



# RRB PHARMACIST

2024

MODEL PAPER -18



TIME:-  
9:00 P.M

40 QUESTIONS  
WITH DETAILED EXPLANATION

SUBJECT -

PHARMACEUTICS

VIDEO DEKHNE KE LIYE BANNER PAR CLICK KARE

1

**Liquid oral preparations of which one or two large doses of about 50ml are given in a single dose container is known as**

- (a) Tinctures
- (b) Drops
- (c) Linctuses
- (d) Draughts

1

Liquid oral preparations of which one or two large doses of about 50ml are given in a single dose container is known as

- (a) Tinctures
- (b) Drops
- (c) Linctuses
- (d) Draughts

# Draughts

- Draughts are oral liquid preparation meant to take as a single dose. A single dose of mixture is usually known as draught.

# Drops

- Drops are liquid oral preparation of potent drugs or vitamin which are given in to original form without dilution.

# Linctuses

- They are viscous, sweet, liquid oral preparations that are usually prescribed for the relief of cold. They consist of simple solutions or admixture containing a high amount of syrup and sometimes, glycerine which in addition to give sweet taste to the preparation have a demulcent action on the mucous membranes of the throat.



2

**Boric acid is freely soluble in**

- (a) Water
- (b) Alcohol
- (c) Glycerin
- (d) Chloroform

2

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- (d) Chloroform



# Boric Acid Solubility

- Boric acid is freely soluble in water and glycerol, and sparingly soluble in pyridine.
- It is also slightly soluble in acetone and ethanol, but practically insoluble in diethyl ether.



3

**This preparation is intended to meant for introduction into one of the body cavities**

- (a) Douches
- (b) Draught
- (c) Gargles
- (d) Throat paints

3

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- (a) Douches
- (b) Draught
- (c) Gargles
- (d) Throat paints

# Douches

- Douches are aqueous solution directed against a part or into a body cavity for cleansing and antiseptic agent.

# Throat paint

- Throat Paints are solutions or dispersions of one or more active ingredients intended for application to the mucosa of the throat or mouth. Used for pharyngitis or tonsillitis. Iodine throat paint is designed to kill germs.

# Gargles

- Gargles are a type of pharmaceutical liquid dosage form used for local treatment of the throat and oral cavity.

4

**What percentage of Benzoic acid is used as preservative in liquid preparations**

- (a) 0.01% to 0.02%
- (b) 0.001% to 100.01%
- (c) 0.0001% to 0.001%
- (d) 0.1% to 1.01%

4

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- (b) 0.001% to 100.01%
- (c) 0.0001% to 0.001%
- (d) 0.1% to 1.01%

# Preservatives

- Phenyl mercuric nitrate - 0.001%
- Phenyl mercuric acetate - 0.002%
- Methyl paraben - 0.01 to 0.18%
- Propyl paraben - 0.005 to 0.035%
- Thiomersal - 0.001 to 0.02%
- Benzyl alcohol - 0.5 to 10.0%
- Phenol - 0.065 to 0.5%
- Chlorobutanol - 0.25 to 0.50%
- Benzoic acid – 0.01-0.02%

5

The label "Shake well before use" is indicated on the mixture containing

- (a) Soluble medicament
- (b) Potent medicament
- (c) Diffusible medicament
- (d) Miscible liquid



5

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- (c) Diffusible medicament
- (d) Miscible liquid

## STORAGE REQUIREMENTS & LABELLING

- Shake well before use.
- Do not freeze.
- Protect from direct light (for light sensitive drugs).
- In case of dry suspensions powder the specified amount of vehicle to be mixed may indicated clearly on label.

