
8. Write a note on the nature of capsule content in case of soft gelatin capsules.
9. Write a note on formulation of powder in manufacturing of hard gelatin capsules.
10. Explain the nature of the soft gelatin capsule shell.
11. Write a note on stability of capsules.
12. Write on manufacturing of hard gelatin capsules.
13. Write on the nature of hard gelatin capsule shell.

2 marks questions

1. Differentiate between hard gelatin and soft gelatin capsules.
2. Give the storage conditions for capsules.
3. List out the finishing techniques of hard gelatin capsules.
4. Write the advantages of soft gelatin capsules.
5. Define base adsorption and minim/gram factor.
6. Write weight variation test for capsules.
7. Write a note on finishing of capsules.
8. What is the role of humidity in the storage of hard gelatincapsules.
9. Mention the difference between type A and type B gelatin.
10. Name the quality control tests for capsules.
11. Give the different sizes of hard gelatin capsules.
12. Define bloom strength and write its importance.
13. Writing the importance of plasticizers in making capsules, give one example.
14. Write the pharmaceutical applications of soft gelatin capsules.
15. Write the role of viscosity in manufacturing of soft gelatin capsules.
16. Write the effect and limit of iron content in soft gelatin capsules shell.
17. Define base adsorption and name the factors influencing it.
18. What is minin/gram factor and give its formula?

19. What is base adsorption and give its formula?
20. Name the packings used for capsules.
21. Name four different shapes of soft gelatin capsules.
22. Give diagrammatic representation of type Agelatin.
23. Give diagrammatic representation of type B gelatin.
24. Name four machines used to fill hard gelatin capsules.
25. Write on the viscosity of liquids to be encapsulated in soft gelatin capsules.
26. Write on the pH of the liquids to be encapsulated in soft gelatin capsules.
27. Name two substances which can't be a major content in soft gelatin capsules.

Chapter 4: PARENTERAL PRODUCTS

10 marks

1. Explain the excipients used in the manufacture of parenterals giving their functions and examples.
2. Describe the formulation requirements for the manufacture of parenterals.
3. Classify injections as per USP. Describe parenteral suspensions and parenteral emulsions.
4. Describe in detail the production facilities required to be maintained for parenterals.
5. With a layout, explain the facilities required in production of parenterals.
6. Explain in detail, the production of parenteral products including the facilities and process of production.
7. Explainthe finished product quality control tests conducted on parenterals.
8. How do you design an aseptic area for the manufacturing of parenterals? Explain the role of additives in parenteral products.
9. Describe environmental control and maintenance of environment in parenteral production in detail along with cleaning and sterilization techniques.
10. Explain the importance of air control and the methods to control. Explain the sources of contamination in parenteral production giving the methods to overcome.
11. Explain stabilizers used in parenterals. Highlight the importance of tonicity.
12. Write the specifications and methods of preparation of WFI.Write the importance of non-aqueous vehicles in the formulation of parenterals giving suitable examples.
13. Define pyrogens. What are the sources of pyrogens and methods to eliminate the same? Explain the method to determine the presence of pyrogens in parenteral products using animals.
14. Describe LAL testand rabbit method to determine the presence of pyrogens in parenteral products.
15. Explain the methods of sterilization of parenteral products.How is test for sterility performed for injections?
16. Explain the methods of manufacture of sterile dry powder for injection.

2 marks

1. In what way small volume parenterals are different from large volume parenterals?

2. What is the difference between Drug injectable suspension (Methylprednisolone acetate suspension USP) and Drug for injectable suspension (Sterile chloramphenicol for suspension)?
3. What is the difference between Drug injection (Ex: Insulin injection USP) and Drug for injection (Ex: Penicillin G potassium for injection)?
4. Classify vehicles used in parenterals.
5. Write a note on types of waters used in parenterals.
6. Classify non-aqueous vehicles used in parenterals.
7. What are the requirements of oily vehicles used in parenterals?
8. What are depot injections?
9. Classify antioxidants used in parenterals.
10. List the preservatives used in parenterals.
11. Why is preservative in general not suitable for ampules unlike multidose vials?
12. What is the use of buffers in parenteral formulation?
13. Name the methods of adjustment of isotonicity.
14. Write the significance of isotonicity in parenteral products.
15. How are isotonic solutions different from paratonic solutions?
16. Name the methods to prepare sterile powders for injection.
17. Name the immediate containers used to supply parenterals.
18. Enumerate the glass containers used to supply parenterals. Suggest corresponding tests to determine their chemical resistance.
19. What is the rationality in conducting water attack test on only on type II glass containers?
20. What is the maximum quantity of injection can be stored in ampule, vial, and infusion bottle?
21. How many maximum number of doses can be present in vials? Compare this with the dose of the ampule.
22. Why is preservative not required in ampules and infusion bottles but required in multidose vials?
23. What are prefilled syringes?
24. What is the composition of rubber?
25. Write the examples of polymers used in the manufacture of rubber closures.
26. What should be the properties of rubber closures?
27. What are the disadvantages of rubber closures?
28. How are rubber closures tested for their quality?
29. Define pyrogens.
30. List two sources of pyrogens. Suggest two methods of eliminating the pyrogens.
31. Write *in vitro* method for testing of pyrogens.
32. What for LAL test is performed? How can the results be interpreted?
33. Compare the advantages of LAL test and rabbit method to determine pyrogens.
34. What is the full form of LAL in LAL test? What is the use of this test?
35. How is leakage test performed for parenterals?
36. How is clarity test performed?
37. What are the different methods of sealing of ampoules?
38. Compare pull sealing technique and tip sealing technique.
39. What are the advantages and disadvantages of pull sealing technique?
40. What are the advantages and disadvantages of tip sealing technique?
41. Name the materials used to coat the walls and floor of aseptic area.
42. How is surface disinfection done in parenterals manufacturing area?

