



A LABORATORY MANUAL FOR **PHARMACEUTICS II**

**Maharashtra State Board of Technical Education, Mumbai
(Autonomous) (ISO 9001 : 2015) (ISO / IEC 27001 : 2013)**

VISION

To ensure that the Diploma level Technical Education constantly matches the latest requirements of technology and industry and includes the all-round personal development of students including social concerns and to become globally competitive, technology led organization.

MISSION

To provide high quality technical and managerial manpower, information and consultancy services to the industry and community to enable the industry and community to face the changing technological and environmental challenges.

QUALITY POLICY

We, at MSBTE are committed to offer the best in class academic services to the students and institutes to enhance the delight of industry and society. This will be achieved through continual improvement in management practices adopted in the process of curriculum design, development, implementation, evaluation and monitoring system along with adequate faculty development programmes.

CORE VALUES

MSBTE believes in the followings:

- Education industry produces live products.
- Market requirements do not wait for curriculum changes.
- Question paper is the reflector of academic standards of educational organization.
- Well designed curriculum needs effective implementation too.
- Competency based curriculum is the backbone of need based program.
- Technical skills do need support of life skills.
- Best teachers are the national assets.
- Effective teaching learning process is impossible without learning resources.

A Laboratory Manual for

Pharmaceutics - II

(Dispensing Pharmacy)

(0811)

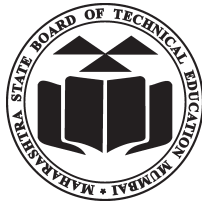
Second Year Diploma In Pharmacy



Maharashtra State

Board of Technical Education, Mumbai

(Autonomous) (ISO-9001-2015) (ISO/IEC 27001:2013)



Maharashtra State Board of Technical Education,
(Autonomous) (ISO 9001 :2015) (ISO/IEC 27001 : 2013)
4th Floor, Government Polytechnic Building, 49, Kherwadi,
Bandra (East), Mumbai - 400051.
(Printed on June, 2014)



MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

CERTIFICATE

This is to certify that, Mr. / Ms. _____
Roll no. _____ of Second Year Diploma in Pharmacy has completed
the term work satisfactorily in **Pharmaceutics - II (0811)** for the academic year
20 ____ to 20 ____ as prescribed in the curriculum.

Place : _____

Enrolment No.: _____

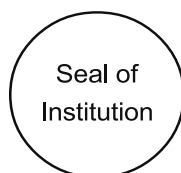
Date : _____

Exam. Seat No.: _____

(_____)
Subject Teacher

(_____)
Head of the Department

(_____)
Principal



LEARNING OVERVIEW

OBJECTIVES OF PHARMACEUTICS II :

Subject deals with dispensing that is concerned with preparation and supply of medicines.

It requires extensive knowledge of:

1. Active ingredients and excipients.
2. Principles of compounding.
3. Dosage.
4. Chemical, Physical and therapeutic incompatibilities.
5. Labeling procedures.
6. Packaging methods.
7. Handling of poisons and their misuse.
8. Maintenance of cleanliness and accuracy in overall procedure.

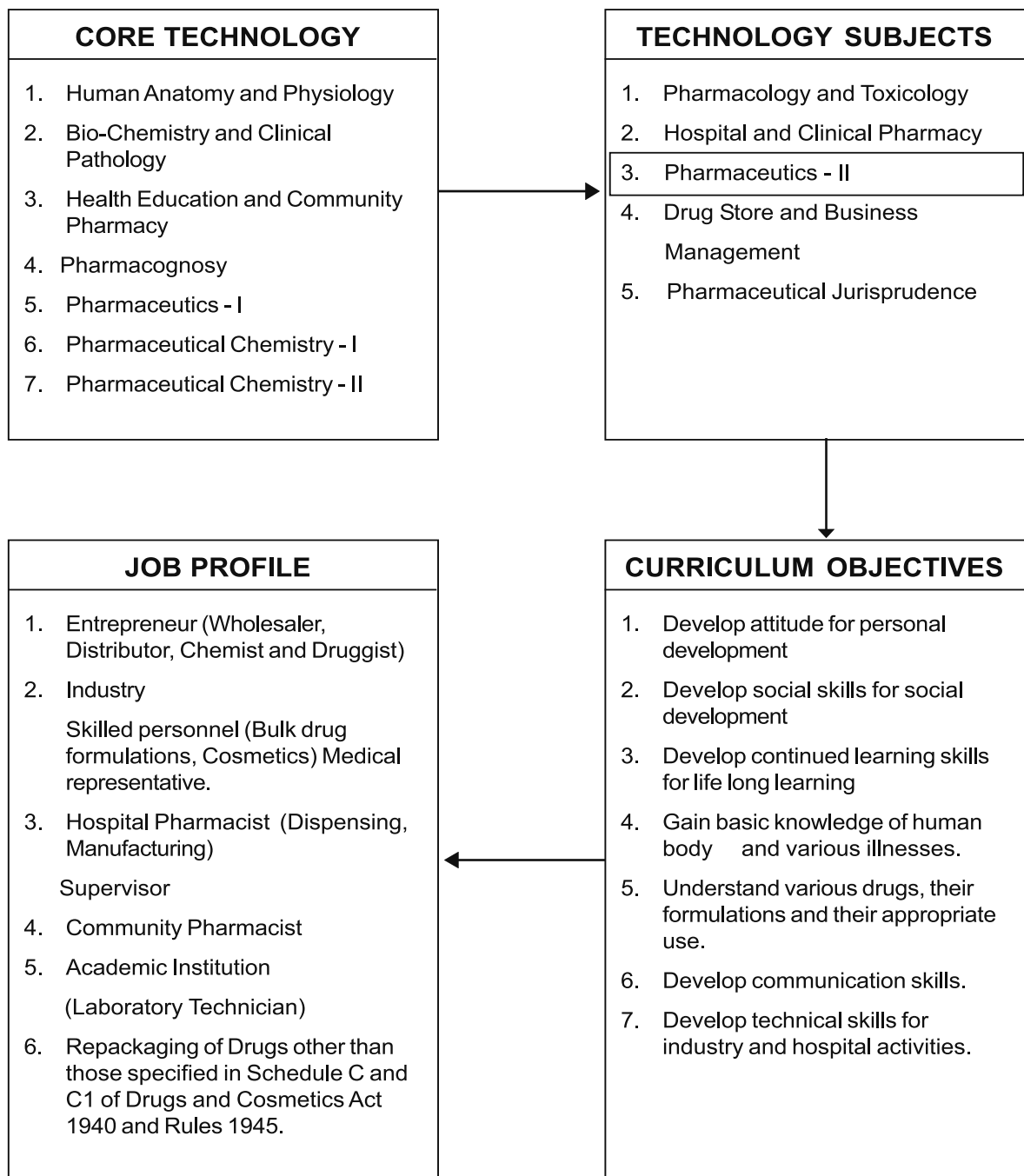
It is emphasized to learn prescriptions including translation, calculation and suitability for technical modality.

Various formulations are:

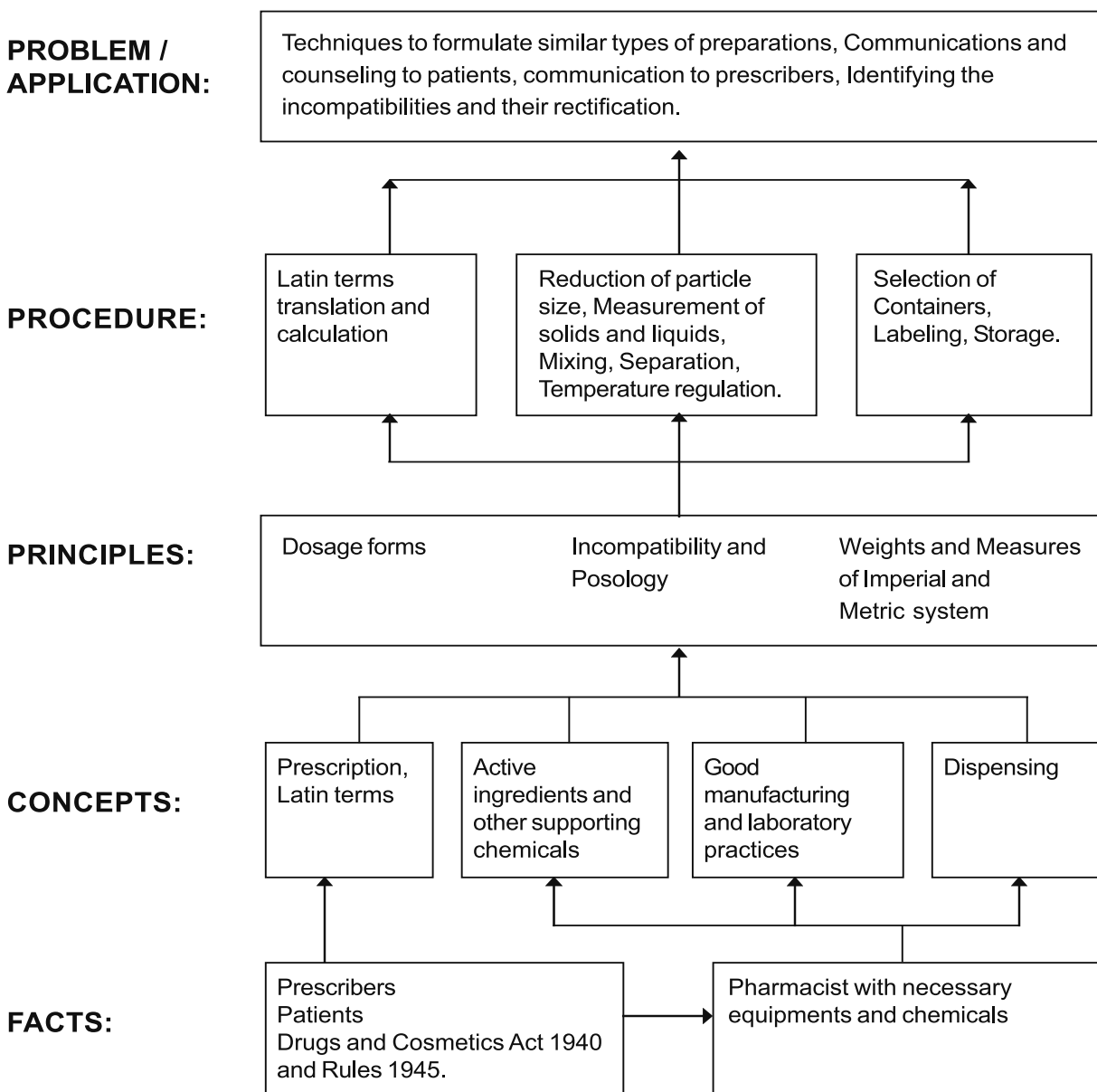
1. Mixtures.
2. Lotions and Liniments.
3. Emulsions and Suspensions.
4. Ointments and Creams.
5. Ear drops and Nasal drops.
6. Mouth washes, Gargles, Throat paints.
7. Powders for internal and external use.
8. Suppositories, Pessaries.
9. Incompatible preparations.

It is necessary to make careful preparation and labeling of formulations meant for internal and external use. Patients are communicated through label and in person also. The information regarding storage, use, dose and precautions involved in use of any of the above formulations shall also be provided.

