

RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES**QUESTION PAPER BANK****Course & Year: First Year Pharm D****Subject: PHARMACEUTICS****Chapter – 1 A) INTRODUCTION TO DOSAGE FORMS****B) PRESCRIPTION****C) POSOLOGY****(10 or 5 + 5, 2 Marks)****LONG ESSAYS (10 Marks)**

1. Define dosage forms. Classify and explain various dosage forms.
2. Define and classify dosage forms. Write the definitions of solid dosage forms used internally and externally.
3. Define and classify dosage forms. Write the definitions of liquid dosage forms used internally and externally.
4. Define and classify dosage forms. Write the definitions of semisolid dosage forms used internally and externally.
5. Define prescription. With the help of an ideal example describe the importance of all the parts of a prescription.
6. Define prescription. Explain the handling of prescription. Write about the sources of errors in prescription.
7. Explain the factors affecting dose selection. Give any two formulae to calculate children dose.
8. Explain the factors affecting dose selection. Give any two formulae to calculate infant dose.
9. Define posology. Enumerate different factors affecting selection of dose of a drug.

SHORT ESSAYS (5 Marks)

1. Define dosage forms. Write the classification table for the various types of dosage forms.
2. Define and classify solid dosage forms.
3. Define and classify liquid dosage forms.
4. Define and classify semisolid dosage forms.
5. Define prescription. Explain the parts of prescription.
6. Define prescription. Explain the handling of prescription.
7. Define posology. Enumerate four factors affecting selection of dose of a drug.

8. Explain any three factors affecting dose selection. Give any two formulae to calculate child dose.
9. Explain any three factors affecting dose selection. Give any two formulae to calculate infant dose.
10. Define posology. Explain any two formula for calculating child and infant dose.
11. Explain the importance of dosage form.

SHORT ANSWERS (2 Marks)

1. Define dosage forms with examples.
2. Define unit and bulk dosage forms.
3. Define solid dosage forms with examples.
4. Define liquid dosage forms with examples.
5. Define semisolid dosage forms with examples.
6. Define tablets with examples.
7. Define capsule with examples.
8. Define pills with examples.
9. Define drops with examples.
10. Define jellies with examples.
11. Define creams with examples.
12. Define pastes with examples.
13. Define prescription.
14. What is the importance of prescription?
15. What is superscription?
16. Define inscription with example.
17. Define subscription with example.
18. What is meant by renewal instructions in prescription?
19. Enumerate the steps in handling of prescription.
20. Define posology.
21. Define doses and dosages.
22. Define tolerance with example.
23. Define idiosyncrasy with example.
24. Define hypersensitivity with example.
25. Define drug allergy with example.
26. Define tachyphylaxis with example.
27. Define synergism with example.
28. Define antagonism with example.
29. What is Fried's rule?
30. What is Young's rule?
31. What is Clark's rule?
32. An infant, 15 months old and weighing 20 pounds, needs Streptomycin Sulfate, which is usually administered to adults as 1 gm (1000 mg), as a daily IM injection. What is the appropriate dosage for the infant as per Fried's rule?