43. What is the full form of HEPA? Write its efficiency.
44. What do you mean by 'class 100' clean area?
45. How is class 100 clean room is different from class 10,000 clean room and class 1,00,000 clean room?
46. What are the materials used to manufacture the uniforms of personnel working in parenterals?
47. If colouring agents are not added in parenteral products, then what is the reason for colour of a few parenteral products?
48. Write the composition of glass used as a material of construction for packaging of parenterals.
49. Write the composition of plastic used as a material of construction for packaging of parenterals.
50. Write the composition of rubber as a material of construction for closures used for packaging of parenterals.
51. How is rubber evaluated for its quality?
52. Explain powder glass test for glass containers used for packaging of parenterals.
53. Explain water attack test for glass containers used for packaging of parenterals.
54. Explain evaluation of plastic used as a material of construction for packaging of parenterals.
55. What are primary packaging materials of parenteral dosage forms? Give examples.
56. Write the merits and demerits of glass as a packaging material for parenterals.

Chapter 5: OPHTHALMIC FORMULATIONS (SEMI SOLIDS)

5 marks:

1. Write a note on containers for ophthalmic preparations
2. Discuss the formulation of an eye ointment.
3. Write a note on evaluation of an eye ointment.
4. Write a note on evaluation of eye drops.
5. Describe formulation of ophthalmic gels.
6. Describe formulation of ophthalmic suspensions.
7. Explain the formulation of eye drops
8. Explain the manufacturing of ophthalmic ointment
9. Explain the requirements for the ophthalmic preparations

2 marks

1. Write the ideal requirements of ophthalmic suspension
2. Advantages of ophthalmics
3. Role of viscosity modifiers in ophthalmics
4. Importance of sterilization for ophthalmic dosage forms.
5. Stabilizing agents used in eye drops
6. Name the any four preservatives used in ophthalmics.
7. Name any four preservatives used in ophthalmic preparations
8. Name sterilization methods for eye ointment

Chapter 6: LIQUID ORALS

5 marks

1. Describe various methods used for improving the solubility of poorly water soluble drugs.
2. Explain the factors influencing solubility of drugs, while preparing liquid orals.
3. Explain the approaches for enhancing aqueous solubility of poorly soluble drugs.
4. Write on formulation of oral liquid dosage forms.
5. Explain in detail various instability conditions of emulsions and its stabilisation methods.
6. Give an account of additives used in formulation of oral liquids.
7. Explain the various methods used for filling of liquid orals.
8. Write the various methods used for evaluation of emulsions.
9. Explain evaluation 4 of suspensions.
10. Write on stabilisation of suspensions.

2 marks

1. Give examples of two anti-oxidants and preservatives used in liquid orals.
2. What is co-solvency? Give two examples of two co-solvents.
3. Define creaming and cracking.
4. What is sedimentation volume?
5. Write on self-preservation of syrups.
6. Write the method of preparation of purified water I.P.
7. Write two advantages and disadvantages of liquid orals.
8. Define micellarsolubilisation
9. Write any two approved dyes and flavors in liquid orals.
10. Write the significance of viscosity in liquid orals.
11. Write the advantages of constant level filling mechanism.
12. Write the importance of overages in vitamin formulations.
13. Name any instrument/ technique used to test any two physical changes in liquid orals.
14. How is the problem with foam formation minimized in liquid products?
15. Enlist the types of ingredients used for suspensions.
16. Classify preservatives with examples.

Chapter 7: NOVEL DRUG DELIVERY SYSTEMS

5 marks

1. Write on concepts of novel drug delivery systems.
2. Explain various approaches used in rate pre-programmed drug delivery systems.
3. Explain various physicochemical factors to be considered in designing controlled drug delivery systems.
4. Explain various biological factors to be considered in designing controlled drug delivery systems.
5. Write various approaches used in parentral controlled drug delivery system.
6. Write the various formulation approaches used in transdermal drug delivery systems.
7. Write the advantages and disadvantages of transdermal drug delivery systems.
8. Write a note on components in transdermal patches.
9. Write a note on implants.
10. Write on membrane permeation controlled drug delivery systems with examples.
11. Write a note on site targeted drug delivery systems.
12. Write a note on ocusert.

2 marks

1. Give 4 advantages of buccal drug delivery.
2. Give 2 formulation approaches in buccal drug delivery.
3. What are targeted drug delivery systems?
4. What do you mean by first order targeting? Give an example.
5. Give examples of two marketed transdermal patches.
6. Compare plasma conc. time profile of controlled drug delivery systems with conventional dosage forms.
7. Enlist various components of TDDS.
8. Write any two applications of nasal drug delivery systems.
9. Give 4 examples of mucoadhesive polymers.
10. What is ocusert?
11. What are liposomes?
12. Give 2 examples of drug delivery systems prepared by matrix diffusion controlled approach.
13. What is osmotic pump?
14. Define nanoparticles.