LINK / BLOCK DIAGRAM
SHOWING INTER RELATIONSHIP OF SUBJECT AREAS,
CURRICULUM OBJECTIVES AND JOB PROFILE



GRAPHICAL STRUCTURE OF SUBJECT AREA SECOND YEAR - DIPLOMA IN PHARMACY PHARMACEUTICS - II (DISPENSING PHARMACY)



DEVELOPMENT OF SKILLS

Student will develop following intellectual skills through the subject of Pharmaceutics - II

Intellectual skills	Description
I - 1	To understand the prescription and identify the type of formulation.
I - 2	To understand method of preparation.
I - 3	To select the suitable container.
I - 4	To decide the general and special instructions to be given on the label.

Student will develop and practice following motor skills:

Motor skills	Description
M - 1	To prepare the formulation correctly.
M - 2	To pack the preparation in the selected container.
M - 3	To label the preparation clearly for communicating to patients.

GRID TABLE

Following table gives grid of the experiments and related intellectual and motor skills.

Teacher shall ensure for development of generic skills during the practicals.

Students are expected to focus on acquiring specific skills mentioned therein.

Sr. No.	Name of Experiment	Intellectual skills				Motor skills		
		I ₁	I ₂	I ₃	I ₄	M ₁	M ₂	M ₃
1.	Introduction to Pharmaceutics – II (Dispensing Pharmacy) Laboratory work.	√	√	√	√	√	√	√
2.	To understand Weights and Measures Involved in Dispensing.	√	√	√	√	√	√	√
3.	To understand Prescription and Latin Terms Used in Prescription	√	√	√	√	√	√	√
4.	Classification of Dosage Forms and Coding of Experiments Based on Dosage Forms	√	√	√	√	√	√	√
5.	Dosage Calculations	√	√	√	√	√	√	√
6.	Introduction to Liquid dosage forms: Mixtures, Syrups, Elixirs, Linctuses, Liquids Used in Mouth and Body Cavities To prepare and submit Simple Mixture Containing Ferric Ammonium Citrate	√	√	√	√	√	√	√
7.	To prepare and submit Simple Mixture Containing Acetyl Salicylic Acid	√	√	√	√	√	√	√
8.	To prepare and submit the Simple Mixture Containing Ammonium chloride.	√	√	√	√	√	√	√
9.	To prepare and submit Mixture Containing Diffusible Solids.	√	√	√	√	√	√	√
10.	To prepare and submit Kaolin Mixture B.P.	√	√	√	√	√	√	√
11.	To prepare and submit Mixture Containing Diffusible solids.	√	√	√	√	√	√	√
12.	To prepare and submit Mixture Containing Indiffusible Solids.	√	√	√	√	√	√	√
13.	To prepare and submit Mixture Containing Slightly Soluble Liquid.	√	√	√	√	√	√	√
14.	To prepare and submit Mixture Containing Small Dose of Potent Medicament.	√	√	√	√	√	√	√
15.	To prepare and submit Official Mixture B.P.	√	√	√	√	√	√	√
16.	To prepare and submit Simple Syrup.	√	√	√	√	√	√	√
17.	To prepare and submit Codeine Linctus B.P.C.	√	√	√	√	√	√	√
18.	To prepare and submit Chloral Hydrate Elixir.	√	√	√	√	√	√	√
19.	To prepare and submit Throat Paint.	√	√	√	√	√	√	√
20.	To prepare and submit Mandl's Paint.	√	√	√	√	√	√	√

Sr. No.	Name of Experiment	Intellectual skills				Motor skills		
		I ₁	I ₂	I ₃	I ₄	M ₁	M ₂	M ₃
21.	To prepare and submit Gargles.	√	√	√	√	√	√	√
22.	To prepare and submit Mouthwash.	√	√	√	√	√	√	√
23.	To prepare and submit Ear Drops.	√	√	√	√	√	√	√
24.	To prepare and submit Ear Drops.	√	√	√	√	√	√	√
25.	To prepare and submit Nasal Drops.	√	√	√	√	√	√	√
26.	To prepare and submit Nasal Drops.	√	√	√	√	√	√	√
27.	To prepare and submit Inhalation.	√	√	√	√	√	√	√
28.	To prepare and submit Potassium Permanganate Solution (Douché).	√	√	√	√	√	√	√
29.	To prepare and submit Eye Drops.	√	√	√	√	√	√	√
30.	To prepare and submit Eye Lotion.	√	√	√	√	√	√	√
31.	Report of visit to Hospital / Retail Pharmacy.	√	√	√	√	√	√	√
32.	Introduction to Emulsions To prepare and submit Emulsion Containing Castor Oil.	√	√	√	√	√	√	√
33.	To identify the type of given Emulsion by Dilution Method.	√	√	√	√	√	√	√
34.	To prepare and submit Emulsion with Turpentine Oil.	√	√	√	√	√	√	√
35.	To identify the given Emulsion by Dye Test.	√	√	√	√	√	√	√
36.	To prepare and submit Emulsion with Olive Oil	√	√	√	√	√	√	√
37.	To prepare and submit Emulsion with Soluble Substance.	√	√	√	√	√	√	√
38.	To prepare and submit Emulsion with Small Portion of Oily Substance.	√	√	√	√	√	√	√
39.	To prepare and submit Emulsion with Substance Insoluble in Oil and Water.	√	√	√	√	√	√	√
40.	To prepare and submit Emulsion with Liquid Paraffin.	√	√	√	√	√	√	√
41.	To prepare and submit Organic Soap Emulsion.	√	√	√	√	√	√	√
42.	To prepare and submit Emulsion (Lime Cream Type).	√	√	√	√	√	√	√
43.	To prepare and submit Turpentine Liniment B.P.	√	√	√	√	√	√	√
44.	To prepare and submit Liniment Ammonia Soap Type.	√	√	√	√	√	√	√
45.	To prepare and submit White Liniment B.P.	√	√	√	√	√	√	√
46.	To prepare and submit Benzyl Benzoate Application B.P.	√	√	√	√	√	√	√
47.	To prepare and submit Liniment.	√	√	√	√	√	√	√
48.	To prepare and submit Camphorated Oil.	√	√	√	√	√	√	√
49.	To prepare and submit Turpentine and Acetic Acid Liniment.	√	√	√	√	√	√	√

Sr. No.	Name of Experiment	Intellectual skills				Motor skills		
		I ₁	I ₂	I ₃	I ₄	M ₁	M ₂	M ₃
50.	To prepare and submit Calamine Lotion.	√	√	√	√	√	√	√
51.	To prepare and submit Sulphur Lotion.	√	√	√	√	√	√	√
52.	To prepare and submit Emulsion for Rectal Use. Introduction to Semi solid dosage forms.	√	√	√	√	√	√	√
53.	To prepare and Dispense Emulsifying Wax I.P.	√	√	√	√	√	√	√
54.	To prepare and submit Simple Ointment I.P.	√	√	√	√	√	√	√
55.	To prepare and submit Sulphur Ointment B.P.	√	√	√	√	√	√	√
56.	To prepare and submit Zinc Oxide Ointment B.P.	√	√	√	√	√	√	√
57.	To prepare and submit Methyl Salicylate Ointment B.P.	√	√	√	√	√	√	√
58.	To prepare and submit Paraffin Ointment I.P.	√	√	√	√	√	√	√
59.	To prepare and submit Emulsifying Ointment I.P.	√	√	√	√	√	√	√
60.	To prepare and submit Staining Ointment.	√	√	√	√	√	√	√
61.	To prepare and submit Non-Staining Iodine Ointment.	√	√	√	√	√	√	√
62.	To prepare and submit Calamine Ointment B.P.C.	√	√	√	√	√	√	√
63.	To prepare and submit Cetrimide Cream B.P.	√	√	√	√	√	√	√
64.	To prepare and submit Zinc Cream.	√	√	√	√	√	√	√
65.	To prepare and submit Unna's Paste.	√	√	√	√	√	√	√
66.	To prepare and submit Zinc Oxide and Salicylic Acid Paste B.P.	√	√	√	√	√	√	√
67.	To prepare and submit Bassorin Paste.	√	√	√	√	√	√	√
68.	To prepare and submit Dithranol Paste.	√	√	√	√	√	√	√
69.	To prepare and submit Jelly.	√	√	√	√	√	√	√
70.	To prepare and submit Kaolin Poultices B.P.C.	√	√	√	√	√	√	√
71.	Introduction to Suppositories and Pessaries. To prepare and submit Soap-Glycerin Suppository B.P.C.	√	√	√	√	√	√	√
72.	To prepare and submit Glycerol Suppository B.P.	√	√	√	√	√	√	√
73.	To prepare and submit Suppository Containing Soluble Solids.	√	√	√	√	√	√	√
74.	To prepare and submit Pessaries of Cocoa Butter Containing Liquid.	√	√	√	√	√	√	√
75.	To prepare and submit Pessaries of Cocoa Butter Containing Insoluble Medicaments.	√	√	√	√	√	√	√
	Introduction to Solid Dosage forms: Powders and oral unit Dosage form.							
76.	To prepare and submit Powder.	√	√	√	√	√	√	√
77.	To prepare and submit Powder.	√	√	√	√	√	√	√
78.	To prepare and submit Powder.	√	√	√	√	√	√	√

Sr. No.	Name of Experiment	Intellectual skills				Motor skills		
		I ₁	I ₂	I ₃	I ₄	M ₁	M ₂	M ₃
79.	To prepare and submit Powder.	√	√	√	√	√	√	√
80.	To prepare and submit Gregory's Powder.	√	√	√	√	√	√	√
81.	To prepare and submit Effervescent Granules Containing Iron and Ammonium Citrate.	√	√	√	√	√	√	√
82.	To prepare and submit Compound Magnesium Trisilicate Oral Powder B.P.	√	√	√	√	√	√	√
83.	To prepare and submit Tablet Triturates.	√	√	√	√	√	√	√
84.	To prepare and submit Tooth Powder.	√	√	√	√	√	√	√
85.	To prepare and submit Insufflations.	√	√	√	√	√	√	√
86.	To prepare and submit Boric Acid Containing 1% of Iodine.	√	√	√	√	√	√	√
87.	To prepare and submit Dusting Powder.	√	√	√	√	√	√	√
88.	To prepare and submit Dusting Powder.	√	√	√	√	√	√	√
89.	Introduction to Incompatibility To identify the type of Incompatibility and Perform Accordingly.							
	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
90.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
91.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
92.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
93.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
94.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
95.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
96.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
97.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
98.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
99.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√
100.	To identify the type of Incompatibility and Perform Accordingly.	√	√	√	√	√	√	√

NOTE : √ - Identified Skills

GUIDELINES FOR TEACHERS

Teachers shall discuss the following points with students before start of practicals of the subject.

