

## Emulsions and Gels Questions

### Section 1: Multiple Choice Questions (Circle the correct answer)

1. A mineral oil emulsion is prescribed for oral use primarily because mineral oil acts as:
  - A. An emulsifying agent that stabilizes the system
  - B. A laxative that facilitates bowel movement
  - C. A preservative preventing microbial growth
  - D. A flavoring agent improving palatability
2. In the preparation of oral emulsions using acacia, the main role of acacia is best described as:
  - A. Increasing sweetness of the preparation
  - B. Acting as a suspending agent only
  - C. Acting as an emulsifying agent forming the primary emulsion
  - D. Acting as a solvent for oil phase
3. The addition of syrup in oral emulsions mainly aims to:
  - A. Increase viscosity only
  - B. Enhance sweetness and palatability
  - C. Act as a preservative
  - D. Reduce particle size
4. Vanillin is included in the emulsion formulation primarily to:
  - A. Stabilize the emulsion
  - B. Act as a preservative
  - C. Improve flavor
  - D. Increase viscosity
5. Alcohol is added near the end of emulsion preparation because it:
  - A. Improves emulsification efficiency
  - B. Prevents oxidation of oil
  - C. May precipitate the gum and break the emulsion
  - D. Enhances viscosity
6. The main function of water in emulsion formulation is to:
  - A. Act as emulsifier
  - B. Serve as aqueous phase and vehicle
  - C. Increase oil solubility
  - D. Prevent microbial growth
7. In the dry gum method, failure of primary emulsion formation may occur if:
  - A. Oil is added slowly

B. Mortar is not dry

C. Water is added all at once

D. Mixing is continuous

**8.** The ratio used in preparing primary emulsion using acacia is:

A. 1:1:1

B. 2:1:4

C. 4:2:1 (oil:water:gum)

D. 3:2:1

**9.** Which method is generally more difficult but may produce a more stable emulsion?

A. Dry gum method

B. Bottle method

C. Wet gum method

D. Trituration method

**10.** The "clicking sound" during trituration indicates:

A. Complete evaporation of water

B. Formation of primary emulsion

C. Degradation of emulsifier

D. Phase separation

**11.** Glycerin in gel formulation acts mainly as:

A. Preservative

B. Humectant and emollient

C. Gelling agent

D. Neutralizer

**12.** Carbomer requires neutralization because:

A. It is basic in nature

B. It forms gel only in acidic pH

C. It thickens at higher pH after neutralization

D. It dissolves only in oil

**13.** Triethanolamine (TEA) is used in gel preparation to:

A. Act as preservative

B. Neutralize carbomer and form gel

C. Increase solubility of drug

D. Reduce viscosity

**14.** Isopropyl alcohol in gel formulation functions as:

- A. Only a solvent
- B. Preservative and co-solvent
- C. Gelling agent
- D. Thickening agent

**15.** Clindamycin in gel preparation is classified as:

- A. Antifungal
- B. Antibacterial
- C. Antiviral
- D. Anti-inflammatory

**16.** A key modification to prevent clumping of gelling agents is to:

- A. Add powder rapidly
- B. Add powder without mixing
- C. Sift powder into vortex of stirring medium
- D. Heat the mixture immediately

**17.** Which gelling agent is more soluble in cold water?

- A. Bentonite
- B. Gelatin
- C. Methylcellulose
- D. Sodium CMC

**18.** Carbomer gels require which condition for maximum swelling?

- A. Low pH
- B. Neutral or slightly basic pH
- C. High temperature only
- D. Presence of oil

**19.** The main purpose of emulsions for oral use is:

- A. Only external application
- B. Mask unpleasant taste and improve administration
- C. Increase toxicity
- D. Prevent absorption

**20.** Wide-mouth containers are preferred for viscous emulsions because they:

- A. Reduce evaporation
- B. Facilitate pouring and handling
- C. Increase stability
- D. Prevent microbial growth

## Section 2: Fill in the blanks

1. An emulsion consists of two \_\_\_\_\_ liquids.
2. Acacia is used as an \_\_\_\_\_ agent in oral emulsions.
3. The ratio for primary emulsion is \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ (oil : water : gum).
4. Mineral oil is used as a \_\_\_\_\_ in the preparation.
5. Alcohol should be added at the \_\_\_\_\_ of the process.
6. Carbomer requires a \_\_\_\_\_ agent to form gel.
7. Triethanolamine increases the \_\_\_\_\_ of the system.
8. Glycerin acts as a \_\_\_\_\_ agent that retains moisture.
9. Clindamycin gel is mainly used for treatment of \_\_\_\_\_.
10. Gels should be stored in a \_\_\_\_\_ place to maintain stability.

## Answer Key

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

Fill in the blanks:

1. immiscible
2. emulsifying
3. 4 : 2 : 1
4. laxative
5. end
6. neutralizing
7. pH
8. humectant
9. acne
10. cool