6

**The rate of drug bioavailability is most rapid when the drug is formulated as a**

- (a) Solution
- (b) Suspension
- (c) Gelatin capsule
- (d) Tablet

6

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- (b) Suspension
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## Bioavailability of Dosage Forms

Solution > Suspension > Capsule > Compressed Tablet >  
Coated Tablet

7

**Regarding pharmaceutical elixirs, which of the following statement is true**

- (a) Preservatives are required in all elixir formulations
- (b) Elixirs require addition of sweetening agents
- (c) Elixirs generally contain <10% alcohol USP
- (d) Colors are required for all elixir formulations

7

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- (b) Elixirs require addition of sweetening agents**
- (c) Elixirs generally contain <10% alcohol USP
- (d) Colors are required for all elixir formulations



## Elixirs

- Elixirs are clear, sweetened, aromatic, hydroalcoholic liquids intended for oral use.
- The main ingredients of elixirs are ethyl alcohol (5-40%), water, glycerin or propylene glycol, a flavouring agent, colouring agent and some, suitable preservative.
- The medicated elixirs usually contain a potent drug such as, antibiotics, antihistamines or sedatives. The flavoured elixirs are non-medicated and are used as flavours and vehicles.

8

**The INCORRECT statement with respect to the solubility property of calcium hydroxide is**

- (a) It is freely soluble in water
- (b) It is insoluble in alcohol
- (c) It is soluble in sugar solutions
- (d) It is soluble in glycerol

8

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- (c) It is soluble in sugar solutions
- (d) It is soluble in glycerol

## Calcium Hydroxide Solubility

- Soluble in glycerol and acids.
- Insoluble in ethanol.

9

**Which of the following liquid preparations is applied externally to the skin and not in the cavities**

- (a) Ear drops
- (b) Enemas
- (c) Collodions
- (d) Douches

9

**Which of the following liquid preparations is applied externally to the skin and not in the cavities**

- (a) Ear drops
- (b) Enemas
- (c) Collodions**
- (d) Douches

# Collodions

- Collodions are liquid preparations containing nitrocellulose pyroxylin in a mixture of ethanol and ethyl ether.
- They are used as topical protectives or as a topical drug vehicle.
- They are made “flexible” by the addition of castor oil, e.g. Flexible Collodion USP, Salicylic Acid Collodion USP.



10

**Viscous liquid preparations used orally for the relief of cough**

- (a) Gargles
- (b) Drops
- (c) Elixirs
- (d) Linctuses

10

**Viscous liquid preparations used orally for the relief of cough**

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- (b) Drops
- (c) Elixirs
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# Linctuses

- They are viscous, sweet, liquid oral preparations that are usually prescribed for the relief of cold. They consist of simple solutions or admixture containing a high amount of syrup and sometimes, glycerine which in addition to give sweet taste to the preparation have a demulcent action on the mucous membranes of the throat.



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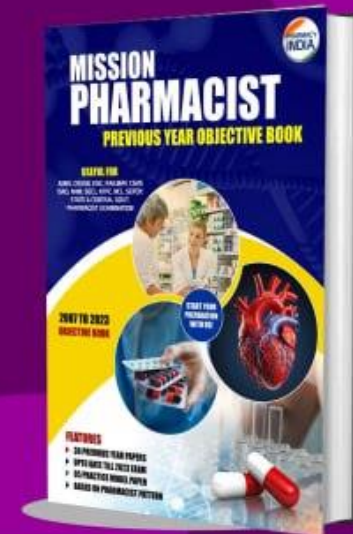
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11

**Which of the formulation is NOT suitable to ocular administration**

- (a) Ointment
- (b) Suspension
- (c) Liniment
- (d) Solution

11

**Which of the formulation is NOT suitable to ocular administration**

- (a) Ointment
- (b) Suspension
- (c) Liniment
- (d) Solution

# Liniments

- They are liquid or semi-liquid preparations meant for application to unbroken skin by friction or applied on lint or other suitable material and placed on the affected part. They may be alcoholic or oily or soapy solutions or emulsions.