33. A child, 24 months old, needs acetaminophen, and the normal adult dose is 650 mg. What is the appropriate dosage for the child as per Fried's rule?
34. An 18-month-old needs amikacin sulfate, and the normal adult dose is 250 mg. What is the appropriate dosage for the child as per Fried's rule?
35. A child, 30 months old, needs erythromycin, and the normal adult dose is 250 mg QID. What is the appropriate dosage for the child as per Fried's rule?
36. A 2-year-old child is prescribed amoxicillin, and the normal adult dose is 500 mg. What is the appropriate dosage for the child as per Young's rule?
37. A 7-year-old needs propylthiouracil, and the normal adult daily dose is 150 mg. What is the appropriate dosage for the child as per Young's rule?
38. A child, 10 years old, is prescribed Tavist® syrup, and the normal adult dose is 1.34 mg BID. What is the appropriate dosage for the child as per Young's rule?
39. A child, weighing 85 pounds, is prescribed hydrochlorothiazide, and the normal adult dose is 50 mg. What is the appropriate dosage for the child as per Clark's rule?
40. A child, weighing 70 pounds, is prescribed quinine sulfate, and the normal adult dose is 325 mg TID. What is the appropriate dosage for the child as per Clark's rule?
41. A child, weighing 112 pounds, is prescribed Kaletra®, a protease inhibitor combination therapy. The normal adult dose is 400 mg lopinavir/100 mg ritonavir. What is the appropriate dosage for the child as per Clark's rule?
42. Define drug.
43. Define pharmaceutical formulations.
44. Define additives with examples.
45. Justify the use of latin language in the prescription.
46. What is the duty of the pharmacist in case of drug prescribed in overdose?
47. Name the drugs which are not to be prescribed at the time of lactation.

**Chapter – 2: HISTORICAL BACK GROUND AND DEVELOPMENT OF
PROFESSION OF PHARMACY (2 Marks)**

SHORT ANSWERS (2 Marks)

1. Define Pharmacy
2. Define galenical pharmacy.
3. Define De Materia medica.
4. Define “Pharmacist” and mention any two roles of Pharmacist.
5. What is ancient era in history of pharmacy?
6. What is empirical era in history of pharmacy?
7. What is patient care era in history of pharmacy?
8. Write any four contributions of Arabians in development of pharmacy?
9. Write any four contributions of Italians in development of pharmacy?
10. What is bowl of Hygeia?
11. Mention the contributions of Galen in pharmacy.
12. Write any two objectives of R N Chopra Committee.
13. Write any two objectives of central drug laboratory.
14. When the Bengal chemical and pharmaceuticals started and by whom?
15. What are the various levels at which pharmacy education is imparted in India?
16. What is meant by papyrus ebers?
17. What is meant by apothecary shop?

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Chapter – 3: DEVELOPMENT OF INDIAN PHARMACOPOEIA AND OTHER PHARMACOPOEIAS
(2 Marks)

SHORT ANSWERS (2 Marks)

1. What is Pharmacopoeia? Mention all the editions of Indian Pharmacopoeia.
2. Give the significance of Pharmacopoeias.
3. Enlist various Pharmacopoeias.
4. List the editions of Indian Pharmacopoeia chronologically.
5. Mention the contents of National Formulary of India.
6. Differentiate between Indian Pharmacopoeia and National Formulary of India.
7. Which is the latest edition and year of publication of Indian Pharmacopoeia?
8. Write the difference between Pharmacopoeia and Formulary.
9. Write any four salient features of first edition of Indian Pharmacopoeia.
10. Write any four salient features of second edition of Indian Pharmacopoeia.
11. Write any four salient features of third edition of Indian Pharmacopoeia.
12. Write any four salient features of fourth edition of Indian Pharmacopoeia.
13. What is Extra Pharmacopoeia?
14. Write any two objectives of International Pharmacopoeia.

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Chapter – 4: WEIGHTS AND MEASURES**(2 Marks)****SHORT ANSWERS (2 Marks)**