1. **Learning Overview:** To develop better understanding of importance of the subject. To know related skills to be developed such as Intellectual skills and Motor Skills.
2. **Link / Block Diagram:** Context of the subject in the form of link diagram showing interrelationship of various subject areas, curriculum objectives and job profile.
3. **Graphical structure:** In this topics and sub topics are organized in systematic way so that ultimate purpose of learning the subject is achieved. This is arranged in the form of fact, concept, principle, procedure, application and problem.
4. **Know your Laboratory work:** To understand the layout of laboratory, specifications of Equipments/ Instruments/ Materials, procedure, working in groups, planning time etc. Also to know total amount of work to be done in the laboratory.
5. Teacher shall ensure that required equipments are in working condition before start of experiment, also keep operating instruction manual available.
6. Explain prior concepts to the students before starting of each experiment.
7. Involve students activity at the time of conduct of each experiment.
8. While preparing, labeling, evaluation; each student (from batch of 20 students) shall be given a chance to perform/observe the experiment.
9. **About four experiments will be performed in each practical turn.**
10. List of questions is given at the end of each experiment. Teacher shall instruct the students to attempt particular questions from that list. Teacher shall ensure that each student writes the answers to the allotted questions in the laboratory manual in the blank space provided below the questions.
11. If the experimental setup has variations in the chemicals and specifications of the equipments, the teachers are advised to make the necessary changes, wherever needed.
12. Teacher should ensure that the respective skills and competencies are developed in the students after the completion of the practical exercise.
13. Teacher is expected to share the skills and competencies to be developed in the students.
14. Teacher may provide additional knowledge and skills to the students even though not covered in the manual but are expected from the students after they pass out.
15. Teacher shall ensure that visits recommended in the manual are covered.
16. Teacher may suggest the students to refer additional related Official books/Technical papers/ Reference books/Seminar Proceedings, etc.
17. Teacher is expected to ask questions to the students to tap their achievements regarding related knowledge and skills so that students can prepare while submitting record of the practicals. Focus should be given on development of enlisted skills rather than theoretical / codified knowledge.
18. Teacher should organize Group discussions / Brain storming sessions / Seminars to facilitate the exchange of knowledge amongst the students.
19. Teacher should ensure that received CIAAN-2004 norms are followed simultaneously and progressively, while assessing the performance of students.
20. Teacher shall also refer to the Circular No. MSBTE /D-50 /Pharma Lab Manual / 2006 / 3160 dated 4th May 2006 for additional guidelines.

INSTRUCTIONS FOR STUDENTS

Students shall read the points given below for understanding the theoretical concepts and practical application.

1. Listen carefully to the lecture given by teacher about importance of subject, curriculum philosophy, graphical structure, skills to be developed, information about equipments, instruments, procedure, method of continuous assessment, tentative plan of work in laboratory and total amount of work to be done in a year. Students shall wear clean white apron and cap during practicals.
2. Students shall undergo study visit of the laboratory for types of chemicals, equipments, instruments before performing experiments.
3. Read the write up of each experiment to be performed, a day in advance.
4. Organize the work in the group whenever suggested and make a record of suggestions made by teacher wherever possible.
5. Understand the purpose of experiment and its practical implications.
6. Students should not hesitate to ask any difficulty faced during conduct of practical exercise.
7. The student shall study all the questions given in the laboratory manual and practice to write the answers to these questions.
8. Write the answers of the questions allotted by the teacher during practical hours if possible or afterwards, but immediately in the space provided below the questions.
9. Student shall visit the recommended industry or hospital or retail pharmacy and should study the know how of the shop floor practices and the operations of machines.
10. Student shall develop maintenances skills as expected by the industries.
11. Student shall develop the habit of group discussion related to the experiments / exercises so that exchange of knowledge / skills could take place.
12. Student shall attempt to develop related hands-on-skills and gain confidence.
13. Student shall focus on development of skills rather than theoretical or codified knowledge.
14. Student shall visit the nearby medical stores, industries, laboratories, technical exhibitions, trade fair even if not included in the Lab Manual. In short, students should have exposure to the area of work right in the student hood.
15. Student shall insist for the completion of recommended laboratory work, visits, answers to the given questions, etc.
16. Student shall develop the habit of evolving more ideas, innovations, skills, etc. than included in the scope of the manual.
17. Student shall refer technical magazines, proceedings of the Seminars, refer websites related to the scope of the subject and update their knowledge and skills.
18. Student should develop the habit of not to depend totally on teachers but to develop self-learning techniques.
19. Student should develop the habit to communicate with the teacher without hesitation with respect to the academics involved.
20. Student should develop habit to submit the practicals exercise continuously and progressively on the scheduled dates and should get the assessment done.

List of Experiments and Record of Progressive Assessment

Sr. No.	Name of the Experiments	Page No.	Date of Performance	Date of submission	Assessment Max. Marks 10	Sign. of Teacher and Remarks
1.	Introduction to Pharmaceutics - II (Dispensing Pharmacy) Laboratory work.	1-5				
2.	To understand Weights and Measures Involved in Dispensing.	6-9				
3.	To understand Prescription and Latin Terms Used in Prescription	10-17				
4.	Classification of Dosage Forms and Coding of Experiments Based on Dosage Forms	18-19				
5.	Dosage Calculations	20-22				
	Introduction to Liquid dosage forms: Mixtures, Syrups, Elixirs, Linctuses, Liquids Used in Mouth and Body Cavities	23-26				
6.	To prepare and submit Simple Mixture Containing Ferric Ammonium Citrate	27-29				
7.	To prepare and submit Simple Mixture Containing Acetyl Salicylic Acid	30-32				
8.	To prepare and submit the Simple Mixture Containing Ammonium chloride.	33-35				
9.	To prepare and submit Mixture Containing Diffusible Solids.	36-38				
10.	To prepare and submit Kaolin Mixture B.P.	39-41				
11.	To prepare and submit Mixture Containing Diffusible solids.	42-44				
12.	To prepare and submit Mixture Containing Indiffusible Solids.	45-47				
13.	To prepare and submit Mixture Containing Slightly Soluble Liquid.	48-50				
14.	To prepare and submit Mixture Containing Small Dose of Potent Medicament.	51-53				
15.	To prepare and submit Official Mixture B.P.	54-56				
16.	To prepare and submit Simple Syrup.	57-59				
17.	To prepare and submit Codeine Linctus B.P.C.	60-62				
18.	To prepare and submit Chloral Hydrate Elixir.	63-65				

Sr. No.	Name of the Experiments	Page No.	Date of Performance	Date of submission	Assessment Max. Marks 10	Sign. of Teacher and Remarks
19.	To prepare and submit Throat Paint.	66-68				
20.	To prepare and submit Mandl's Paint.	69-71				
21.	To prepare and submit Gargles.	72-74				
22.	To prepare and submit Mouthwash.	75-77				
23.	To prepare and submit Ear Drops.	78-80				
24.	To prepare and submit Ear Drops.	81-83				
25.	To prepare and submit Nasal Drops.	84-86				
26.	To prepare and submit Nasal Drops.	87-89				
27.	To prepare and submit Inhalation.	90-92				
28.	To prepare and submit Potassium Permanganate Solution (Douche).	93-95				
29.	To prepare and submit Eye Drops.	96-98				
30.	To prepare and submit Eye Lotion.	99-101				
31.	Report of visit to Hospital / Retail Pharmacy.	102-104				
32.	Introduction to Emulsions To prepare and submit Emulsion Containing Castor Oil.	105-108 109-111				
33.	To identify the type of given Emulsion by Dilution Method.	112				
34.	To prepare and submit Emulsion with Turpentine Oil.	113-115				
35.	To identify the given Emulsion by Dye Test.	116				
36.	To prepare and submit Emulsion with Olive Oil	117-119				
37.	To prepare and submit Emulsion with Soluble Substance.	120-122				
38.	To prepare and submit Emulsion with Small Portion of Oily Substance.	123-125				
39.	To prepare and submit Emulsion with Substance Insoluble in Oil and Water.	126-128				
40.	To prepare and submit Emulsion with Liquid Paraffin.	129-131				
41.	To prepare and submit Organic Soap Emulsion.	132-134				
42.	To prepare and submit Emulsion (Lime Cream Type).	135-137				

Sr. No.	Name of the Experiments	Page No.	Date of Performance	Date of submission	Assessment Max. Marks 10	Sign. of Teacher and Remarks
43.	To prepare and submit Turpentine Liniment B.P.	138-140				
44.	To prepare and submit Liniment Ammonia Soap Type.	141-143				
45.	To prepare and submit White Liniment B.P.	144-146				
46.	To prepare and submit Benzyl Benzoate Application B.P.	147-149				
47.	To prepare and submit Liniment.	150-152				
48.	To prepare and submit Camphorated Oil.	153-155				
49.	To prepare and submit Turpentine and Acetic Acid Liniment.	156-158				
50.	To prepare and submit Calamine Lotion.	159-161				
51.	To prepare and submit Sulphur Lotion.	162-164				
52.	To prepare and submit Emulsion for Rectal Use.	165-167				
53.	Introduction to Semi solid dosage forms.	168-171				
	To prepare and Dispense Emulsifying Wax I.P.	172-174				
54.	To prepare and submit Simple Ointment I.P.	175-177				
55.	To prepare and submit Sulphur Ointment B.P.	178-180				
56.	To prepare and submit Zinc Oxide Ointment B.P.	181-183				
57.	To prepare and submit Methyl Salicylate Ointment B.P.	184-186				
58.	To prepare and submit Paraffin Ointment I.P.	187-189				
59.	To prepare and submit Emulsifying Ointment I.P.	190-192				
60.	To prepare and submit Staining Ointment.	193-195				
61.	To prepare and submit Non-Staining Iodine Ointment.	196-198				
62.	To prepare and submit Calamine Ointment B.P.C.	199-202				
63.	To prepare and submit Cetrimide Cream B.P.	203-205				

Sr. No.	Name of the Experiments	Page No.	Date of Performance	Date of submission	Assessment Max. Marks 10	Sign. of Teacher and Remarks
64.	To prepare and submit Zinc Cream.	206-208				
65.	To prepare and submit Unna's Paste.	209-211				
66.	To prepare and submit Zinc Oxide and Salicylic Acid Paste B.P.	212-214				
67.	To prepare and submit Bassorin Paste.	215-217				
68.	To prepare and submit Dithranol Paste.	218-220				
69.	To prepare and submit Jelly.	221-223				
70.	To prepare and submit Kaolin Poultices B.P.C.	224-226				
71.	Introduction to Suppositories and Pessaries. To prepare and submit Soap-Glycerin Suppository B.P.C.	227-228 229-231				
72.	To prepare and submit Glycerol Suppository B.P.	232-234				
73.	To prepare and submit Suppository Containing Soluble Solids.	235-237				
74.	To prepare and submit Pessaries of Cocoa Butter Containing Liquid.	238-240				
75.	To prepare and submit Pessaries of Cocoa Butter Containing Insoluble Medicaments.	241-243				
76.	Introduction to Solid Dosage forms: Powders and oral unit Dosage form. To prepare and submit Powder.	244-247 248-250				
77.	To prepare and submit Powder.	251-253				
78.	To prepare and submit Powder.	254-256				
79.	To prepare and submit Powder.	257-259				
80.	To prepare and submit Gregory's Powder.	260-262				
81.	To prepare and submit Effervescent Granules Containing Iron and Ammonium Citrate.	263-265				
82.	To prepare and submit Compound Magnesium Trisilicate Oral Powder B.P.	266-268				
83.	To prepare and submit Tablet Triturates.	269-271				
84.	To prepare and submit Tooth Powder.	272-274				
85.	To prepare and submit Insufflations.	275-277				
86.	To prepare and submit Boric Acid Containing 1% of Iodine.	278-280				

Sr. No.	Name of the Experiments	Page No.	Date of Performance	Date of submission	Assessment Max. Marks 10	Sign. of Teacher and Remarks
87.	To prepare and submit Dusting Powder.	281-283				
88.	To prepare and submit Dusting Powder.	284-286				
	Introduction to Incompatibility To identify the type of Incompatibility and Perform Accordingly.	287-288				
89.	To identify the type of Incompatibility and Perform Accordingly.	289-291				
90.	To identify the type of Incompatibility and Perform Accordingly.	292-294				
91.	To identify the type of Incompatibility and Perform Accordingly.	295-297				
92.	To identify the type of Incompatibility and Perform Accordingly.	298-300				
93.	To identify the type of Incompatibility and Perform Accordingly.	301-303				
94.	To identify the type of Incompatibility and Perform Accordingly.	304-306				
95.	To identify the type of Incompatibility and Perform Accordingly.	307-309				
96.	To identify the type of Incompatibility and Perform Accordingly.	310-313				
97.	To identify the type of Incompatibility and Perform Accordingly.	314-316				
98.	To identify the type of Incompatibility and Perform Accordingly.	317-318				
99.	To identify the type of Incompatibility and Perform Accordingly.	319-320				
100.	To identify the type of Incompatibility and Perform Accordingly.	321-322				
					Total Marks Average Marks out of 10.....*	

* To be transferred to Proforma I1 of CIAAN - 2004.