12

**Which of the following technique is used to increase the solubility of weak electrolytes and non-polar molecules by the addition of a water miscible solvent in which the drug has good solubility**

- (a) Complexation
- (b) Solubilization
- (c) Hydrotrophy
- (d) Cosolvency

12

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- (a) Complexation
- (b) Solubilization
- (c) Hydrotrophy
- (d) Cosolvency**

# Cosolvency

- Cosolvency is the technique of increasing the solubility of poorly soluble drugs in a liquid by the addition of a solvent miscible with the liquid in which the drug is also highly soluble.
- Cosolvents such as ethanol, glycerol, propylene glycol or sorbitol decreases the interfacial tension or alter the dielectric constant of the medium and increases the solubility of weak electrolytes and non-polar molecules in water.
- Example: Formulation of Diazepam injection using propylene glycol as cosolvent.

13

**Which of the following formulations would be considered as an oropharyngeal formulation**

- (a) Linctus
- (b) Mouthwash
- (c) Elixir
- (d) Syrup

13

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- (a) Linctus
- (b) Mouthwash
- (c) Elixir
- (d) Syrup



# Mouthwash

- Mouth washes are aqueous solutions containing one or more active ingredients for use in contact with the mucous membrane of the oral cavity usually after dilution with warm water.

14

## Calamine I.P. is

- (a) Zinc oxide with ferric oxide
- (b) Zinc carbonate with ferric oxide
- (c) Basic zinc carbonate
- (d) Calcium oxide with ferric oxide

14

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- (c) Basic zinc carbonate
- (d) Calcium oxide with ferric oxide

# Calamine IP

- Calamine is a combination of zinc oxide and 0.5% ferric oxide ( $\text{Fe}_2\text{O}_3$ ). The lotion is produced with additional ingredients such as phenol and calcium hydroxide.

15

## What is a liniment

- (a) Liquid medicament applied with friction on the affected area
- (b) Liquid medicament applied as a paint
- (c) Liquid medicament given as enema
- (d) Liquid medicament given orally

15

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- (a) Liquid medicament applied with friction on the affected area
- (b) Liquid medicament applied as a paint
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# Liniments

- They are liquid or semi-liquid preparations meant for application to unbroken skin by friction or applied on lint or other suitable material and placed on the affected part. They may be alcoholic or oily or soapy solutions or emulsions.

16

**The term "Hydrotrophy" is used to denote**

- (a) Water uptake capacity
- (b) Water repulsion capacity
- (c) Increase in aqueous solubility due to presence of large amounts of additives
- (d) Wetting ability



16

**The term "Hydrotrophy" is used to denote**

- (a) Water uptake capacity
- (b) Water repulsion capacity
- (c) Increase in aqueous solubility due to presence of large amounts of additives
- (d) Wetting ability

# Hydrotrophy

- Hydrotrophy is the term used to describe the increase in aqueous solubility of a drug by the use of large concentrations (20% to 50%) of certain additives.
- The exact mechanism for hydrotropism is not clear although complexation, solubilization or co-solvency have been suggested as the probable mechanisms. Hydrotropism is rarely applied to pharmaceutical formulations, as the increase in aqueous solubility is generally inadequate.
- e.g.: Increase in solubility of caffeine and theophylline by addition of sodium benzoate and sodium salicylate respectively.

17

**The following special labelling instruction on Linctuses should be on its label**

- (a) Not to be swallowed
- (b) To be added to hot but not boiling water and vapour inhaled for 5 to 10 minutes
- (c) Sip and swallow without addition of water
- (d) To be taken after diluting with water

17

**The following special labelling instruction on Linctuses should be on its label**

- (a) Not to be swallowed
- (b) To be added to hot but not boiling water and vapour inhaled for 5 to 10 minutes
- (c) Sip and swallow without addition of water**
- (d) To be taken after diluting with water

# Linctuses

- They are viscous, sweet, liquid oral preparations that are usually prescribed for the relief of cold.
- They consist of simple solutions or admixture containing a high amount of syrup and sometimes, glycerine which in addition to give sweet taste to the preparation have a demulcent action on the mucous membranes of the throat.
- Sip and swallow without addition of water.

