

# UNIVERSITY SOLVED QUESTION WITH ANSWER

**Year** : 2018-2019

**Subject** : Pharmaceutics

**Subject Code** : BP-103T

**Subject In-Charge** : Adyasha Senapati & Monali Padhi



Registration No :

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B.Pharm  
15PH101

1<sup>st</sup> Semester Back Examination 2018-19

PHARMACEUTICS - I

BRANCH : B.Pharma

Time : 3 Hours

Max Marks : 100

Q.CODE : E986

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part-I

Q1 Short Answer Type Questions (Answer All-10) (2 x 10)

- Define dosage form
- What do you mean by posology
- Define Suspension
- Define Suppositories
- What do you mean by effervescent powder
- Define prescription.
- What do you mean by aromatic water
- Define emulsion
- What do you mean by incompatibilities
- What is nasal drops

Part-II

Q2 Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- How would you prepare mouth gargle and mouth wash
- What do you mean by lotion and liniment ,give formula
- Discuss importance of Indian Pharmacopoeia
- Write Pharmaceutical oath
- Discuss different types of dosage forms
- Discuss career in Pharmacy
- Write ten latin terms used in prescription
- How would you dispense medicines
- What do you mean by community and clinical pharmacy
- Write about Chopra Drug Enquiry Committee 1930
- Discuss different types of powders
- How would you prepare suppositories

Part-III

Q3 Long Answer Type Questions (Answer Any Two out of Four) (16)

Write history of pharmacy in India

Q4 Describe a formula and method of preparation of cream (16)

Q5 Discuss different types of emulsion ,and how to prepare emulsion (16)

Q6 Describe method for preparation of suspension (16)

2018-2019

Part-1

1a) Define dosage form.

Ans Pharmaceutical dosage form can be defined as a physical form of a drug such as solid, liquid or gas by which it can be delivered in proper form to particular sites within the body.

b) What do you mean by posology.

Ans Posology is branch of medical science which deals with dose or quantity of drug, which can be administered to a patient to get desired pharmacological action.

c) Define suspension.

Ans A suspension is a biphasic liquid dosage form in which finely divided solid particles dispersed in the liquid.

→ In suspension Dispersed phase → solid particles  
Continuous phase → liquid.

→ The size of solid particles in the suspension ranges from 0.5  $\mu$ m to 5  $\mu$ m.

d) Define suppositories.

→ suppositories is a semisolid dosage form of medication used for insert into body cavity like rectum, vaginal, nasal, urethral and ear cone.

→ It is designed to melt / disintegrate or dissolved in body temperature. after that it releases the medication & It will show local or systemic or mechanical action.

e) what do you mean by effervescent powder.

Ans Effervescent powder is generally a combination of citric acid, tartaric acid and sodium bicarbonate.

- They are generally meant for internal administration.
- Before administration the desired quantity is dissolved in water.
- Acid and bicarbonate reacts together and release  $\text{CO}_2$  that produce effervescence.

E.g. ENO.

f) Define prescription.

Ans A prescription is a written order from a Registered medical practitioner / physician to a pharmacist to compound & dispense a specific medication for the patients.

g) what do you mean by aromatic water.

Ans Aromatic water are clear aqueous solution saturated with volatile oils.

- Aromatic water have low therapeutic effect since small amount of volatile substance present in water.
  - They are used in pharmacy as pleasant and flavoring medium or vehicle for administration of water-soluble drugs in order to mask the undesired taste and odour of the drugs.
- E.g. rose water, peppermint water, orange flower water.

n) Dextine emulsion.

Ans The emulsion is a biphasic liquid dosage form containing two immiscible liquids one of which is dispersed as minute globules into the other.

→ The liquid which is converted into minute globules is called as dispersed phase.

→ The liquid in which globules are dispersed is called dispersion phase or continuous phase.

→ Normally two immiscible liquids can't be dispersed for a long time. So an emulsifying agent is added to the solution to form a stable emulsion.

i) what do you mean by incompatibilities.