1. Define weights with examples.
2. Define measures with examples.
3. Classify weights and measures.
4. What is meant by metric system? Give examples.
5. What is meant by imperial system? Give examples.
6. What is meant by avoirdupois system? Give examples.
7. What is meant by apothecaries system? Give examples.
8. Write the conversion of the following.
 - i. One grain = _____
 - ii. one lb = _____
 - iii. One fl. Dram = _____
 - iv. One fl. Oz = _____
9. Write the conversion of the following.
 - i. One drop = _____ ml
 - ii. One teaspoonful = _____ ml
 - iii. One tablespoonful = _____ ml
 - iv. One tumblerful = _____ ml
10. Give the metric equivalents for the following: (a) one grain, (b) one ounce, (c) one teaspoonful, (d) one tablespoonful.
11. Give the metric equivalents for the following: (a) one minim, (b) one fluid ounce, (c) one tumblerful, (d) one quart.
12. Give the metric equivalents for the following: (a) one cup, (b) one pound, (c) one drop, (d) one wine glassful.
13. Define percentage solution.
14. How many grams are required to make 120ml of a 25% solution?
15. How much of potassium permanganate would be required to prepare 50 ml of potassium permanganate solution of 2.8% w/v strength?
16. In what ratio should 90 % alcohol and water be mixed to give 60% alcohol?
17. How many grams of dextrose is required to prepare 900 ml of 10% w/v solution?
18. How many parts of 15%, 10% and 5% alcohols are mixed to prepare 8% alcohol?
19. How do you prepare 1 litre of 5% w/v dextrose solution from 50% w/v dextrose solution?
20. How do you prepare 500 ml of 50% alcohol from 90% alcohol?
21. How do you prepare of 50% alcohol from 80% alcohol and 30% alcohol?
22. In what proportions should 25% w/v and 5% w/v dextrose solutions be mixed to produce a 10 % w/v dextrose solution?
23. How many grams of cream base should be mixed with 10 gm of 4% w/w and 25 gm of 8% w/w cream to make 5% w/w cream?
24. Dispense 10% w/v, 10 litres glucose solution.

25. A prescription order calls for 60ml of a 2% solution, calculate amount of drug (solute).
26. A prescription order requires 450 mg of medicament be dissolved in sufficient solvent to make 90ml. What is the % strength of solution?
27. Define allegation alternate medial.
28. How much of a 3% ointment must be added to 50 gram of an 15% ointment to make 10% ointment?
29. How many parts of 80%, 32% and 20% alcohols are to be mixed together so as to give 40% alcohol?
30. Define proof spirit.
31. Define under proof and over proof in proof strength.
32. An elixir contains 42% v/v alcohol. What is the proof spirit?
33. Convert 90% v/v and 40% v/v alcohol into proof strength.
34. What will be the percentage strengths corresponding to 50 O.P and 30 U.P?
35. How many litres of 8% solution can be prepared from 500gm of a solid?
36. What are isotonic solutions?
37. Define isotonic and paratonic solutions.
38. Calculate the actual strength of 25° O.P.(over proof).
39. Calculate the actual strength of 45° U.P.(under proof).
40. What are hypertonic and hypotonic solutions?
41. Calculate the percentage of sodium chloride required to render a procaine HCl iso-osmotic with blood plasma. (1% w/v solution of procaine HCl has a freezing- point of 0.122°C and 1% w/v sodium chloride has a freezing- point of 0.576°C)
42. Calculate the percentage of sodium chloride required to render a solution of 0.5 percent boric acid isotonic with blood plasma. (E_{NaCl} of 0.5 percent boric acid solution is 0.3).

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Chapter – 5: POWDERS AND GRANULES**(5 + 2 Marks)****SHORT ESSAYS (5 Marks)**

1. Define and classify powders with their advantages and disadvantages.
2. Explain the simple and compound powders with examples.
3. Explain the preparation of insufflation with an example.
4. Explain the preparation of dusting powder.
5. Explain the preparation of eutectic powder.
6. Explain the preparation of explosive powder.
7. Explain the dispensing of explosive powders with examples.
8. With suitable example explain the formulation of tooth powder.
9. Explain the preparation of effervescent powder.
10. Explain the preparation of effervescent granules.
11. What are the differences between dusting powder and tooth powder?
12. What are the differences between effervescent powders and effervescent granules?