18

**In the preparation of calamine lotion, sodium citrate is used as a**

- (a) Suspending agent
- (b) Buffering agent
- (c) Solubilizer
- (d) Bacteriostatic

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- Sodium citrate acts as a buffer and maintains the pH within limits appropriate to skin application. It also helps in the suspending action of bentonite and prevents frothing on shaking the preparation.



19

Glycerol may be used as a preservative in a percentage of

- (a) 15
- (b) 50
- (c) 1
- (d) 20

19

Glycerol may be used as a preservative in a percentage of

- (a) 15
- (b) 50
- (c) 1
- (d) 20

- Glycerol, also known as glycerin, can be used as a preservative in products up to 50% concentration.
- Glycerol is a natural compound that has properties which help to preserve products by attracting and holding onto water molecules.

20

**The extent of presence of Zinc Oxide ( $ZnO$ ) in Calamine lotion would be**

- (a) 99%
- (b) 100%
- (c) 96%
- (d) 98%

20

The extent of presence of Zinc Oxide ( $ZnO$ ) in Calamine lotion would be

- (a) 99%
- (b) 100%
- (c) 96%
- (d) 98%

- Calamine has mild astringent, antipruritic and soothing actions. Zinc oxide is mildly astringent has covering, protective and cooling properties.
- Calamine and zinc oxide produce astringent effects in the skin or mucous membranes by coagulating protein. The extent of presence of Zinc Oxide ( $ZnO$ ) in Calamine lotion is 98%.



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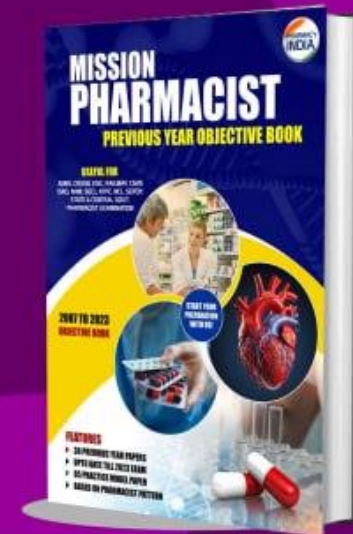
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21

**Fluid preparation applied to skin without friction are**

- (a) Liniment
- (b) Lotion
- (c) Jellies
- (d) Creams

21

**Fluid preparation applied to skin without friction are**

- (a) Liniment
- (b) Lotion**
- (c) Jellies
- (d) Creams

# Lotion

- Lotions are liquid or semi-liquid preparations meant for application to unbroken skin without friction. They are either dabbed on the skin or applied on a suitable dressing and covered with water proof material to reduce evaporation.

22

## Iodine tincture consists

- (a) 2% (w/v) of iodine and 2.4% (w/v) of sodium iodide
- (b) 5% (w/v) of iodine and 2.4% (w/v) of sodium iodide
- (c) 2.5% (w/v) of iodine and 2.5% (w/v) of potassium iodide
- (d) 10% (w/v) of iodine and 15% (w/v) of sodium iodide

22

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(d) 10% (w/v) of iodine and 15% (w/v) of sodium iodide

# Iodine Tincture

- Iodine tincture consists iodine 2.5% w/v, potassium iodide 2.5% w/v. The other ingredients are: purified water and ethanol 89% v/v.
- Iodine Tincture is a dark brown liquid which smells of alcohol. It is supplied in 25ml bottles.



23

## Betadine contains

- (a) 5% of available iodine in complex form
- (b) 10% of available iodine in complex form
- (c) 20% of available iodine in complex form
- (d) 2% of available iodine in complex form

23

## Betadine contains

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- (c) 20% of available iodine in complex form
- (d) 2% of available iodine in complex form

# Betadine

- BETADINE\* 5% Sterile Ophthalmic Prep Solution contains 5% povidone-iodine (0.5% available iodine) as a sterile dark brown solution stabilized by glycerin.
- Inactive Ingredients: purified water, citric acid, glycerin, nonoxynol-9, sodium chloride, sodium hydroxide, and dibasic sodium phosphate.