Ans When two or more ingredients are mixed together to prepare a medicine and an undesired change takes place which alters the physical, chemical and therapeutic properties of the medication, then the phenomenon is termed as incompatibilities.

→ Incompatibilities are usually unintentional.

j) what is nasal drops.

Ans These are the solution, suspension or emulsion containing active ingredients intended for instillation into the nostrils usually with the help of a dropper.

→ Nasal drops are mostly based on aqueous vehicle & some are based on oily vehicle.

→ Nasal drops are isotonic preparation and slightly buffered to maintain pH 5.5 to 7.5.

Ex Ephedrine nasal drops.

-) Commercial nasal preparation usually contains decongestant, antibiotic, antihistamine and drug asthma prophylaxis.

5 marks

part-2

Q) How would you prepare mouth gargle and mouth wash.

Ans prepare mouth gargle

Defn

Gargles are aqueous solutions used to prevent or treat throat infection.

→ They are usually available in concentrated form with direction for dilution with warm water before use.

Ex preparation of phenol gargle

Rx

Potassium Chlorate 30.0g

Patent blue V 0.009g

Liquefied Phenol 15.0ml

Water, sufficient 1000ml

→ Dissolve the potassium chlorate in warm water cool and add liquefied phenol. Add the dye solution and make up the volume up to 1000ml. Transfer the solution in a suitable container.

Iodine gargle

Rx povidone Iodine 1gm  
purified water 100ml

Dissolve povidone iodine in sufficient purified boiled water. make up the volume up to 100ml. Transfer the gargle in narrow mouth bottle tightly closed with coloured plastic screw cap.

## Mouth wash

→ These are aqueous soln with a pleasant taste and odour used to make clean and deodorize the buccal cavity.

generally they contain antibacterial agents, alcohols, glycerin, sweetening agent, flavouring agent, colouring agent

### preparation of zinc chloride - zinc phosphate mouth wash

Rx

zinc sulphate	20g
zinc chloride	10g
Dil Hydrochloric acid	10ml
Compound tetrastazine soln	10ml
Chloroform	1000ml

→ Dissolve the zinc sulphate & zinc chloride in water.

→ Add dil HCl to make clear solution. Add compound tetrastazine solution. make up the volume with chloroform.

### preparation of chlorhexidine mouth wash

Rx

chlorhexidine gluconate	0.12g
Brilliant blue	qs
sorbitol	3g
Ethanol	5ml
peppermint water	1000ml

→ Dissolve the chlorhexidine gluconate in sufficient quantity of ethanol and add

→ Add the brilliant blue little by little with continuous stirring.

→ Finally add sufficient amount of sorbitol and peppermint water to make up the volume and transfer in a suitable container.

b) What do you mean by lotion and liniment? Give formula.

### Ans Lotion

→ Lotions are liquid or semiliquid preparations meant for application to unbroken skin without friction.

→ An evaporating vehicle like alcohol may be used; when a cooling effect is desired on application to the skin.

Ex Calamine lotion, white lotion, hydrocortisone lotion

### Liniments

→ Liniments are liquid or semiliquid preparations meant for application to unbroken skin by friction they may be alcoholic, oily or soapy solution or emulsion.

→ Alcoholic liniments are used generally for their rubefacient.

Ex Camphor liniment, Turpentine liniment, Compound Calamine liniment.

### Formula of Calamine lotion:

Rx	Calamine	150g
	Zinc oxide	50g
	bentonite	30g
	Sodium citrate	5g
	glycerol	50ml
	phenol	5ml
	water	1000ml



## Formula of Ammoniated Camphore Liniment.

Rx

Camphore	125g
Eucalyptus oil	5ml
ammonia solution	250ml
alcohol	1000ml

c) Discuss importance of Indian Pharmacopoeia

Ans In 1948 govt of india appointed Indian Pharmacopoeia commit.