Note: Guidelines for conduct of annual practical examination are enclosed at the end.

Experiment No. 1

1.0 Title:

Introduction to Pharmaceutics II (Dispensing Pharmacy) Laboratory Work.

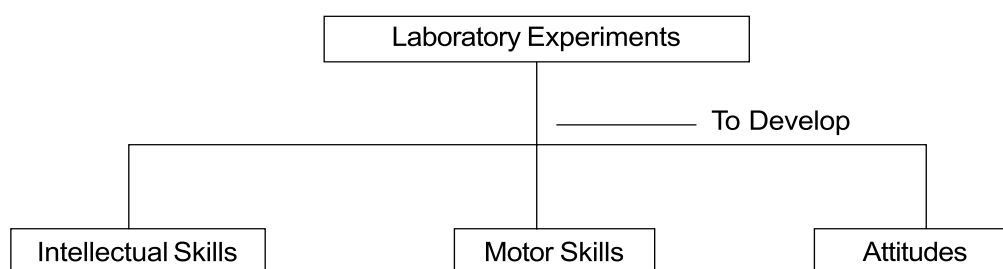
2.0 Prior Concepts:

Curriculum contents, Scope of work, Planning, assessment.

3.0 New Concepts:

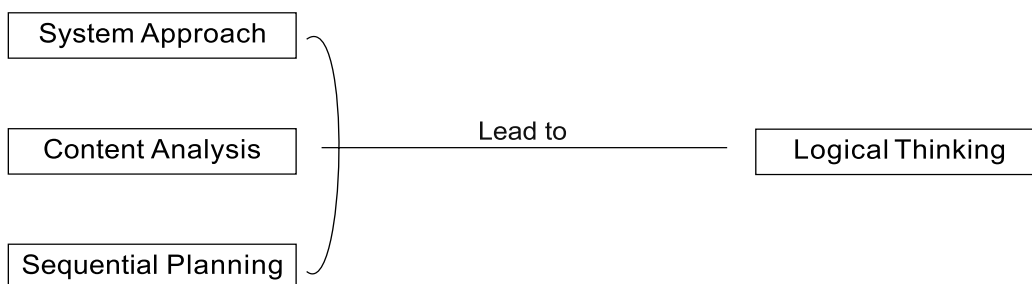
Proposition 1: Laboratory Experiments:

These are expected to develop Intellectual'skills, Motor skills and attitudes in students.



Proposition 2 Logical thinking:

It is developed in students through systems approach, content analysis & sequential planning of laboratory work.



Proposition 3: Orientation:

1. Code of ethics.
2. Current good manufacturing and good laboratory concepts, ISO quality concepts.

Proposition 4: Layout of Laboratory:

1. Weighing area with prescription balances.
2. Chemical Storage area.
3. Working Platform with water and gas supply.
4. Sterile area.

4.0 Stepwise Procedure:

1. Read the instructions given in manual carefully.
2. Listen to the lecture given by teacher about importance of subject, curriculum philosophy, graphical structure, skills to be developed, information about equipments, instruments, method of assessment by teacher and tentative plan of work in laboratory.
3. The teacher shall take the students round the laboratory for types of equipments, instruments, chemicals, different apparatus to be used while performing experiments.

5.0 Observation:

General format of label for preparations made against prescriptions received from physician will be:

Name of Preparation The Mixture 30 ml	
For	: ABC (Name of patient)
Register No.	: XYZ (No. in the register)
Dispensed by	: PQR (Name of pharmacist)
Date	:
(Required storage condition) Store in cool dark place.	
(Additional direction if required) Shake well before use.	
Direction for use: One teaspoonful to be taken three times a day.	
LMN PHARMACY, MUMBAI.	

Name of Preparation The Lotion 30 ml	
For	: ABC
Register No.	: XYZ (No. in the register)
Dispensed By	: PQR
Date	:
(Required storage condition) Store in cool dark place.	
(Additional direction if required) Shake well before use.	
FOR EXTERNAL USE ONLY.	
Direction for use: To be used as directed by physician.	
LMN PHARMACY, MUMBAI.	

Note 1: Explanation about Register number is given on the page number. 10 of Experiment No. 3, proposition 2

Note 2: 'For External use only' instructions should be given in red.

6.0 Questions:

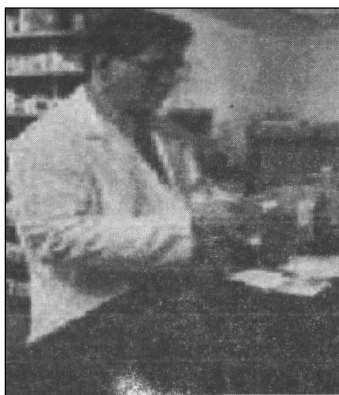
Answer Q. from group A, Q. from group B, and Q. from group C (Question numbers to be allotted by the teacher.)

Group: A

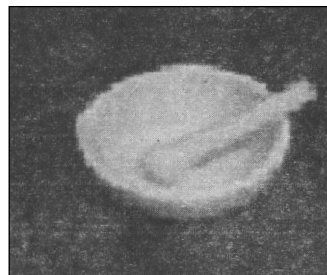
- 2 State two motor skills to be developed through this subject.
3. List the parameters of the graphical structure in the hierarchy.
4. Classify the curriculum in different groups of subject.
- 5 State the importance of job description in designing the curriculum.

Group: B

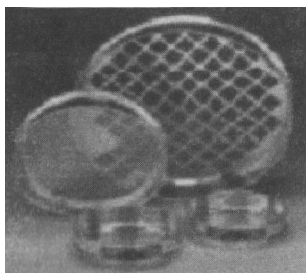
1. Give the layout of your laboratory of Pharmaceutics- II.
- 2 List two equipments in the laboratory.
3. List five chemicals provided on chemical rack.
4. List precautions to be taken while working in the laboratory.
- 5 Identify and name the following pictures with their purpose.



i
.....



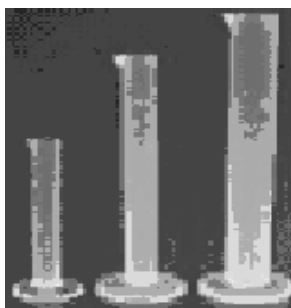
ii
.....



iii
.....



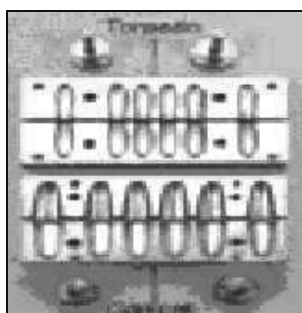
iv
.....



v.
.....



vi.
.....



vii.
.....



viii.
.....

Group: C

1. Why is it necessary for the pharmacists to wear clean lab coat, cap, hand gloves?
2. Why spoon is used to take out the chemicals from containers?
3. Give one example each of
 1. Tincture:
 2. Extract:
 3. Colouring agent:
 4. Preservative:
 5. Flavouring agent:
4. As per pharmacopoeia define cold, cool and room temperature.
5. List the different materials used for making containers and learn about the problems arising with the use of those materials.
6. What is distilled water? Why is it necessary to use distilled water in all preparations?

(Space for answers)

Remarks :

Date :

Signature of Teacher

Experiment No. 2

1.0 Title:

To understand Weights and Measures Involved In Dispensing.

2.0 Prior Concepts:

Introduction to Dispensing Pharmacy.

3.0 New Concepts:

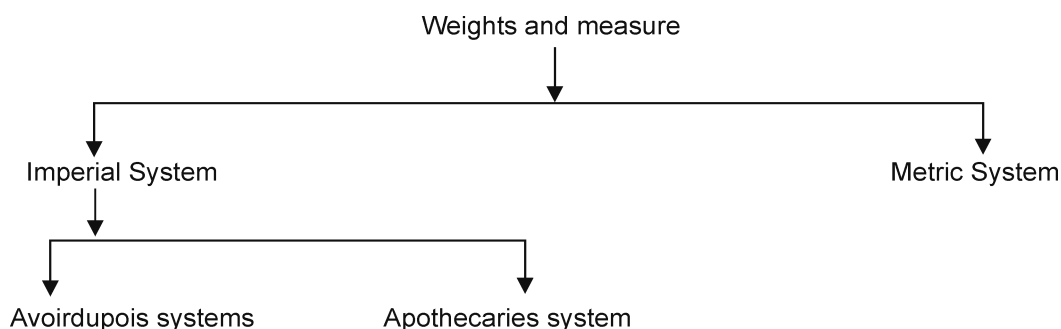
Types of systems Conversion of imperial to metric system.

Proposition 1: Weight:

It is a measure of the gravitational force acting on a body and directly proportional to its mass.

Weight depends upon gravitational force and mass.

Concept structure:



4.0 Learning Objectives:

Intellectual skills:

To understand the different systems of measurement and their conversions.

5.0 Stepwise procedure:

1. Avoirdupois system:

In this system "Pound" is the standard unit for weighing and all the measures of mass are derived from the Imperial std. Pound (Lb)

Pound (lb)	Ounce (oz)	Grain (gr)
1	16	7000
	1	$7000/16 = 437.5$

2. Apothecaries system:

This system is also known as Troy system. The "grain" is the standard weight in this system and all other weights are derived from it.

Pound (lb)	Ounce (℥)	Drachm (℥)	Scruple (℥)	Grain (gr)
1	12	96	288	5760
	1	8	24	480
		1	3	60
			1	20

Measurement of capacity in imperial system (British):

The 'gallon' is the standard unit and all other measures of capacity are derived from it.

Gallon (c)	Pint (o)	fl.ounce (fl $\frac{3}{4}$)	fl.drachm ($\frac{3}{4}$)	Minim (m)
1	8	160	1280	76800
	1	20	160	9600
		1	8	480
			1	60

The Metric system:

The metric system is used in the pharmacopoeia and was implemented from 1st April 1964 in Pharmacy profession. 'Kilogram' is the standard unit for measurement of weight and all other measures are derived from it.