24

**Fluted bottles are used to pack**

- (a) Syrup
- (b) Ointment
- (c) Linctus
- (d) Mouth washes

24

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- (a) Syrup
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- (c) Linctus
- (d) Mouth washes

# Mouthwashes

- For example: Compound sodium chloride mouth wash, Zinc chloride mouth wash, Fluoride mouth wash.
- **Storage:** Keep in cool and dry place, Dispense in clear, fluted bottles.
- **Labeling:**
  - FOR EXTERNAL USE ONLY
  - Not to be swallowed in large amount
  - Pack in narrow mouth bottle

25

**Calamine lotion is an example for**

- (a) Liquid-Liquid phases mixing
- (b) Solid-Liquid Phases of mixing
- (c) Liquid-Gas phases mixing
- (d) Soluble-Solid Liquid phases mixing

25

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# Calamine lotion

- Calamine lotion Calamine Lotion is classified as a suspension. It is a disperse system in which solid, vehicle-insoluble particles (internal phase) are uniformly suspended by mechanical agitation and formulation design throughout the liquid vehicle (external phase).

26

**Which of the following liquids is NOT for an internal use**

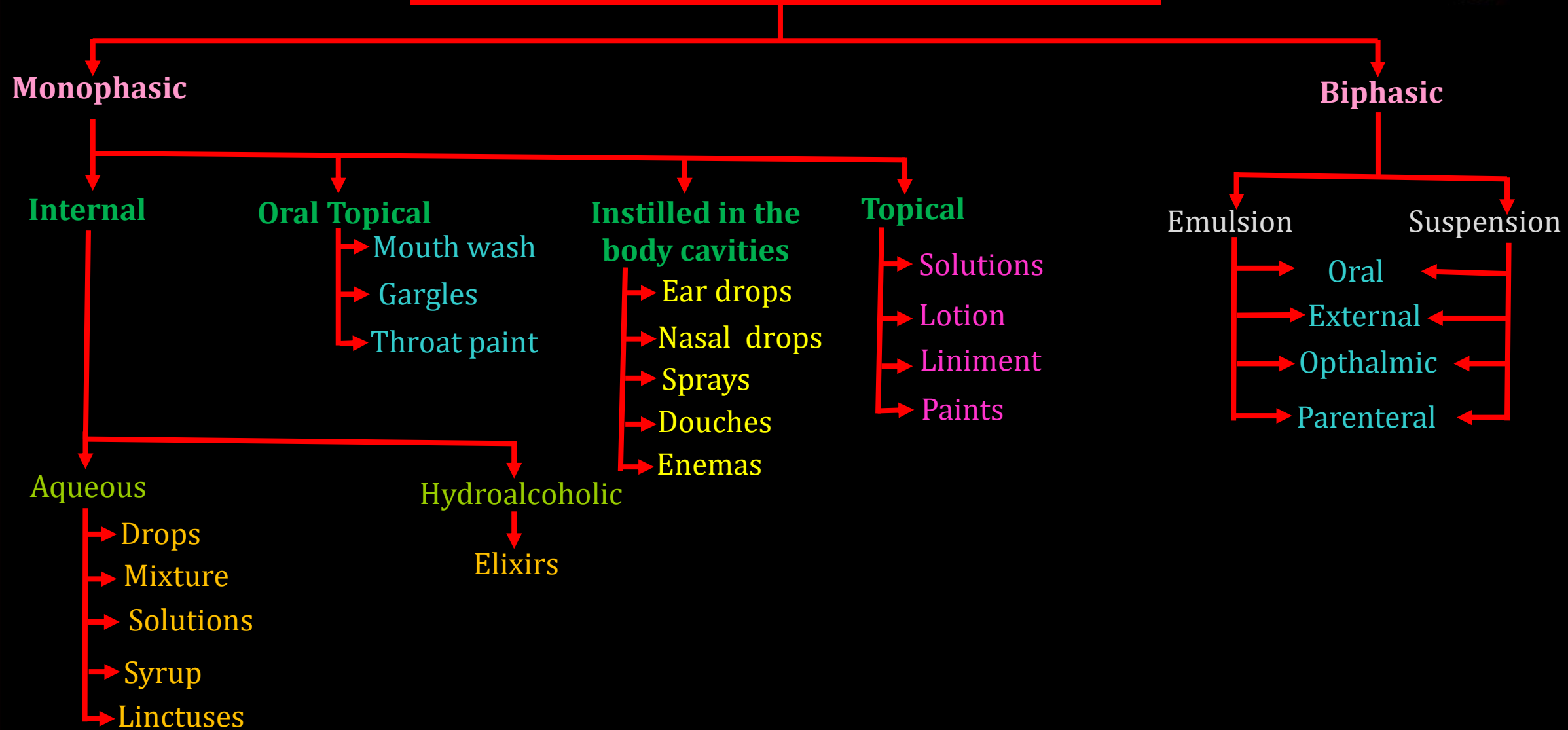
- (a) Syrup
- (b) Liniment
- (c) Elixir
- (d) Aromatic water

