

Pharmaceutical Solutions – Exam Questions

Part 1: Multiple Choice Questions

1. Solutions are defined as:

- A. Heterogeneous mixtures of liquids
- B. Homogeneous mixtures of solute and solvent
- C. Suspensions of solid particles
- D. Colloidal systems

2. One major advantage of pharmaceutical solutions is:

- A. Require shaking before use
- B. Faster onset of action
- C. Always sterile
- D. Insoluble drugs

3. Which of the following is a disadvantage of solutions?

- A. Rapid absorption
- B. Homogeneous distribution
- C. Bulky and difficult to transport
- D. Easy swallowing

4. Solutions having the same osmotic pressure as body fluids are called:

- A. Hypotonic
- B. Hypertonic
- C. Isotonic
- D. Saturated

5. Which additive is used to prevent microbial growth in solutions?

- A. Buffer
- B. Preservative
- C. Sweetener
- D. Flavor

6. Distilled water is used in pharmaceutical solutions because it is:

- A. Expensive
- B. Pharmacologically active
- C. Tasteless and inert
- D. Toxic

7. Nasal drops should generally be:

- A. Hypertonic
- B. Acidic
- C. Isotonic
- D. Highly viscous

8. Nasal solutions are buffered to approximately:

- A. pH 2
- B. pH 4
- C. pH 6.5
- D. pH 10

9. Oily vehicles are avoided in nasal preparations because they:

- A. Are toxic
- B. Affect ciliary movement
- C. Are expensive
- D. Cause crystallization

10. Otic preparations are mainly used to:

- A. Provide systemic effect
- B. Treat ear infections and soften wax
- C. Treat nasal congestion
- D. Reduce blood pressure

11. Which vehicle increases contact time in ear preparations?

- A. Water
- B. Alcohol
- C. Glycerin
- D. Ether

12. Aromatic waters are:

- A. Suspensions of aromatic compounds
- B. Saturated aqueous solutions of volatile substances
- C. Oil emulsions
- D. Solid dispersions

13. Peppermint water is mainly used as:

- A. Antibiotic
- B. Flavoring agent and carminative
- C. Antiseptic
- D. Analgesic

14. In peppermint water preparation, talc acts as:

- A. Preservative
- B. Filter aid and distributing agent

- C. Sweetener
- D. Buffer

15. Triturate means:

- A. Heating the mixture
- B. Grinding substances together
- C. Filtering solution
- D. Diluting the mixture

16. 1 ml of peppermint oil equals approximately:

- A. 5 drops
- B. 10 drops
- C. 20 drops
- D. 50 drops

17. NaHCO₃ in ear drops acts as:

- A. Preservative
- B. Antipruritic
- C. Antibiotic
- D. Flavoring agent

18. Glycerin in ear drops functions as:

- A. Coloring agent
- B. Co-solvent and wax softener
- C. Buffer
- D. Emulsifier

19. Simple syrup USP contains sucrose concentration of:

- A. 50% w/v
- B. 70% w/v
- C. 85% w/v
- D. 95% w/v

20. Heating during syrup preparation should not exceed:

- A. 40°C
- B. 60°C
- C. 80°C
- D. 100°C

21. Excessive heating of sucrose causes:

- A. Oxidation
- B. Hydrolysis into glucose and fructose
- C. Polymerization
- D. Precipitation

22. Filtration of syrup is done while hot to:

- A. Sterilize solution
- B. Prevent sucrose crystallization
- C. Increase sweetness
- D. Remove preservatives

23. Ferrous sulfate syrup is mainly used as:

- A. Antacid
- B. Iron supplement
- C. Analgesic
- D. Antiseptic

24. Citric acid in ferrous sulfate syrup is added to:

- A. Increase sweetness
- B. Enhance iron absorption
- C. Preserve the syrup
- D. Increase viscosity

25. Peppermint spirit in ferrous sulfate syrup acts as:

- A. Preservative and flavoring agent
- B. Buffer
- C. Sweetener
- D. Vehicle

Part 2: Written Questions (Calculations)

Q1. If 2 ml peppermint oil are used to prepare 1000 ml peppermint water, how many ml are required to prepare 100 ml?

Q2. If 1 ml = 20 drops, how many drops are in 2 ml peppermint oil?

Q3. Simple syrup contains 850 g sucrose per 1000 ml. How many grams are needed to prepare 50 ml syrup?

Q4. NaHCO₃ ear drops formula contains 5 g NaHCO₃ per 100 ml. How many grams are required to prepare 10 ml?

Q5. Ferrous sulfate syrup contains 40 g per 1000 ml. How many grams are needed to prepare 250 ml?

Model Answers

MCQ Answers:

1. B

2. B

3. C

4. C

5. B

6. C

7. C

8. C

9. B

10. B

11. C

12. B

13. B

14. B

15. B

16. C

17. B

18. B

19. C

20. B

21. B

22. B

23. B

24. B

25. A

Calculation Answers:

Q1. 0.2 ml

Q2. 40 drops

Q3. 42.5 g

Q4. 0.5 g

Q5. 10 g