→ Indian Pharmacopoeia of commit under Chairmanship Dr. B.N. Bosh

→ Father of Indian Pharmacopoeia of commit under ~~Chairmanship~~ was PROF. Mahadev Lal Schroor

Mahadev Lal Schroor

→ Indian Pharmacopoeia

→ It is an official book of standards for drugs to define Identity, purity and strength for drug, Imported, manufactured for sale, stock or distributed in India

→ I.P. is published by I.P.C. (Indian Pharmacopoeia Commission)

→ Its headoffice is in Govt. (I.P.)

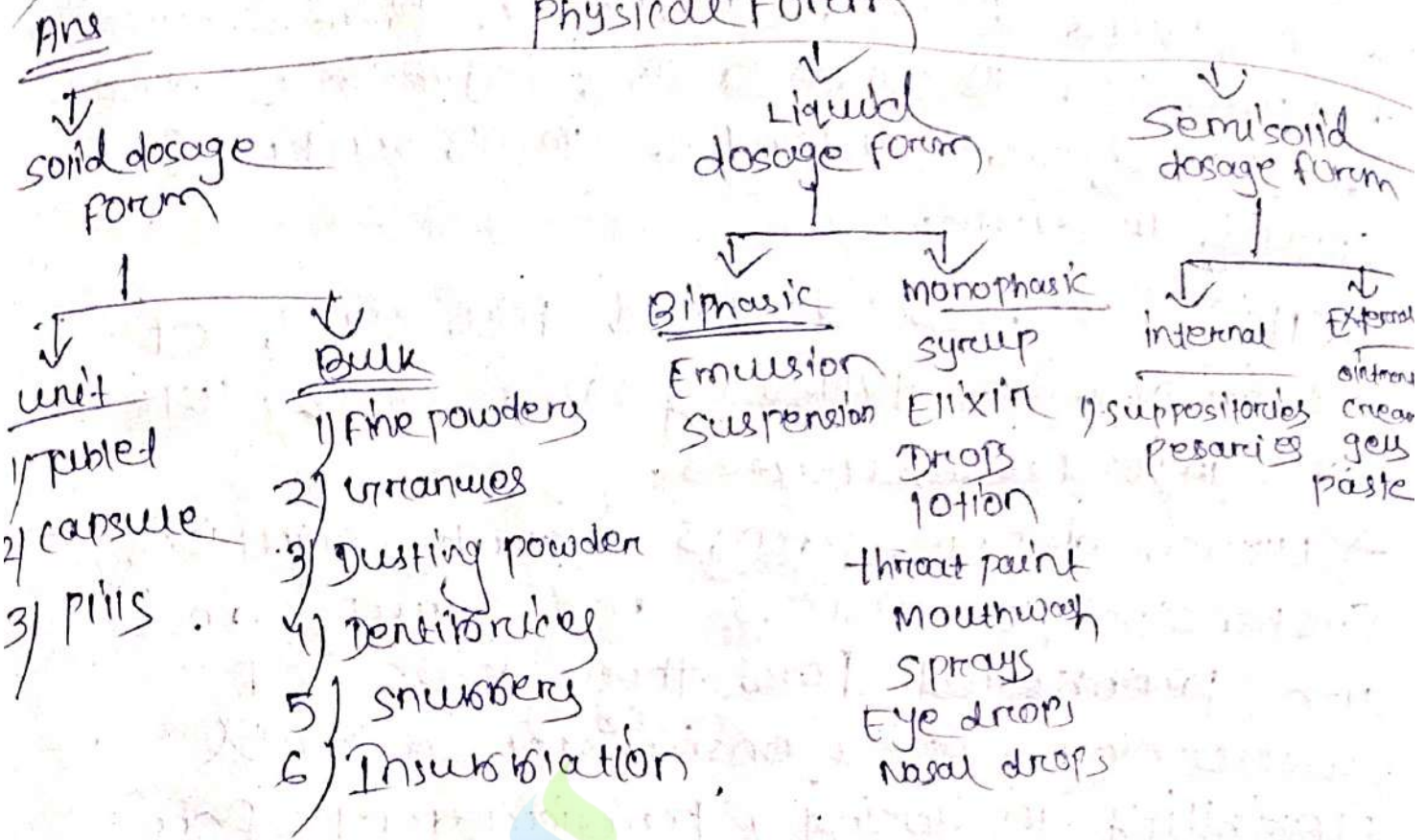
→ I.P. is published by NISCRIP (National Institute of Science Communication and Information Resources)