26

**Which of the following liquids is NOT for an internal use**

- (a) Syrup
- (b) Liniment
- (c) Elixir
- (d) Aromatic water

# Liquid Dosage form



27

**Which of the following is NOT used as solvent in oral formation of liquid**

- (a) Ethanol
- (b) Ethylene glycol
- (c) Propylene glycol
- (d) Glycerin

27

**Which of the following is NOT used as solvent in oral formation of liquid**

- (a) Ethanol
- (b) Ethylene glycol
- (c) Propylene glycol
- (d) Glycerin

## Solvents Used in Oral Liquid Formulations

- Water can be used as solvents.
- Alcohol can also be used as solvents.
- Glycerine, USP (glycerol) can be used as solvents.
- Propyl glycol is also an option for being used as solvents.
- Polyethylene glycol is also a good vehicle for liquid dosage forms.

**28**

**Which of the following is NOT a correct description of the dosage form given in each option**

- (a) Liniments - liquid or semiliquid preparations meant for internal applications only**
- (b) Eye lotions - sterile aqueous solutions used for irritating eye**
- (c) Linctuses- sweet and viscous liquid preparations containing medicinal substances with sedative properties**
- (d) Glycerin viscous preparations in which the drug is dissolved in glycerin with or without heating**



**28**

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**(d) Glycerin viscous preparations in which the drug is dissolved in glycerin with or without heating**

# Liniments

- They are liquid or semi-liquid preparations meant for application to unbroken skin by friction or applied on lint or other suitable material and placed on the affected part. They may be alcoholic or oily or soapy solutions or emulsions.

29

**What is the relative amount of solvent for 1000 parts to 10000 parts of solute**

- (a) Soluble
- (b) Free soluble
- (c) Very slightly soluble
- (d) Sparingly soluble

29

**What is the relative amount of solvent for 1000 parts to 10000 parts of solute**

- (a) Soluble
- (b) Free soluble
- (c) **Very slightly soluble**
- (d) Sparingly soluble

# Solubility Studies

➤ General terms used for expressing solubility:

<b>Terms</b>	<b>Parts of solvent required to dissolve 1 part pf solute</b>
<b>Very soluble</b>	Less than 1 part
<b>Freely soluble</b>	1 to 10 parts
<b>Soluble</b>	10 to 30 parts
<b>Sparingly soluble</b>	30 to 100 parts
<b>Slightly soluble</b>	100 to 1000 parts
<b>Very slightly soluble</b>	1000 to 10000 parts
<b>Practically insoluble</b>	More than 10000 parts

30

## What are elixirs

- (a) Hydroalcoholic preparations
- (b) Non-alcoholic preparations
- (c) Alcoholic preparations
- (d) Aqueous preparations

30

## What are elixirs

- (a) Hydroalcoholic preparations
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- (c) Alcoholic preparations
- (d) Aqueous preparations

## Elixirs

- Elixirs are clear, sweetened, aromatic, hydroalcoholic liquids intended for oral use.
- The main ingredients of elixirs are ethyl alcohol (5-40%), water, glycerin or propylene glycol, a flavouring agent, colouring agent and some, suitable preservative.
- The medicated elixirs usually contain a potent drug such as, antibiotics, antihistamines or sedatives. The flavoured elixirs are non-medicated and are used as flavours and vehicles.





