

Pharmaceutical Solutions Questions

Part 1: MCQs (Circle the correct answer)

1. A pharmaceutical solution is best defined as:

- A) Heterogeneous mixture
- B) Suspension
- C) Homogeneous mixture
- D) Colloidal dispersion

2. The component that determines the phase of a solution is:

- A) Solute
- B) Solvent
- C) Excipient
- D) Preservative

3. Solubility is defined as:

- A) Amount dissolved
- B) Concentration of saturated solution
- C) Rate of dissolution
- D) Amount of solvent

4. Excess undissolved solute indicates a:

- A) Unsaturated
- B) Supersaturated
- C) Saturated
- D) Colloidal

5. Supersaturated solutions are:

- A) Stable
- B) Dilute
- C) Unstable
- D) Non-homogeneous

6. Dissolution refers to:

- A) Degradation
- B) Transfer into solution
- C) Precipitation
- D) Evaporation

7. Most drugs are:

- A) Liquids

- B) Gases
- C) Crystalline solids
- D) Colloids

8. Poor solubility \leq :

- A) 1 mg/mL
- B) 100 $\mu\text{g/mL}$
- C) 10 mg/mL
- D) 1000 $\mu\text{g/mL}$

9. Electrolytes:

- A) Insoluble
- B) Conduct electricity
- C) Always solids
- D) Do not dissolve

10. Strong electrolyte example:

- A) Urea
- B) Ethanol
- C) NaCl
- D) Glycerin

11. Weak electrolytes:

- A) Fully dissociate
- B) Do not dissociate
- C) Partially dissociate
- D) Insoluble

12. Sodium salt drug indicates:

- A) Base
- B) Acid
- C) Neutral
- D) Amphoteric

13. Like dissolves like refers to:

- A) Size
- B) Polarity
- C) Temperature
- D) Pressure

14. Temperature mainly increases:

- A) Solubility
- B) Decreases solubility

- C) Rate of dissolution
- D) No effect

15. Cosolvents:

- A) Reduce temp
- B) Change polarity
- C) Increase pressure
- D) Form precipitate

16. Weak base solubility increases when pH:

- A) Increases
- B) Decreases
- C) Constant
- D) High pressure

17. Buffers:

- A) Increase viscosity
- B) Resist pH changes
- C) Add color
- D) Sweeten

18. Physiological pH:

- A) 5
- B) 6
- C) 7.4
- D) 9

19. Parenteral solutions must be:

- A) Colored
- B) Sterile
- C) Sweet
- D) Viscous

20. Eye drops should be:

- A) Non-sterile
- B) Hypertonic
- C) Sterile & buffered
- D) Oily

21. Alcohol preservative minimum:

- A) 5%
- B) 10%
- C) 15%

D) 25%

22. Glycerin is:

- A) Insoluble
- B) Volatile
- C) Miscible
- D) Gas

23. Surfactants form:

- A) Crystals
- B) Micelles
- C) Precipitates
- D) Salts

24. Cyclodextrins:

- A) Change pH
- B) Complex
- C) Heat
- D) Pressure

25. Reverse osmosis uses:

- A) Heat
- B) Reaction
- C) Semipermeable membrane
- D) Filtration

Part 2: Fill in the Blanks

1. A solution is a _____ mixture that is homogeneous at the molecular level.
2. The _____ determines the phase of the solution.
3. Solubility is the _____ of a saturated solution.
4. A solution with excess solute is _____.
5. Supersaturated solutions are _____.
6. Electrolytes _____ in solution.
7. Like dissolves like depends on _____.
8. Weak acid solubility increases when pH is _____.

9. Surfactants form _____ above CMC.

10. Reverse osmosis uses a _____ membrane.

Answer Key

MCQs: 1-C 2-B 3-B 4-C 5-C 6-B 7-C 8-B 9-B 10-C 11-C 12-B 13-B 14-C 15-B 16-B 17-B 18-C 19-B
20-C 21-C 22-C 23-B 24-B 25-C

Fill in the blanks: 1-Homogeneous 2-Solvent 3-Concentration 4-Saturated 5-Unstable 6-Dissociate
7-Polarity 8-Increased 9-Micelles 10-Semipermeable