1 kilogram (kg)	=	1000 grams
1 hectogram (hg)	=	100 grams
1 decagram (dag)	=	10 grams
1 decigram (dg)	=	0.1 gram
1 centigram (cg)	=	0.01 gram
1 milligram (mg)	=	0.001 gram
1 microgram (ug)	=	0.000,001 gram
1 gram (g)	=	1000 mg

Prefixes for fractions and multiples of SI units:

Fraction	Prefix	Symbol	Multiple	Prefix	Symbol
10^{-1}	deci	d	10	deka	da
10^{-2}	centi	C	10^2	hecto	h
10^{-3}	milli	M	10^3	Kilo	K
10^{-6}	micro	U	10^6	mega	M
10^{-9}	nano	N	10^9	giga	G
10^{-12}	pica	P8	10^{12}	tera	T
10^{-15}	femto	F	10^{15}	Peta	P
10^{-18}	atto	A	10^{18}	exa	E

Measurement of capacity:

A 'litre' is the standard unit for measurement.

Conversions Table:

The Pharmacopoeia of India uses only the metric system. Previously prescriptions were written in Imperial system by many Physicians. So a conversion table (given below) is used by the Pharmacists.

i.

Practical equivalents	-	Weight Measures.
1 kilogram (kg)	=	2.20 lb avoirdupois
1 pound avoirdupois	=	454 g
1 ounce avoirdupois	=	28.4 g
1 ounce apothecary	=	31.1 g
1 pound apothecary	=	373 g
1 gram	=	15.4 gr
1 grain	=	64.8 mg

ii.

Practical equivalents	-	Liquid measure
1 millilitre	=	16.2 minims
1 fluid ounce	=	29.6 ml
1 pint	=	473 ml
1 gallon	=	3790 ml

All above measures are as per Remington -The Science and Practice Of Pharmacy

Conversion table for Domestic Measure:

Domestic Measure	Metric System	Imperial System
1 drop	0.06 ml	1 minim
1 teaspoonful	4.0 ml	1 fl.drachm
1 dessertspoonful	8.0 ml	2 fl.drachm
1 tablespoonful	15.0 ml	4 fl.drachm
2 tablespoonful	30 ml	1 fl.ounce
1 wine glassful	60 ml	2 fl.ounce
1 teacupful	120 ml	4 fl.ounce
1 tumblerful	240 ml	8 fl.ounce

6.0 Result:

Students understand the conversion of weights and measures.

7.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define weight.
2. Name two types of Imperial system.
3. 1 drop = ml.
4. What is the standard unit for Avoirdupois system?
5. What is the standard unit of Metric system?
6. 1 gram = mg.

7. One gallon of water will make how many pints?
8. How many minims will make 100 ml?
9. Which domestic measure are usually recommended for dosage?
10. What is the minimum weighable quantity on dispensing balance?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 3

1.0 Title:

To understand Prescription and Latin terms used in Prescription.

2.0 Prior Concept:

Weights and measures involved in dispensing.

3.0 New Concepts:

Symbol of prescription, Parts of prescription, Understanding of prescription by converting Latin terms into English terms.

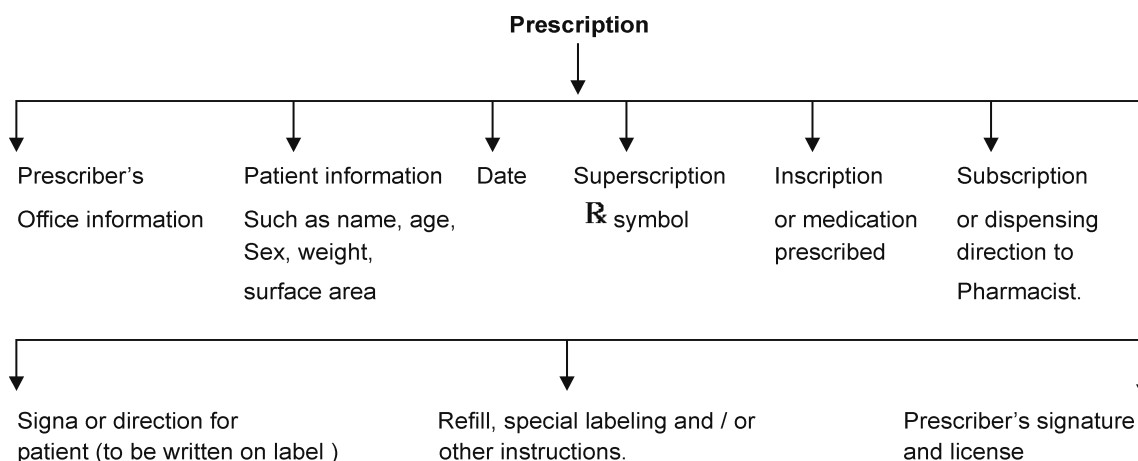
Proposition 1: Prescription:

Written order from registered physician, a dentist or a veterinarian or a surgeon, or any other person licensed by law to prescribe drugs containing instructions for preparation and dispensing to the pharmacist along with mode of administration for the patient.

Proposition 2: Reading of prescription:

After receiving the prescription, serial number is given to the prescription. That number is entered in a bound register containing columns such as serial number, physician's name and address, patient's name and address, illness. The serial number will be the register number. This register number will be entered on the label. It helps for future communications.

Concept Structure:



4.0 Learning Objectives:

Intellectual skills:

To understand the meaning of each prescription, conversion of Latin terms into English terms and conversion of imperial weights to metric weights.

5.0 Diagram:

Sample prescription format

+ SHARMA NURSHING HOME + 5, Model Town, Delhi		Ph. - 552248 552284
		Date: 28/12/96
Name : Mr. Nand Lal	Age : 45 yrs.	Sex: Male
Address : 48, Azad Nagar, Delhi.	Body surface area: 1.8 sq. m.	Wt.: 60 kg
R (Superscription)		
(Inscription) ----	Sodium bi-carbonate	3 g
	Compound tincture of cardamom	2 ml
	Simple syrup	6 ml
	Water quantity sufficient	90 ml
Fiat Mistura (subscription)		
Signa. Cochleare magnum ter in die post cibos sumenda		(Signature)
		Sd/-
Refill: _____		Dr. Aswani Sharma
		M.B.B.B.S., M.D.
		Regd. No. - 1438

6.0 Stepwise Procedure:

Prescriptions are generally written in English language but Latin words or abbreviations are some times used. So it becomes necessary for Pharmacist to become familiar with the Common Latin terms and abbreviations.

Parts of the prescription:

1. Prescriber's office information:

It gives information about the prescriber, his/her clinic with address and phone number.

2. Date:

Date helps a pharmacist to find out the date of prescribing and date of presentation for filling. Prescription of Narcotic or other habit-forming drugs, must bear the date.

3. Name, age, sex and address must be written because it serves to identify the prescription. It also helps the pharmacist to check the prescribed dose of medication in case of children.

4. Superscription:

It is represented by a symbol **R**, which is written before writing the prescription. It is an abbreviation of Latin word **Recipe** which means 'You take ' (Take Thou). In olden days, the symbol was considered to be originated from the sign of Jupiter, God of healing.

5. Inscription:

This is the main part of the prescription order, contains the **Name** and **Quantities** of the prescribed ingredients. The name of each ingredient is written on a separate line along with its quantity. Inscription can be divided into different parts like Base, Adjuvant and Vehicle. For example in above format sodium bicarbonate is an antacid drug (maximum dose: 5 gm), compound tincture of cardamom for flavour, simple syrup as sweetener and water as vehicle.

6. Subscription:

It gives direction to the pharmacist for preparing the prescription and number of doses to be dispensed.

7. Signetur (Signa):

This consists of directions to be given to the patient regarding administration of the drug. For example direction given above can be translated into English as: One tablespoonful to be taken three times a day after meals.

8. Refill:

Number of authorized refills are indicated to prevent misuse of prescription.

9. Signature, address and registration number of the prescriber:

It is important in order to avoid misuse of the preparations.

Modern method of prescribing:

Though above information describes traditional way of prescribing, with flow of time many changes have taken place. For example, now a days majority of drugs are available in the market as readymade formulations which are more suitable considering sterilization, container suitability, very small size (micro, nano) of drug molecules etc. Thus there is no need to dispense the drugs by the pharmacists. So prescriptions by physicians generally contain the generic name, trade name, dose size, dosage forms, etc. The language use of English terms instead of Latin, metric system weights and measures instead of grains and minims, use of computers for storage of patients related information are salient features.

A student has to adopt above changes in his career of professional life, as these are the existing ways. In view of above there are some prescriptions in this manual containing metric system, English language etc. But to learn the basic things and to be perfect in all angles, old ways are retained in few prescriptions.

Latin Terms and Abbreviations Commonly Used in Prescription Writing

Latin Name	Abbreviation	English Name
Auristille	auristill.	Ear drops
Capsula	caps.	A Capsule
Cataplasma	cataplasma.	A poultice
Charta	chart.	A powder
Collutorium	collut.	A mouth wash
Collyrium	collyr.	An eye wash
Cremor	crem.	An cream
Emulsio	emul.	An emulsion
Haustus	ht.	A draught
Injectio	inj.	An injection
Insufflatio	insuff.	An insufflation
Linctus	linct.	A linctus
Linimentum	lin.	A liniment
Liquor	liq.	A solution
Lotio	lot.	A lotion
Mistura	m,mist	A mixture
Naristillae	narist.	Nasal drops
Nebula	neb.	A spray solution
Pasta	past.	A paste

Latin Name	Abbreviation	English Name
Pilula	pil.	A pill
Pulvis	pulv.	A powder
Solutio	sol.	A solution
Suppositorium	suppos.	A suppository
Tabletta	tab.	A tablet
Unguentum	ung.	An ointment

METHOD OF ADMINISTRATION OR APPLICATION

Addendus	addend.	To be added
Applicandus	applicand.	To be applied
Applicat	-----	Let (him) apply
Capiendus	capiend.	To be taken
Dandus	dand.	To be given
Deglutiendus	deglut.	To be swallowed
Infricandus	infricand.	To be rubbed in
Inhaletur	inhal.	Let (it) be inhaled
Miscendus	miscend.	To be mixed
Signa	sig.	Label
Sumendus	S or sum.	To be taken
Utendus	U or utend.	To be used

TIME OF ADMINISTRATION

A : Times per day

Semel in die	Sem in die	Once a day
Bis in die, Bis die	b.i.d., b.d.	Twice a day
Ter in die	t.i.d., t.d.	Three times a day
Quater in die	q.i.d., q.d.	Four times a day
Sexies in die	Sex.i.d.	Six times a day

B : Different time of the day

Primo mane	prim.m.	Early in the morning
Mane	m	In the morning
Omni mane	o.m.	Every morning
Omni nocte	o.n.	Every night
Inter noctem	Inter noct	During the night
Nocte	n	At night
Jentaculum	jentac	Breakfast
Nocte et mane	n.et.m.	Night and morning
Nocte maneque	n.m.	Night and morning