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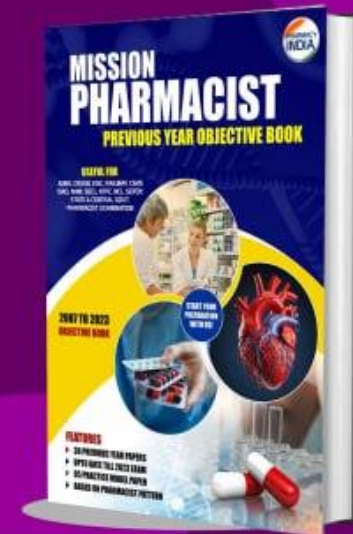
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31

**Which of the terms is an alternate name for Enemas**

- (a) Clyster
- (b) Elixir
- (c) Emulsion
- (d) Suspension

31

**Which of the terms is an alternate name for Enemas**

- (a) Clyster
- (b) Elixir
- (c) Emulsion
- (d) Suspension

# Enema

- Enemas/ clyster are rectal injections of fluid intended to cleanse or stimulate the emptying of your bowel.

32

**Simple syrup I.P. contains sugar**

- (a) 85%
- (b) 66.7%
- (c) 75%
- (d) 50%



32

**Simple syrup I.P. contains sugar**

- (a) 85%
- (b) 66.7%**
- (c) 75%
- (d) 50%

# Syrups



- Syrups are concentration aqueous preparation of sugar or sugar substances with or without flavoring agent and medical substances.
- The syrups containing medicinal substances are called "medicated syrup" and those containing aromatic or flavoured substances are known as "flavoured syrups".
- Simple syrup I.P contains 66.7%w/w sucrose in purified water (100 ml).
- Simple syrup USP contains 85%w/v sucrose in purified water (100 ml).

33

**Black fluid is**

- (a) Homogenous coal tar acid solution
- (b) Suspension of activated charcoal
- (c) Cresol with soap solution
- (d) None of these

33

**Black fluid is**

- (a) Homogenous coal tar acid solution
- (b) Suspension of activated charcoal
- (c) Cresol with soap solution
- (d) None of these

# Black Fluid

- These shall be homogenous dark brown solution of coal tar acids or similar derived from petroleum with or without hydrocarbons and/or other phenolic compounds and their derivatives and a suitable emulsifier.

34

## What is rectified spirit

- (a) 75% ethanol
- (b) 100% ethanol
- (c) 95.6% ethanol
- (d) 50% ethanol

34

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- (a) 75% ethanol
- (b) 100% ethanol
- (c) 95.6% ethanol
- (d) 50% ethanol

# Rectified Spirit

- A mixture of ethanol (95.6 per cent) and water produced as an azeotrope by distillation.



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**Solvents have both protogenic & protophilic properties**

- (a) Levelling solvent
- (b) Amphiprotic solvent
- (c) Differentiating solvent
- (d) Aprotic solvent

35

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# Amphoteric Solvents

- An amphiprotic solvent is a solvent that can act as both an acid and a base, donating or accepting protons depending on the reaction conditions. Amphiprotic solvents have both protophilic and protogenic properties.

