Semisolid Preparations – Tables and Questions

Table (1):

Ingredient	Master Formula
Zinc oxide finely divided	15 g
Castor oil	40 ml (d=0.961 g/ml)
Cetostearyl alcohol	25 g
White beeswax	50 g
Arachis oil	35 ml (d=0.915 g/ml)

Questions:

1. What is the name of this formulation?
2. What is the function of zinc oxide?
3. Why is castor oil used?
4. Explain the role of cetostearyl alcohol.
5. What type of base is used in this formulation?
6. Why is this formulation used clinically?
7. What is the function of arachis oil?
8. Explain levigation in this preparation.
9. Calculation: Convert castor oil to grams using density.
10. Calculation: Calculate total mass of the formulation.

True / False:

1. Zinc oxide acts as an astringent.
2. Castor oil is used as a levigating agent.
3. Cetostearyl alcohol has no emulsifying role.
4. Arachis oil is not an emollient.
5. This formulation is water soluble.
6. Absorption bases can absorb water.
7. Beeswax provides structure.
8. The preparation is used internally.
9. Zinc oxide has protective properties.
10. Levigation reduces particle size.

Table (2):

Ingredient	Master Formula
Zinc oxide	150 g
Starch	50 g
White soft paraffin	750 g

Questions:

1. What is the name of this formulation?
2. Why are pastes stiffer than ointments?
3. What is the role of starch?
4. What is the function of zinc oxide?
5. Why is paraffin used?
6. Explain geometric dilution.
7. What is the clinical use of this preparation?
8. Why does paste reduce absorption?
9. Calculation: Scale formula to 100 g.
10. Calculation: Percentage of zinc oxide in formula.

True / False:

1. Pastes contain high solid content.
2. Zinc oxide paste is soft like ointment.
3. Starch acts as filler.
4. Pastes increase absorption.
5. Zinc oxide is slightly antiseptic.
6. Paraffin is the base.
7. Pastes stay longer on skin.
8. Geometric mixing ensures uniformity.
9. Pastes are used internally.
10. Zinc oxide paste is protective.

Model Answers:

Table 1: Zinc and Castor Oil Ointment

Table 2: Zinc Oxide Paste

Zinc oxide: protective, astringent

Castor oil: emollient, levigating agent

Cetostearyl alcohol: emulsifier

Starch: filler

Pastes are stiff due to high solid content

Model Answers (Detailed)

Table 1 Answers:

1. The formulation is Zinc and Castor Oil Ointment (BP).
2. Zinc oxide: Acts as a protective agent, mild astringent, and soothing agent for skin.
3. Castor oil: Used as an emollient and as a levigating agent to help disperse powders.
4. Cetostearyl alcohol: Acts as an ■■ulsifier and helps in water absorption (absorption base).
5. The base is an absorption ointment base.
6. Used for diaper rash, skin protection, and as a water-resistant barrier.
7. Arachis oil: Functions as an emollient and contributes to the oily base.
8. Levigation: Process of reducing particle size using a non-solvent liquid to form smooth paste.
9. Calculation: 40 ml × 0.961 = 38.44 g castor oil.
10. Total mass ≈ sum of all components ≈ 15 + 38.44 + 25 + 50 + (35×0.915=32.025)≈ 160.47 g.

Table 1 True/False Answers:

1. True
2. True
3. False
4. False
5. False
6. True
7. True
8. False
9. True
10. True

Table 2 Answers:

1. The formulation is Zinc Oxide Paste (Lassar's Paste).
2. Pastes are stiffer due to higher solid content (>20%).
3. Starch: Acts as filler and absorbs moisture.
4. Zinc oxide: Protective, mildly astringent and antiseptic.
5. Paraffin: Acts as the ointment base.
6. Geometric dilution: Method of mixing powders gradually to ensure uniformity.
7. Used as skin protectant and for irritation.
8. Paste reduces absorption due to high solid content forming barrier.
9. Scale to 100 g: multiply each component proportionally.

10. % ZnO = (150/950) ×100≈ 15.8%.

Table 2 True/False Answers:

1. True
2. False
3. True
4. False
5. True
6. True
7. True
8. True
9. False
10. True