Latin Name	Abbreviation	English Name
C: Hour time		
Omini hora	o.h.	Every hour
Omini Quarta hora	o.q.h.	Every fourth hour
Singulis horis	Sing.hora	Every hour
Alternis horis	Alt.hor.	Every two hours
Tertis horis	Tert.hor	Every three hours
Quartis horis	Quart.hor.	Every four hours
Sextis horis	sext.hor	Every six hours
D : Correlated time		
Ante cibos	a.c.	Before meals
Post cibos	p.c.	After meals
Inter cibos	i.c.	Between meals
E: Other terms		
Dolore urgente	dol.urg.	When the pain is severe
Frequenter	freq	Frequently
Lente	----	Slowly
More dicto	m.d.	As directed
Modo dicto	m.d.	
Si opus sit	s.o.s.	When required or When necessary
Statim	stat.	Immediately
Tussi urgente	tuss. Urg.	When the cough is troublesome

VEHICLE USED AND MEANS OF APPLICATION

Cocheare amplum	Coch amp	}	One tablespoonful
Cocheare magnum	Coch mag		
Cocheare maximum	Coch max		
Cochleare medium	coch. med.		One dessertspoonful
Cochleare minimum	coch. min.		One teaspoonful
Cum	c.c.		With
Cum duplo	c. dup.		With twice as much
Cum parte aequale	c. pt. aeq.		With an equal quantity
Cum tanto	c. tant.		With as much
Cyathus amplus	cyath. amp.		A tumbler
Cyathus magnus	cyath. mag.		A tumbler
Cyathus vinosus	cyath. vin.		A wine glass
E.lacte	e. lact.		With milk
Ex.aqua	ex. aq.		With water

Latin Name	Abbreviation	English Name
------------	--------------	--------------

PARTS OF BODY

Auris dexter	a.d.	To right ear
Auris laevus	a.l.	To left ear
Brachio	brach,	To the arm
Corpori	Corp	To the body
Jugulo	jug.	To the throat
Naso	----	To the nose
Oculis dexter	o.d.	To right eye
Oculis laevus	o.l.	To left eye
Os, oris	o.s.	To mouth
Pro oculus	pro.ocul.	For the eyes
Sterno	Stern	To the chest

MISCELLANEOUS

Ana	aa	Of each
Ante	a	Before
Aqua	aq	Water
Aqua distillate	aq.dest	Distilled water
Cibos	cibos	Meals, food
Fiat	ft.	Make, let (it) be made
Gutta, guttae	gtt.	A drop, drops
Hora	h	An hour
Laevo	L	Left
Misce	m	Mix, let it be mixed
Mitte	mitt.	Send
Mitte tales	mitt tal	Send such
More dicto	m.dict.	In the manner prescribed
Omni	omn	Every
Pro dosi	----	As a dose
Quantum sufficiat	q.s.	As much as is sufficient
Recipe	R	Take
Semi	ss	Half
Solve	----	Dissolve
Talis, tales	tal	Such

NUMERALS

Latin word	Roman symbol	Meaning in English
Unus	I	One
Duo	II	Two
Tres	III	Three
Quatuor	IV	Four

Latin word	Roman symbol	Meaning in English
Quinque	V	Five
Sex	Vi	Six
Septem	VII	Seven
Octo/ Octem	VIII	Eight
Novem	IX	Nine
Decem	X	Ten
Undecim	XI	Eleven
Duodecim	XII	Twelve
Quatuordecim	XIV	Fourteen
Quindecim	XV	Fifteen
Viginti	XX	Twenty
Quinquaginta	L	Fifty
Centum	C	One hundred

7.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher)

- Give English name for the following.
 - Charta:
 - Nebula:
 - Pulvis:
 - Lotio :
- Give meaning of the following.
 - Cochleare minimum:
 - Hora somni
 - Tertis horis:
 - Decem:
- Name different parts of inscription.
- What is the significance of register number?
- Why refill date should be mention on the label?
- Compare recent prescription with the sample format and list the differences.
- Give the information about 'medicine shoppe'.

(Space for answers)

Date

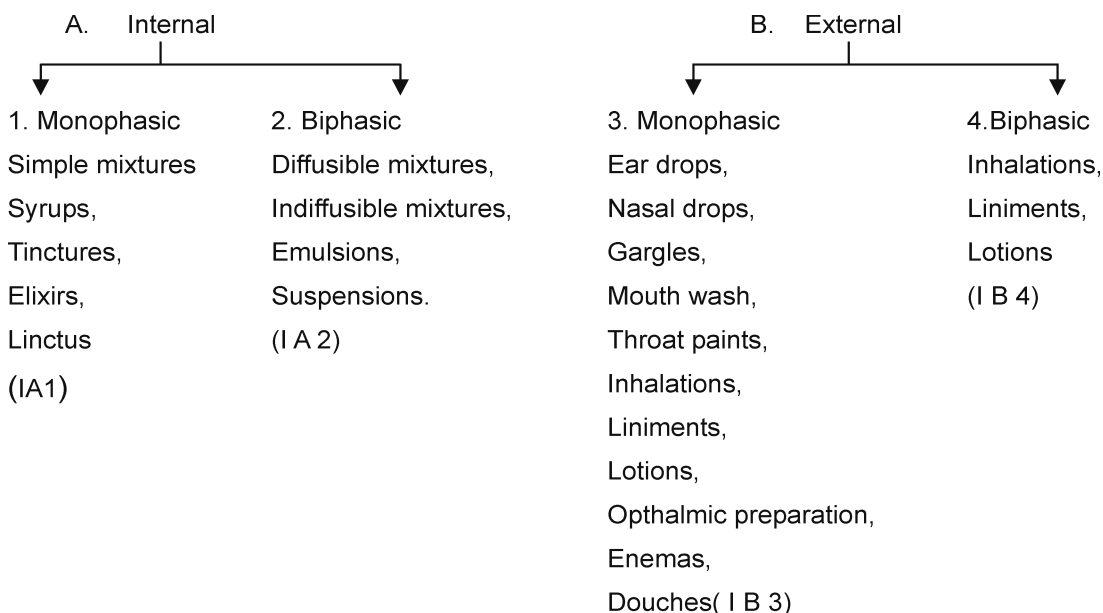
Signature of Subject Teacher

Experiment No. 4

Classification of Dosage forms and coding of experiments based on dosage forms.

Classification:

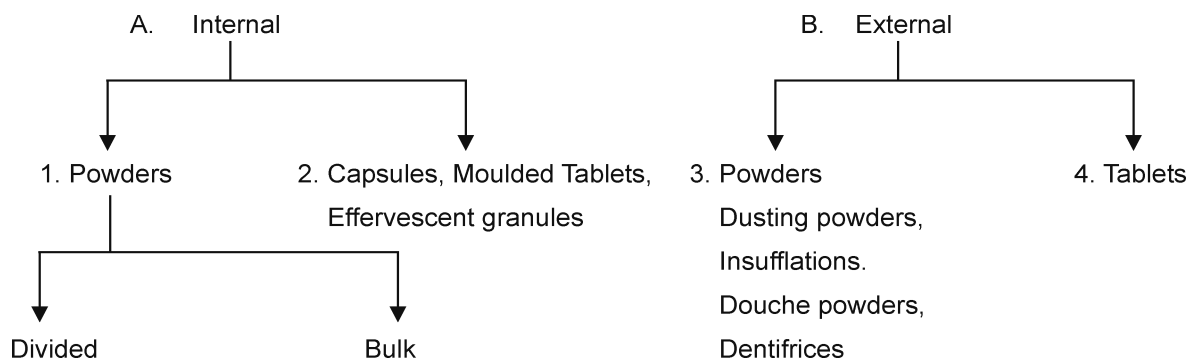
I. Liquid Dosage forms



II. Semisolid Dosage forms for external use:

A. Ointments, B. Creams, C. Pastes, D. Jellies, E. Poultice, F. Suppositories, G. Pessaries

III. Solid Dosage forms:



Coding of experiments on the basis of classification of dosage forms.

Each experiment has been given along with serial member; a code number depending upon the above classification, so that student can distinguish and identify the dosage form.

For example:

Simple mixture containing ferric ammonium citrate is for internal use, a liquid preparation and it is Monophasic so it has code No - I A 1

I For liquid dosage form.

A For internal use.

1 For Monophasic.

Exercise for practice:

Mention code for the following preparations,

1. Suppositories
2. Monophasic liquid dosage form for external use
3. Tablets
4. Bulk Powder
5. Biphasic liquid dosage form for internal use

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 5

DOSAGE CALCULATIONS

Doses for infants and children cannot be same as those for adults. They need to be calculated separately. These doses may be found in the USP 'Drug information, the Pediatric Dosage Handbook' published by APhA, and textbooks on pediatrics. Doses should not be calculated when it is possible to obtain actual infant or child's dose.

Certain rules are followed for approximate doses for infants and children.

- 1. Young's Rule (for children 2 years old and older)**

$$\frac{\text{Age (years)}}{\text{Age (years)} + 12} \times \text{Adult dose} = \text{child's dose (approx)}$$

- 2. Clark's Rule**

$$\frac{\text{Weight (lb)}}{150} \times \text{Adult dose} = \text{child's dose (approx)}$$

- 3. Fried's Rule (for infants up to 2 years old)**

$$\frac{\text{Age (months)}}{150} \times \text{Adult dose} = \text{child's dose (approx)}$$

- 4. The Square Meter Surface Area Method** relates the surface area of individuals to dose. It is thought that this is a more realistic way of relating dosages.

$$\frac{\text{Body surface area of child}}{\text{Body surface area of adult}} \times \text{Adult dose} = \text{child's dose (approx)}$$

The average body surface area for an adult has been given as 1.73 square meters (m²); hence,

$$\frac{\text{Body surface area of child(m}^2\text{)}}{1.73 \text{ m}^2} \times \text{Adult dose} = \text{child's dose (approx)}$$

Calculating Doses for individuals of any age or size.

Many drugs have doses stated as the amount of drug / m² body surface area and may be calculated as follows :

$$\frac{\text{Dose of drug}}{\text{m}^2 \text{ body surface area}} \times \text{Body surface area of child(m}^2\text{)} = \text{Dose}$$

Many physiological functions are proportional to body surface area such as metabolic rate and kidney function.

Drug dosages are often stated in mg/kg body weight and may be calculated as

$$\frac{\text{Dose of drug}}{\text{kg body weight}} \times \text{Body weight (kg)} = \text{Dose}$$

This is the most common way of determining children's doses.

Drug doses also may be stated in units, as with vitamins A and D, penicillin and hormones. This means that a certain quantity of biological activity of that drug is called 1 unit. When the term unit is used in connection with a drug, the calculations involved are the same as for more familiar weight or volume notations.

Examples:

1. The adult dose of a drug is 250 mg, what is the dose for a 6 year old child?

Use Young's Rule:

$$\text{Child's dose (approx)} = \frac{6}{6 + 12} \times 250$$

2. If the average adult dose of a drug is 100 mg, what is the dose for a child who has a body surface area equal to 0.65 m² ?

$$\text{Child's dose (approx)} = \frac{0.65}{1.73} \times 100 \text{ mg}$$

Exercise for practice:

1. What is the dose for 6 month old infant if the average adult dose is 500 mg?
2. What is the dose for 9 lb. child if the average adult dose of the medicament is 50mg ?
3. Write the formula for calculating veterinary dose.