# Importance of Pharmacopoeia

- To maintain uniformity and control standard of drugs available in the market.
- Avoid adulterated drugs.
- It gives complete information of drug and dosage form.
- It acts as reference for laboratories, industry and Academic Institution.

<u>Edition</u>	<u>Year</u>
1st edition	1955
2nd "	1965
3rd "	1985
4th "	1996
5th "	2007
6th "	2010
7th "	2014
8th "	2018
9th "	2022

Q) Discuss different types of dosage form.



Solid dosage form

A solid dosage form is a pharmaceutical formulation that is administered in a solid state.

→ These forms are designed to deliver a specific dose of medication in a stable, convenient and effective manner.

→ Ex: Tablets, capsules, powders, granules and lozenges.

→ These forms are preferred for their stability, ease of handling, precise dosing and often better patient compliance compared to liquid dosage form.

## Liquid dosage form

→ A Liquid dosage form is a pharmaceutical preparation in which active ingredients are dissolved or suspended in a suitable liquid medium.

→ This form is designed for ease of administration, typically via oral, topical or injectable routes.

→ Liquid dosage forms include solutions, suspensions, emulsions and syrups, and are preferred for their ease of swallowing, quick onset of action and flexibility in dosing, particularly for pediatric and geriatric patients.

Ex: Elixirs, Nasal drops, Eye drops.

## Semisolid dosage form

→ semisolid dosage forms are topical preparations used for therapeutics or cosmetic formulation function.

→ they are generally applied over the skin but can also be applied nasally, vaginally or rectally.

→ pharmaceutical semisolid dosage forms generally include ointment, paste, creams & gels.

f) Discuss career in pharmacy.

Ans A career in pharmacy is one of the best profession across the world.

→ Pharmacy is a part of health care service which completely deals with drugs.

Career scope for diploma student

- 1) Community and wholesale pharmacy
- 2) Hospital pharmacy
- 3) Lab technician in degree teaching institute
- 4) Higher education
- 5) Marketing
- 6) Production Assistant.

Career scope for pharmacy graduate & post graduate.

1) Hospital Pharmacist

→ pharmacists are directly involved in patient-care  
→ They help doctors in prescription writing and Therapeutic drug monitoring.

2) Research and development

→ After graduation a student can opt for M.Pharm and PhD course.

→ In this field we research a new chemical entity of drug for acting against any kind of disease.

3) Analysis & testing

→ They check quality and purity of drug or dose for human use.

→ They identify and characterize the drugs or doses from during production storage and during the handling of storage product.

→ There are two department in Pharma industry

- 1) Q.C - quality control
- 2) Q.A - quality Assurance

4) Sale & marketing

→ Here pharmacist sale drug directly as well as indirectly through the pharmacist Industry to the medical and patients.

5) Drugs inspector

→ The central and state government appoint drugs inspector and assign definite areas.

6) Wholesale distribution

→ They distribute the medicine to Retail pharmacist.

→ They should comply in ensuring reliability safety, proper warehousing and rapidity of supply.

7) Pharmaco vigilance

→ It involves the collection, detection and monitoring of safety, efficacy and adverse effect of pharmaceutical drug.

## Regulation activities

- Drug control administration is the main regulatory body of pharmaceutical industry.
- It implements rules and regulation for pharmaceutical industry.
- In this field graduates and post graduates are in high demands for patent filing and global expansion of drug manufacturing facility, exports and import rule.

## Community Pharmacy

- Pharmacist interacting with the community are, no other than retail pharmacist running medical shop.