SHORT ANSWERS (2 Marks)

1. Define powders with examples.
2. Classify powders based on dispensing of powders.
3. Classify powders based on composition of powders.
4. Classify powders based on comminution of powders.
5. Write any two advantages and disadvantages of powders.
6. Write any four advantages of powders as a dosage form.
7. Define simple powder with example.
8. Define compound powder with example.
9. What is the difference between simple and compound powder?
10. Define insufflations with example.
11. What is insufflator?
12. Define snuff with example.
13. Define eutectic and explosive powder.
14. Define dusting powder with example.
15. Define and classify dusting powder.
16. Write the dispensing of eutectic powder.
17. Explain the packing of eutectic powder.
18. Quote an example for explosive combination and give its remedy.
19. Why trituration has to be avoided during the preparation of explosive powder?
20. Define tooth powder with example.
21. Define hygroscopic powder with example.
22. Define deliquescent substance with example.
23. What is liquefaction? How to overcome it?

Chapter – 6: MONOPHASIC DOSAGE FORMS (5 + 2 + 2 Marks)**SHORT ESSAYS (5 Marks)**

1. Define and classify monophasic liquid dosage forms.
2. Explain the theoretical aspects of formulation including adjuvant like stabilizers, colorants, flavours with examples in monophasic liquid dosage forms.
3. Define stabilizers. Explain with examples.
4. Write the difference between elixirs and syrups.
5. What are the differences between gargle and mouthwash?
6. What are the differences between mouthwash and throat paint?
7. What are the differences between liniment and lotion?

SHORT ANSWERS (2 Marks)

1. Define monophasic liquid dosage form with examples?
2. Classify monophasic liquid dosage form?
3. Name any four monophasic dosage forms used externally.
4. Name any four monophasic dosage forms used internally.
5. Define stabilizers with examples.
6. What is the role of stabilizers in monophasic liquid dosage form?
7. Name any four stabilizers used in monophasic liquid dosage forms.
8. Name any four preservatives used in monophasic liquid dosage forms.
9. Name any four antioxidants used in monophasic liquid dosage forms.
10. Define colorants and flavours with examples.
11. Name any two colouring and flavouring agent used in monophasic liquid dosage forms.
12. Preservative is not necessary in the preparation of syrups. Justify.
13. Define gargle with examples.
14. Define mouthwash with examples.
15. Define throat paint with examples.
16. Write the formula for Mandl's throat paint.
17. Define throat paint and give the direction for application of throat paint?
18. Define mouth wash and give the direction for using mouth wash?
19. Define gargle and give the direction for using gargle?
20. Give the auxiliary label for gargles and liniments.
21. Give the auxiliary label for liniments and lotions.
22. Define ear drops with examples.
23. Define nasal drops with examples.
24. Define liniments with examples.
25. What are the advantages of liniments?
26. Define lotions with examples.
27. Define enemas with examples.
28. Define collodions with examples.

Chapter -7: BIPHASIC DOSAGE FORMS**(10 or 5 + 5, 2 Marks)****LONG ESSAYS (10 marks)**

1. Define and classify suspension. Write the advantages and disadvantages of suspension.
2. Define suspension. Explain the preparation of suspension containing diffusible and indiffusible solids.
3. Define and classify suspension. Differentiate flocculated and deflocculated suspension.
4. Define emulsion. Write the advantages and disadvantages of emulsion. Classify emulsifying agents.
5. Define emulsion. Explain the various methods of preparation of emulsion.
6. Explain instability of emulsion? Discuss them with their cause and precautions to avoid them.
7. Define and classify emulsion. Write the various identification tests for emulsion type.
8. Explain the formulation aspects of suspension.

SHORT ESSAY (5 Marks)

1. Define and classify suspensions.
2. Explain the preparation containing diffusible solids?
3. Explain the preparation of suspension containing indiffusible solids.
4. Differentiate flocculated and deflocculated suspension?
5. Explain the evaluation methods of suspensions.
6. Define and classify emulsion.
7. Explain the various methods of preparation of emulsion.
8. Write the various identification tests for emulsion type.
9. Explain stability of emulsion.
10. Explain the evaluation methods of emulsions.
11. Differentiate diffusible and indiffusible solids.