36

According to Indian Pharmacopoeia the statement of sparingly soluble at  $20^{\circ}$  to  $30^{\circ}$  means approximate volume of solvent in ml per gm of solute is

- (a) From 1 to 10
- (b) From 30 to 100
- (c) From 10 to 30
- (d) From 100 to 1000

36

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# Solubility Studies

## ➤ General terms used for expressing solubility:

<b>Terms</b>	<b>Parts of solvent required to dissolve 1 part pf solute</b>
<b>Very soluble</b>	Less than 1 part
<b>Freely soluble</b>	1 to 10 parts
<b>Soluble</b>	10 to 30 parts
<b>Sparingly soluble</b>	30 to 100 parts
<b>Slightly soluble</b>	100 to 1000 parts
<b>Very slightly soluble</b>	1000 to 10000 parts
<b>Practically insoluble</b>	More than 10000 parts

37

**Simple syrup USP contains \_\_\_ w/v sugar**

- (a) 85%
- (b) 68%
- (c) 75%
- (d) 50%

37

Simple syrup USP contains \_\_\_\_\_ w/v sugar

- (a) 85%
- (b) 68%
- (c) 75%
- (d) 50%



# Syrups



- Syrups are concentration aqueous preparation of sugar or sugar substances with or without flavoring agent and medical substances.
- The syrups containing medicinal substances are called "medicated syrup" and those containing aromatic or flavoured substances are known as "flavoured syrups".
- Simple syrup I.P contains 66.7%w/w sucrose in purified water (100 ml).
- Simple syrup USP contains 85%w/v sucrose in purified water (100 ml).

38

**A solution of local anaesthetic contains 1:100,000 adrenaline. How much adrenaline have been added to make the solution**

- (a) 0.01%
- (b) 0.1%
- (c) 100 mcg/ml
- (d) 10 mcg/ml

38

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- (d) 10 mcg/ml

## Ratio Interpretation:

- The ratio 1:100,000 means there is 1 part adrenaline to 100,000 parts of the solution.

## Amount of Adrenaline Added:

- To find out how much adrenaline is added, we need to know the total volume of the solution. However, if we assume a standard context (e.g., 1 liter), then the calculation would proceed as follows:

$$\text{Amount of adrenaline} = \frac{1}{100,000} \times \text{total volume of solution}$$

- For example, if the total volume of the solution is 1 liter (1000 milliliters):

$$\begin{aligned}\text{Amount of adrenaline} &= \frac{1}{100,000} \times 1000 \text{ ml} \\ &= 0.01 \text{ mL} \\ &= 10 \text{ mcg/ mL}\end{aligned}$$

39

## Use of Potassium Iodide in Iodine solution

- (a) Increase the solubility of Iodine
- (b) Decrease the solubility of Iodine
- (c) Reduce the toxicity of Iodine
- (d) Improve the appearance of Iodine solution

39

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# Iodine Solution

- Iodine is wider antiseptic agent which is effective against bacteria, fungi, yeast, protozoa and viruses. It is slightly soluble in water. Its solubility in water can be increased by addition of complex forming agent like potassium iodide.

40

**The dosage form in which fluid containing the drug is retained in the rectum for the drug to act either locally or systemically**

- (a) Retention enema
- (b) Evacuant enema
- (c) Suppositories
- (d) Lotion



40

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# Enema

- Retention enemas require you to “hold it” or retain the fluid for a bit so the enema has time to work inside your colon.
- Enemas are rectal injections of fluid intended to cleanse or stimulate the emptying of your bowel.



# PREPARING FOR PHARMACIST EXAM

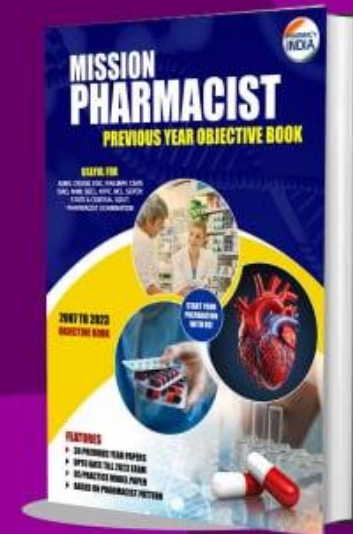
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