(Space for answers)

Date

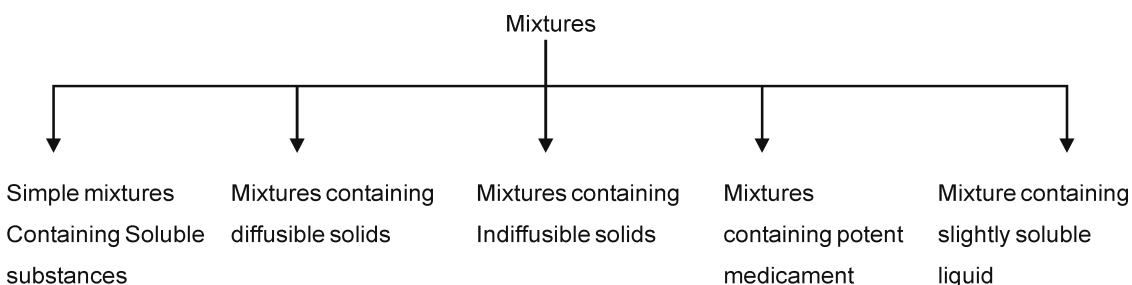
Signature of Subject Teacher

Introduction to Liquid Dosage forms: Mixtures, Syrups, Elixirs, Linctuses, Liquids used in mouth and body cavities, Ophthalmic Preparations:

Mixtures:

A mixture is a liquid preparation meant for oral administration in which medicaments are dissolved or suspended in a suitable vehicle.

Classification of Mixtures:



1. Simple mixture containing soluble substances

Simple mixture contains only soluble ingredients.

2. Mixture containing Diffusible solids:

Diffusible solids are insoluble in water but get evenly distributed on shaking the container, throughout the liquid for sufficient time so that when the patient take the medicament by the spoon from container, the medicament is available in right quantity. Example of diffusible solids: Magnesium carbonate.

3. Mixture containing Indiffusible solids:

Indiffusible solids are those solids which are not soluble in water and do not remain uniformly distributed in the vehicle for sufficiently long time. Therefore to suspended the drug, suspending agents are added. Example of Indiffusible solid: acetyl salicylic acid.

Examples of suspending agents:

1. The compound tragacanth powder: In the proportion of 2 gms/100 ml (10 grains/ounce) of the mixture.
2. Tragacanth mucilage: In the proportion of $\frac{1}{4}$ th of the final volume of the mixture. Compound tragacanth powder is used when the vehicle is other than water or chloroform water but tragacanth mucilage is used when the vehicle is water or chloroform water.

4. Mixture containing slightly soluble liquid:

The insoluble portion of slightly soluble liquids is not readily diffusible. So a suspending agent is needed Ex. Compound tragacanth powder or tragacanth mucilage is used.

5. Mixture containing potent medicament:

A very small dose is prescribed for a potent medicament, which is not directly weighable. So minimum weighable quantity is used and then required dilutions are carried out to give prescribed strength of the formulations.

Syrups:

Syrups are concentrated solutions of sugar such as sucrose in purified water. The concentration of sugar is 66.7% w/w. The syrups are sweet viscous preparations. The syrups containing medicinal substances are called '**Medicated syrups**' and those containing aromatic flavoured substances are known as "**Flavored syrups**".

Methods of preparation:

1. By simple solution e.g. Syrup Ginger.
2. By a process of extraction e.g. Tolu syrup.

Elixirs:

Elixirs are clear, sweetened, aromatic, hydroalcoholic liquids intended for oral use. The main ingredients of elixirs are ethyl alcohol (5 - 40 %), water, colouring agent and some suitable preservative.

Linctuses:

Linctuses are viscous, liquid and oral preparations that are generally prescribed for relief of cough. They contain medicaments which have demulcent, sedative or expectorant action. Linctuses should be taken in small doses, sipped, swallowed slowly without diluting it.

Liquids to be used in the Mouth:

1. Gargles:

Gargles are aqueous solutions used to prevent or treat throat infections. Usually they are dispensed in concentrated form with directions for dilution with warm water before use.

2. Mouthwash:

These are aqueous solutions with a pleasant taste and odour used to clean and deodourise the buccal cavity.

3. Throat Paints:

Throat paints are viscous liquid preparations used for mouth and throat infections. Glycerin is commonly used as a base, being viscous, it adheres to the mucous membrane for a long time.

Liquids to be instilled into Body cavities:

1. Douches:

Douches is a medicated solution meant for a body cavity. The word douches is often used for vaginal solution, but also used to irrigate the eyes, ear or nasal cavities for cleaning or removing foreign particles.

2. Ear Drops:

Ear drops are instilled into the ear with dropper and generally prepared in water, glycerin, propylene glycol. They are used for cleaning the ear or softening the wax.

3. Nasal Drops:

Nasal drops are solutions of drugs that are instilled into the nose with a dropper. They are usually aqueous because oil drops inhibit movement of cilia in the nasal mucosa and if used for long periods may reach the lungs and cause damage.

4. Nasal Sprays:

Nasal sprays are used to reduce nasal congestion and to treat infections. It is sprayed in the form of coarse droplets by using atomizer or nebuliser.

5. Ophthalmic Preparations:

These are sterile preparations meant for instillation into the eye in the space between the eye lid and eyeballs. These products must be sterile and are prepared under the same conditions and by the same methods.

Recommended Containers:

As per Indian Pharmacopoeia the container is the device that holds the article. The immediate container is that which is in direct contact with the article at all times. The closure is a part of the container. Commonly used containers are listed below:

Mixtures: Plain glass bottles with uniform internal diameter.

Syrups: The glass bottles fitted with white polypropylene moulded or black thermostatic plastic screw closure.

Elixirs: Well closed air tight glass bottles having screw caps.

Linctuses: Well closed air tight glass bottles having screw caps.

Gargles: Clear colour fluted glass bottles closed with plastic screw caps.

Mouthwashes: White fluted bottles with screw caps.

Throat paint: Air tight, wide mouth, coloured fluted bottle, with glass stoppers.

Douches: Narrow mouthed, coloured, fluted bottle.

Ear drops: Coloured, fluted, glass bottle fitted with a dropper in a cap.

Nasal drops: Coloured, fluted bottle fitted with a dropper or in a plastic container

Nasal sprays: Small, coloured, fluted glass bottles, plastic squeeze bottles, atomizers or pressurized aerosols.

Eye drops: Sterile bottle or vial fitted with a dropper in a cap.

Special Labeling instructions:

Mixtures with diffusible and indiffusible solids: "Shake well before use".

Linctuses: "To be sipped and swallowed slowly without the addition of water".

Gargles: "For external use only", "Not to be swallowed in large amounts".

Mouthwash: "For external use only", "Not to be swallowed in large amounts".

Throat Paint: "Not to be swallowed in large amounts".

Douches: "For external use only".

Ear drop: "For external use only".

Nasal drop: "For Nasal use only".

Nasal Spray: "For Nasal use only".

"To be used in a suitable atomizer as directed ".

Eye drops: "For external use only"

Discontinue the use if irritation persists.

Experiment No. 6

IA 1

1.0 Title:

To prepare and submit simple mixture containing Ferric Ammonium Citrate.

2.0 Prior Concepts:

Types of mixtures, Latin terms

3.0 New Concepts:

Formulation of mixture containing soluble solid.

Proposition 1:

Ferric ammonium citrate is freely soluble in chloroform water.

4.0 Learning Objectives:

Intellectual skills:

To understand the use and method of preparation.

Motor skill:

Ability to prepare and label the given formulation correctly.

5.0 Apparatus:

Beaker, glass rod, funnel, measuring cylinder, cotton wool.

6.0 Prescription:

R

Ferri et ammonii citratis

3 ij

Aquam chloroformi

ad 3 j

Fiat Mistura. Mitte

3 j

Signature: Cochleare minimum Unus b.i.d. sumendum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately required quantity of ferric ammonium citrate and take it a beaker.
2. Dissolve in about three forth quantity of chloroform water.
3. Filter through cotton wool. Add remaining quantity of chloroform water to make up the required volume.
4. Transfer it into the amber coloured bottle to protect from light, cork it and attach the prepared label.

Precautions:

Iron preparations should be taken after meals to decrease gastric irritation. Stools are stained black.

Preparation should be taken with straw pipe.

8.0 Labeling of formulation: Students to write the label.

Uses:

Ferric Ammonium citrate: (Max. dose :)

Chloroform water:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

- 1 Why is it necessary to filter the solution?
- 2 Why should the preparation be taken with straw pipe?

- 3 Name two advantages of liquids as dosage forms.
- 4 Name different filtering aids that can be used for pharmaceutical preparations.
- 5 Mention one marketed haematinic preparation and its manufacturer.
- 6 What will happen if distilled water is used as vehicle in this preparation?
- 7 What is the purpose of amber coloured bottle for this preparation?
- 8 Which filtering aids can be used for simple mixtures?
- 9 Mention one pharmacopoeial iron preparation.
- 10 What is meant by generic name and brand name? Explain with one example.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 7

IA 1

1.0 Title:

To prepare and submit Simple mixture containing Acetyl salicylic acid.

2.0 Prior concept:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation and method of preparation of simple mixture.

Proposition1:

Acetyl salicylic acid is not soluble in water. If prescribed alone it needs a suspending agent. However in presence of alkali citrate such as potassium citrate, acetyl salicylic acid is soluble in water, due to complex formation. Hence the mixture is finally formed into simple mixture.

4.0 Learning Objectives:

Intellectual Skill:

To understand soluble complex formation of aspirin with potassium citrate.

Motor Skill:

Ability to prepare and label the mixture correctly.

5.0 Apparatus:

Mortar, Pestle, Beaker, Measuring cylinder, Cotton wool, Funnel, Glass rod

6.0 Prescription:

Rx

Acidi acetyl salicylici gr x

Potassi citratis gr xxx

Aquam chloroformi ad ℥ j

Fiat Mistura. Mitte: ℥ j

Signatura: Cochleare amplum duo ter in die sumendum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weight accurately acetyl salicylic acid and potassium citrate separately.
2. Dissolve potassium citrate in about 3/4th volume of chloroform water by stirring.
3. Dissolve acetyl salicylic acid in solution of potassium citrate by stirring.
4. Inspect the solution for clarity and filter if required through cotton wool.
5. Add more chloroform water to make up the final volume.
6. Transfer the mixture in a suitable dispensing bottle, cork it, label it, and submit.

8.0 Labeling of formulation: Student to write the label.

Uses:

Acetyl salicylic acid:(Max. dose :)

Potassium citrate:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define simple Mixtures.
2. What is other name of Acetyl salicylic acid?
3. Mention one marketed preparation with similar use.
4. What is the side effect of Acetyl salicylic acid?

5. In absence of potassium citrate what type of preparation can be prepared by using acetyl salicylic acid?
6. What is the importance of chloroform water?
7. As pharmacist what additional instruction can be given to patients regarding the time of dosage?

(Space for answers)

Experiment No. 8

IA 1

1.0 Title:

To prepare and submit the Simple Mixture containing Ammonium chloride.

2.0 Prior concepts:

Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

Formulation and method of preparation of simple mixture.

Proposition1:

Ammonium chloride is a water soluble ingredient and therefore can be easily dispensed in the form of simple mixture.

4.0 Learning Objectives:

Intellectual Skill:

To understand purpose of this simple mixture and its method of preparation.

Motor Skill:

Ability to prepare and label mixture accurately.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, Filter paper, Funnel.