SHORT ANSWERS (2 Marks)

1. Define suspension with example.
2. Enumerate the different types of suspensions.
3. Write any two advantages and disadvantages of suspensions.
4. Name any two suspending and emulsifying agents.
5. Name any four flocculating agents used in preparation of suspension.
6. Name any two flocculating and deflocculating agents.
7. Enumerate the evaluation methods of suspension.
8. Define emulsion with example.
9. Enumerate different types of emulsions.
10. Write any two advantages and disadvantages of emulsions.

11. Classify emulsifying agents.
12. Write the primary emulsion formula for fixed oils and mineral oils.
13. Write the primary emulsion formula for fixed oils and volatile oils.
14. Write the primary emulsion formula for oleoresins and volatile oils.
15. Why emulsifying agent is required in the preparation of emulsions.
16. Define creaming and cracking?
17. What is phase inversion? How it can be prevented.
18. Enlist various identification tests for emulsion.
19. Enumerate the evaluation methods of emulsions.
20. Differentiate suspension and emulsion.
21. Give an example of suspension prepared by chemical reaction.
22. How will you dispense the suspensions containing precipitate forming liquids?

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Chapter - 8: SUPPOSITORIES AND PESSARIES**(10 Marks)****LONG ESSAYS (10 marks)**

1. Define suppositories. What are the advantages and disadvantages of suppositories? Explain any two types of suppository bases.
2. Define suppositories. Explain various types of suppository bases.
3. Define suppositories. Describe the various methods used for the preparation of suppositories.
4. Explain the various evaluation tests for suppositories.
5. Define displacement value. How will you determine displacement value? Calculate the amount of theobromo oil required to prepare six boric acid suppositories. Dose of boric acid is 120mg per suppository and displacement value is 1.5.
6. Enumerate the ideal characteristics of a suppository base. The displacement value of zinc oxide is 5.0. Calculate the amount of cocoa butter required to make five such suppositories containing 100 mg of zinc oxide per suppository.

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Chapter - 9: GALENICALS**(10 Marks)****LONG ESSAYS (10 Marks)**

1. Define extraction. With a neat labelled diagram explain the simple percolation process for extraction of drugs.
2. Define menstruum and marc. Explain various menstruum used in the extraction processes.
3. Define infusion and decoction. Explain the equipments used for infusion and decoction processes.
4. Define maceration. Explain simple maceration, maceration with adjustment and multiple maceration.
5. Define Maceration. Write the process of maceration for organized and unorganized drugs.
6. What is reserved percolation? Explain the modified percolation process.
7. With a neat labeled diagram explain soxhlet extraction process.
8. What is continuous hot percolation process? Write its advantages and disadvantages.
9. Define Galenicals. Explain multiple maceration process.
10. Define spirit. Explain the method of preparation of spirits.
11. Define tincture. Explain the method of preparation of tinctures.
12. Define galenicals. Classify their extraction process with examples.

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Chapter – 10: PHARMACEUTICAL CALCULATIONS**(10 Marks)****SHORT ANSWERS (2 Marks)**