## Clinical Trials

- They check quality of medicine desirable pharmacokinetic properties.
- Bio equivalence property and safety on the basis of in vitro studies.
- h) How would you dispense medicines.

Ans 1) Receiving

2) Reading and checking

3) Collecting and weighing the material

4) Compounding, labelling and packaging

## Receiving

- The prescription should be received by the pharmacist himself.

→ While receiving the prescription, he should not change any facial expression. Because it may cause an impression on the patient that he is surprised or confused after seeing the prescription.

### Reading & checking

→ On receiving a prescription, always check it that it is written in a proper format.

→ Every prescription must be examined behind the counter. If the pharmacist has any doubt about the prescription components or directions, he or she should speak with another pharmacist.

### Collecting and weighing the material

→ Before compounding the prescription, collect the ~~some~~ essential components on the balance left side.

→ After weighing the material, it should be shifted to right hand side of the balance.

→ This is a check of ingredients which have been weighed while compounding. The label of every stock bottle should be read at least 3 times in order to avoid any error.



## Compounding, Labelling and Packaging

- Compounding should be carried out in a neat place. All equipments required are cleaned and dried thoroughly.
- Only one prescription should be compounded at a time.
- The size of the label should be proportional to the size of the container and the label should be contain.
- The required suggestions / directions to the patients.

i) What do you mean by Community and Clinical Pharmacy.

### Community Pharmacy

→ A Community Pharmacy, also known as a retail pharmacy, is a healthcare facility that provides pharmaceutical services directly to the public.

#### 1) Dispensing Medications

Filling and dispensing prescriptions written by doctors and other healthcare providers.

#### 2) Patient Counseling:-

→ offering advice and information about medicine, including how to take them properly, potential side effects, and interaction with other drugs.

3) Over the counter Medications

→ selling non-prescription medications and health products.

4) Health and wellness services

→ providing services such as immunizations, blood pressure monitoring, diabetes management and smoking cessation programs.

5) Community outreach

→ Engaging in public health initiatives and educational programs to promote health and prevent disease within the community.

→ Community pharmacists play a crucial role in the healthcare system by ensuring that patients receive safe and effective medication therapy.

### Clinical Pharmacy

Clinical pharmacy is a branch of pharmacy that involves the provision of patient care with the use of medications to optimize the health outcomes of patients.

→ Clinical pharmacists work directly with doctors, other healthcare professionals.

1) Medication Management

→ They manage medication therapies for patients, including adjusting doses, identifying potential drug interactions and recommending alternative treatments if necessary.

## 2) Education and counselling

→ Clinical pharmacists educate patients on the correct use of their medications, potential side effects.

## 3) Collaborative practice

→ They often work as part of a health care team, collaborating with physicians, nurses, and other health care professionals to develop and implement patient treatment plans.

## 4) Research and Evidence-Based practice

→ Clinical pharmacists engage in research to develop new medication therapies and improve existing ones.

→ They also apply evidence-based guidelines to ensure the best outcomes for patients.

→ Overall, clinical pharmacy aims to enhance patient care and improve health outcomes through the effective use of medications.

k) Discuss different types of powders? Any powders are classified on the basis of following category.

1) Based on particle size.

2) Based on use.

3) Based on physical form / Dispensing.

4) Based on particle size.

→ On the basis of particle size of powders are classified into 5 categories.

- 1) very coarse powder
- 2) coarse powder
- 3) moderate coarse powder
- 4) fine powder
- 5) very fine powder

Very coarse powder	All particles pass through sieve no. 20
coarse powder	11 20
moderate coarse powder	11 40
Fine powder	11 60
very fine powder	11 80

## 2) Based on uses

→ on the basis of use of powders are classified into 2 categories.

- 1) powders for internal use
- 2) powders for external use

## 7) powders for internal use

→ powders for internal use can be taken orally or administered through nos. as snuffs or can be taken into body cavities as insufflation.

→ Basically it is two types

- 1) simple powder
- 2) compound powder

Simple powder

→ These are the powders that contain only one active ingredients either in crystal or amorphous form.