1. If 3 tablets contain 975 mg of aspirin, how many milligrams should be contained in 12 tablets?
2. How many milligrams are needed to make 5 mL of an 8% solution?
3. How many millilitres are needed to make 600 mL of a 3% solution?
4. How many milligrams are there in 100 mL of a 0.01% solution?
5. How much calamine is required to produce 250 g of a 3% ointment?
6. What volume of 17% w/v solution contains 1.5 g of ingredient?
7. What volume of 20% w/v solution contains 5 g of ingredient?
8. What volume of 15% w/v solution contains 7 g of ingredient?
9. What volume of 34% w/v solution contains 150 g of ingredient?
10. How many milligrams needed to make 200 mL of a 1 in 500 solution?
11. How many millilitres needed to produce 400 mL of a 1 in 200 solution?
12. How many grams are there in 250 mL of a 1 in 80 solution?
13. How many milligrams of aluminium acetate are required to prepare 500 mL of a 0.03% w/v solution?
14. How many grams of dextrose are required to prepare 4000ml of a 5% solution?
15. What is the concentration in milligrams per litre of a solution containing 2mEq of NaCl per mL?
16. How many milligrams would 3mmol of monobasic sodium phosphate (MW-138) weigh?
17. You have a 10-ml vial of aminophylline labeled "25 mg per ml". How many milliliters must be injected to administer a dose of 125 mg?
18. How many milliliters must be injected from an ampule of Prochlorperazine labeled "10 mg/2 ml" in order to administer a dose of 7.5 mg?
19. A formula calls for 42 capsules of 300mg of drug. How many milligrams would be required to make 24 capsules?
20. How many ML @ 25 gm/50 ml should she have received to obtain 4 gms?
21. How much Potassium Chloride in grams is needed to prepare a 1 Liter solution of 3% KCl solution?
22. A patient receives 0.75L of IV solution over a 4 hour period. Calculate the flow rate in ml/hr.
23. If an IV is run at 125ml/hr, how long will 1 L last?
24. How many ml of IV solution would be required to run an IV for 12 hours at a rate of 60 ml/hr?
25. What volume would we need to have on hand if an IV solution is to be run for 100 ml/hr for 8.3 hrs?
26. If the dose of a drug is 200 mg, how many doses are contained in 10 g?
27. If the dose of a drug is 50 g, how many doses are contained in 0.020 g?
28. How many milliliters of a liquid medicine would provide a patient with 2 tablespoonfuls twice a day for 8 days?

Chapter - 11: SURGICAL AIDS**(5 Marks)****SHORT ESSAYS (5 Marks)**

1. Define and classify various surgical sutures and ligatures.
2. Define surgical dressings. Explain the classification of surgical dressings.
3. What are surgical sutures and ligatures? Give their ideal characteristics.
4. Explain the different steps involved in the manufacturing of surgical catgut.
5. Explain the different methods of sterilization of surgical catgut.
6. Explain the standardization of surgical catgut.
7. What is absorbent cotton? Write its advantages and disadvantages.
8. What is absorbable gelatine sponge? Write its advantages and disadvantages.
9. What are bandages? Explain crepe bandage and calico bandage.
10. What are bandages? Explain domette bandage and triangular bandage.
11. Write the uses of zinc paste bandage, zinc paste & coal tar bandage.

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Chapter - 12: INCOMPATIBILITIES**(5, 2 Marks)****SHORT ESSAYS (5 Marks)**

1. Define incompatibility. Classify and define each type with an example.
2. Define incompatibility. Explain the therapeutic incompatibility with examples.
3. Define incompatibility. Explain the physical incompatibility with examples.
4. Define incompatibility. Explain the chemical incompatibility with examples.
5. Enumerate the type of chemical changes occur during chemical incompatibility and explain any two.
6. Define incompatibility. Explain how to overcome therapeutic incompatibility with examples.
7. Define incompatibility. Explain how to overcome physical incompatibility with examples.
8. Define incompatibility. Explain how to overcome chemical incompatibility with examples.
9. What are the ways to protect drug from oxidation?

SHORT ANSWERS (2 Marks)

1. Define incompatibility with example.
2. Define the therapeutic incompatibility with examples.
3. Enumerate pharmacodynamic interactions in therapeutic incompatibility.
4. Enumerate pharmacokinetic interactions in therapeutic incompatibility.
5. Define the physical incompatibility with examples.
6. Define the chemical incompatibility with examples.
7. Define immediate and delayed chemical incompatibility.
8. Define the alkaloidal incompatibility with examples.
9. Define immiscibility with example.
10. Define insolubility with example.
11. Define precipitation with example.
12. Define liquefaction with example.
13. How to overcome incompatibility causing evolution of CO₂ gas?
14. Enlist few processes contributing towards oxidised pharmaceutical dosage forms.
15. What is herapathite reaction?
16. What is tolerated and adjusted incompatibility?