Compound powder

→ These are the powders that contain two or more active ingredients

Powder for external use

→ powder for external use are pharmaceutical preparation consisting of solid, loose, dry particles of varying degree of fineness.

→ They are generally meant to be applied on the outer body areas.

→ They basically include:

- 1) Dusting powder
- 2) Surgical "
- 3) Dentifrices -

Dusting powder

→ Dusting powders are very fine, free flowing powders meant for application to unbroken skin.

→ A good dusting powder includes

- 1) ease of flow
- 2) non-irritability
- 3) rapid absorption
- 4) good stability.

## Surgical powder

→ These are also type of dusting powder consist of sterile product intended to be used on open large wounds.

## 3) Dentibrices

→ Dentibrices are tooth cleaning powder used with a tooth brush for the purpose of cleaning teeth.

Based on physical form:-

1) Bulk powder

2) Divided "

### 1) Bulk powder

→ Bulk powders refers to a mixture of material packed into properly designed bulk container, such as tight, wide mouthed glass

### 2) Divided powder

→ Divided powders are single dose of powder drug mixture.

→ In divided powders each dose of medication each separately packed & dispensed to the patient.

→ Divided powder offer advantage of accurate dose

Eg Emu, ops

1) How would you prepare suppositories.  
Any suppositories can be prepared by following method.

- 1) Hand rolling method
- 2) Compression moulding / Cold compression method
- 3) Hot process / Fusion method.

### 1) Hand rolling method

→ It is the simplest and oldest method of suppositories preparation.

→ Hand rolling method is useful when we prepare a small number of suppositories.

→ In this method first we mix the drug with the suppositories bases and after that by rolling with our hand.

→ Although this method is simple & economic but rarely used now-a-days.

### 2) Compression moulding method

→ It is also known as cold compression method.

→ Heating is not required in this method.

→ On small scale it is prepared in mortar & pestle but in large scale it is prepared in compression machine.

### Compression machine

→ The compression machine consists of a cylinder, piston, molds and metallic stop plate.

## Procedure of compression - moulding

- First mix the drugs with base and prepare a proper suppositories mass.
- Now place the suppositories mass in the cylinder.
- Now cylinder is closed and pressure is applied by piston.
- When suppositories mass is fitted in the mould stop plate is removed.
- collect the prepared suppositories and leave them for dry.

## Fusion / Hot process method

- In this process, the bases are melted using heat.
- This method is not suitable for heat sensitive suppositories bases.

## procedure

- First melting the suppositories base.
- Now add the drugs and other additives in the melted suppositories base and prepare a mass.
- Now remove the mixture from the heat & transfer into the suppositories mould.
- Now mixture is left for cooling & acquiring shape.
- After that suppositories are removed from the mould.



Part III

10 marks

3/ write history of pharmacy in india.  
Ans India has one of the world's oldest medical system i.e. Ayurveda.

→ Charak Samhita

→ Maharsi Charak is known as father of Ayurveda.

→ The allopathic or western system of medicine came in india along with brit's trader. Then it got popular in 19 century.

→ First london pharmacopoeia available in india in 1824 in the form of Hindustani version.

→ 1840! - Goa medical college started at Panjim, Goa

→ 1843! - London pharmacopoeia made available in two language.

→ 1844! - Bengal pharmacopoeia was established

→ 1874! - regular five years course for Chemical & druggist diploma was started in modes medical college.

→ 1930! - Government of india appointed a committee under the chairmanship of late Col. P. N. Chopra

→ R. N. Chopra is also known as father of Indian pharmacopoeia.

1935 → The <sup>first</sup> Pharmaceutical Society with an education platform was developed which is known as UPPA (United Provinces Pharmaceutical Association).

→ Later UPPA in 1936 replaced with the name Indian Pharmaceutical Association (IPA)

→ 1937-1938 → Prof. M.L. Schroff started regular degree course of B. Pharm at BHU (Banaras Hindu University)

→ M.L. Schroff is also known as father of Indian pharmacy.

→ 1940 :- Subhadra Kumari Patni first pharmacy graduate

→ Prof. M.L. Schroff started M. Pharm in B.H.U.

→ 1943 :- Gorakh Prasad Srivastava first post graduate.

→ 1944 :- The degree course in Pharmacy was started in the university of Punjab

→ 1948 :- Pharmacy act was established.

→ 1949 :- Pharmacy Council of India was established.

→ 1953 :- First education regulation (ER) was framed and it's started D. Pharm.

→ 1955 :- 1st edition of Indian Pharmacopoeia was published.

→ 1971 → Nipore in Mohali as 1st director was Dr. C.L. Kaul.

5) Discuss different types of emulsion and how to prepare emulsion.

### Ans TYPES OF Emulsion

→ They are of basically of 3 types

- 1) oil in water (o/w) emulsion
- 2) water in oil (w/o) emulsion
- 3) Multiple emulsion

#### oil in water (o/w) emulsion

→ These are emulsions in which oil is present as dispersed phase and water is present as continuous phase / dispersion medium

#### water in oil emulsion (w/o)

→ These are emulsions in which water is present as dispersed phase and oil is present as dispersion medium / continuous phase

#### Multiple emulsions

→ They are of two types.

- 1) oil in water in oil (o/w/o)
- 2) water in oil in water (w/o/w)

#### Preparation of Emulsion

→ Emulsions are prepared by using three methods:

- 1) Dry gum method
- 2) wet gum method
- 3) Bottle method

## Dry Gum method

- The ratio of oil : water : gum is 4 : 2 : 1
- It requires mortar & pestle.
- First oil is mixed with gum and triturated
- Little amount of water is added and trituration continued till a clicking sound is heard and thick cream is formed.
- Once primary emulsion is formed, remaining water is added to form the final emulsion.

## Wet Gum method

- The ratio of oil : water : gum is 4 : 2 : 1.
- It also requires mortar and pestle.
- First water is mixed with gum and triturated.
- required amount of oil is added and trituration continues to form the primary emulsion.
- once primary emulsion is formed, remaining water is added to form the final emulsion.

## Bottle method

- The ratio of oil : water : gum is 2 : 2 : 1
- The method is basically used for volatile and non-viscous oils.
- first oil is mixed with gum and shaken thoroughly.

→ required amount of water is added and shaking continued to form a primary emulsion  
→ once the primary emulsion has been formed remaining quantity of water is added slowly to form the final emulsion.

6) Describe method for preparation of suspension.

Ans Additives / Excipients used in formulation of suspension:-

→ following ingredients are used in the formulation of suspension -

1) suspending / flocculating agents

2) wetting agent

3) viscosity enhancing agent

4) Buffer

5) preservative

6) colouring agents

7) flavoring agents

8) sweetening agents

} organoleptic agents

Suspending agents

→ They are added in the suspension to disperse solid particles in continuous liquid phase.

→ They also helps to make suspension flocculated.

## Wetting agents

→ These are the substances that reduce surface tension both solid particles & liquid medium & make suspension stable.

## 3) viscosity Enhancing agents

→ They are added to increase viscosity of the suspension. so that solid particles do not easily settle down.

## 4) Buffers

→ They are added in the suspension to stabilize the suspension to a desired pH range.

## 5) Preservatives

→ They are added in the suspension to prevent the microbial growth.

6) colouring agents - Tartrazine, Erythrosine

7) flavouring agent - Vanilla, Strawberry, Orange

8) sweetening agent - Sucrose, Saccharine

## Method of preparation

→ First convert the solid particles in the fine powder form.

→ Take insoluble powder in a mortar.

→ Add sufficient liquid/vehicle to produce smooth paste.

→ Now add any - NFA - volatile solid ingredients if required.

→ Now add other ingredients and mix well.

→ Transfer the mixture in a measuring cylinder and make up to the required volume.

by adding sufficient volume.  
packing - Thick container with cork mouth -  
Storage! - store in cool & dry place.