6.0 Prescription:

Rx

Ammonium chloride	1 g
Aromatic solution of ammonia	0.3 ml
Liquid extract of Liquorice	1 ml
Purified water upto	15 ml

Fiat Mistura. Mitte \mathfrak{Z} j

Signatura: Cochleare magnum ter in die summendum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately ammonium chloride and dissolve in about $\frac{3}{4}$ of the volume of water by stirring.
2. Examine the solution for clarity and filter if required through the filter paper.
3. Measure accurately the aromatic solution of ammonia and liquid extract of liquorice, add to the above solution and mix by stirring using stirrer.
4. Add more of purified water to make upto the prescribed volume and mix.
5. Transfer the mixture to a suitable dispensing bottle, cork it, attach prepared label and submit the preparation.

8.0 Labeling of formulation:

Uses:

Ammonium chloride :

Liquid extract of Liquorice :

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of Aromatic solution of ammonia?
2. Define Diaphoretic.
3. Name the filter media other than cotton wool.

4. What is Demulcent?
5. One tablespoonful = ml.
6. What are the different types of extracts?
7. What is the difference between extracts and tinctures?
8. Do demulcents give symptomatic relief? How?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 9

IA - 2

1.0 Title:

To prepare and submit the Mixture containing Diffusible solids.

2.0 Prior concepts:

Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

Proposition1:

1. Diffusible solids do not dissolve in water but mix upon shaking.
2. They get uniformly dispersed throughout the liquid for sufficient time, after shaking, so that uniformity of dosage is maintained.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of mixture containing diffusible solids.

Motor Skill:

Ability to prepare the mixture correctly by following procedure and label it properly.

5.0 Apparatus:

Mortar, Pestle, Beaker, Measuring cylinder, Funnel, Muslin cloth, etc.

6.0 Prescription:

R

Magnesii sulphatis

\mathfrak{z} i

Magnesii carbonatis

\mathfrak{z} i

Aquam menthae piperitae

ad \mathfrak{z} vi

Fiat Mistura. Mitte \mathfrak{z} j

Signatura: Cochleare magnum duo semi-hora ante jentaculum summanda.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately required quantity of magnesium sulphate and magnesium carbonate.
2. Finely powder the quantity of magnesium carbonate (diffusible solids) in a mortar. Add required quantity of magnesium sulphate (soluble substance) and again powder and mix them intimately.
3. Measure about $\frac{3}{4}$ th peppermint water. Add small portion from it into content of mortar and triturate to form a smooth cream like consistency. Add remaining of the peppermint water gradually.
4. If foreign particles are visible, strain through a piece of muslin cloth, rinse the mortar with little vehicle and then transfer the rinsing through muslin cloth.
5. Add more vehicle to produce final prescribed volume.
6. Transfer the mixture to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses:

Magnesium sulphate :

Magnesium carbonate :

Peppermint water :

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What should be storage temperature for suspensions?
2. Measure the particle size of above preparation under microscope?
3. How tinctures and extracts differ?
4. What should be the maximum doses for therapeutically active ingredients of above formula?
5. What are antacids?
6. Name other antacid medicaments.
7. Mention one such marketed preparation and its manufacturer.
8. How is peppermint water prepared?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 10

IA 2

1.0 Title:

To prepare and submit Kaolin Mixture B.P.

2.0 Prior concepts:

Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

Formulation and method of preparation of mixture containing diffusible solids.

Proposition 1:

1. Diffusible solids do not dissolve in water but mix upon shaking.
2. They get uniformly dispersed throughout the liquid for sufficient time, after shaking, so that uniformity of dosage is maintained.

4.0 Learning Objectives:

Intellectual Skill:

To understand purpose and preparation of mixture containing diffusible solids.

Motor Skill:

Ability to prepare the mixture correctly by following the procedure and label it properly.

5.0 Apparatus:

Mortar, Pestle, Beaker, Measuring cylinder, Filter paper, Funnel. etc.

6.0 Prescription:

R

Light kaolin (sterilized)	200 g
Light Magnesium carbonate	50 g
Sodium Bi-carbonate	50 g
Conc. Peppermint emulsion	25 ml
Double strength chloroform water	500 ml
Purified water	upto 1000 ml

Make a mixture. Send: 30 ml Label: 15 ml to be taken three times a day.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Finely powder the diffusible solid i.e. light kaolin in a mortar, add light magnesium carbonate and sodium bi-carbonate and mix them intimately.
2. Measure about 3/4th of the vehicle and pour portion of it in to the mortar containing powder and triturate to form a smooth cream like consistency. Add remaining of the vehicle gradually from the 3/4th quantity of the vehicle measured out.
3. Examine contents of mortar for foreign particles and filter through the funnel with muslin cloth. Rinse the mortar with little of the vehicle and then pass the rinsing through the muslin into the measuring cylinder.
4. Add the liquid ingredients and make up to the prescribed volume by adding the vehicle.
5. Transfer the mixture properly to the dispensing bottle, cork it, attach prepared label, thoroughly polish the bottle to remove the finger prints and gum spots and submit.

8.0 Labeling of formulation :

Uses:

Light Kaolin :

Sodium bi-carbonate :

Chloroform :

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Why kaolin is required to be sterilized? How is it done?
2. What is the importance of particles size in liquid preparations?
3. Write sieve numbers and micron sizes of particles relevant to above preparation.
4. What are the ideal temperatures for storage of such preparations?
5. What is the maximum dose of kaolin?
6. Can kaolin be replaced by any other ingredient?
7. How double strength chloroform water is prepared?
8. What is the composition of the concentrated peppermint emulsion?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 11

IA 2

1.0 Title:

To prepare and submit Mixture containing Diffusible solids.

2.0 Prior concepts:

Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

Formulation and method of preparation of mixture containing Diffusible solids.

Proposition 1:

Bismuth Carbonate is a diffusible solid.

4.0 Learning Objectives:

Intellectual Skill:

To understand the formulation and to dispense mixture containing diffusible solids.

Motor Skill:

Ability to prepare and submit prescription accurately.

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, Muslin cloth, Funnel. Media, etc.

6.0 Prescription:

R

Bismuth carbonate	1 g
Sodium Bi-carbonate	0.7 g
Tincture of Belladonna	0.4 ml
Purified water upto	30 ml

Label: 15 ml to be taken before meal.

Send: 30 ml.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately required quantity of bismuth carbonate and Sodium bi-carbonate.
2. Finely powder the required quantity of bismuth carbonate (diffusible solids) in a mortar. Add required quantity of sodium bicarbonate (soluble substance) and mix them.
3. Measure about 3/4th volume of water, add small portion of water in to contents of mortar and triturate thoroughly so as form a smooth cream like consistency. Then add remaining of water gradually to the previously formed cream with trituration.
4. The contents of the mortar is examined carefully and if foreign particles are visible strain through a piece of muslin cloth placed at mouth of tared cylinder Rinse mortar with little of vehicle and then transfer rinsing through a muslin cloth.
5. Adjustment of volume. Add more vehicle to produce prescribed volume.
6. Submission of final product: Transfer the mixture to a clean dry dispensing bottle. Cork it, attach the prepared label, polish it to remove the finger prints and gum spots and submit.

8.0 Labeling of formulation :

Uses:

Sodium Bi-carbonate :

Bismuth carbonate :

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the elutriation? Which substance is purified by this method?
2. What is the minimum dose of belladonna tincture?
3. Name two flavouring agents.
4. Name two preservatives.
5. List five diffusible solids.
6. What is the use of belladonna tincture?
7. Write mathematical expression of stoke's law and explain how "v" of sedimentation is affected?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 12

IA 2

1.0 Title:

To prepare and submit Mixture Containing Indiffusible Solids.

2.0 Prior concepts:

Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

Formulation and method of preparation of mixture containing indiffusible solids.

Proposition 1:

Prepared chalk is indiffusible solid and therefore suspending agent is required.

4.0 Learning Objectives:

Intellectual Skill:

To understand how to formulate and dispense mixtures containing indiffusible solids.

Motor Skill:

Ability to prepare and submit prescription accurately.

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, Muslin cloth, Funnel, etc.

6.0 Prescription:

Rx

Cretae preparatae gr xxx

Tincturae catechu m xx

Aquam cinnamomi ℥ i

Fiat mistura. Signa: Secundis horis sumenda. Mitte ℥ ij.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Using mortar and pestle, finely powder the indiffusible medicament, prepared chalk, add compound tragacanth powder and mix them intimately.
2. Measure about three quarters of the vehicle, triturate the powders with a portion of it until a smooth cream is formed.
3. Examine the contents of the mortar critically. If any foreign particles are visible, filter through muslin. Rinse the mortar and pass the washing through muslin cloth into tared cylinder.
4. Add the quantity of catechu tincture and add more of water to produce required volume.
5. Transfer the mixture into dispensing bottle, cork it, attach prepared label and polish it, remove fingerprints and gum spots and submit.

8.0 Labeling of formulation :

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define Indiffusible solids.
2. How mucilage of tragacanth is prepared?
3. Comment on the following prescription.

R

Phenacetini	3 g
Caffeinae	1 g
Syrupi Aurantii	12 ml
Aquam	ad 90 ml

Fiat Mistura. Signa: Cochleare magnum ex lacte dolore urgente sumendum. Mitte ii

4. In which type of preparations instead of mucilage, compound tragacanth powder is used?
5. What is the composition of compound powder of tragacanth?
6. What is the use of catechu tincture?
7. What is the proportion of tragacanth mucilage that is used as suspending agent?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 13

IA 2

1.0 Title:

To prepare and submit Mixture containing slightly soluble liquid.

2.0 Prior concepts:

Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

Formulation and method of preparation of mixture containing slightly soluble liquid.

Proposition 1:

Slightly soluble liquid is not readily diffusible. So a suspending agent is needed to be added in such Mixtures, Examples: Compound tragacanth powder or tragacanth mucilage.

4.0 Learning Objectives:

Intellectual Skill:

To understand purpose of mixture containing slightly soluble liquid and its method of preparation.

Motor Skill:

Ability to prepare and label mixture correctly.

5.0 Apparatus:

Mortar, Pestle, Beaker, Measuring cylinder, Funnel. Muslin cloth, etc.

6.0 Prescription:

R

Paraldehydi

3j

Syrupi

3ij

Extracti glycerrhizae liquidi

3ss

Aquam

ad

3j

Fiat Haustus. Signatura : Unus more dicto summendus.

Label: 15 ml to be taken before meal.

Send: 15 ml.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately required quantity of paraldehyde in a tared bottle. Add 1/4th volume of tragacanth mucilage to it and shake the bottle vigorously.
2. Dissolve syrup and liquid extract of glycerrhiza with about ½ quantity of water and add to the bottle gradually, shaking the bottle vigorously after each addition.
3. Remove foreign particles by filtration with muslin cloth.
4. Adjustment of volume: Add more of water to produce required volume.
5. Cork the bottle, attach the prepared label and thoroughly polish the bottle to remove finger prints, gum spots and submit.

8.0 Labeling of formulation :

Uses :

Paraldehyde :

Liquid extract of glycerrhiza:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is maximum dose of paraldehyde?
2. Which suspending agent is selected out of mucilage and compound powder of tragacanth? Why?

3. Study the method for preparation of extract of Glycyrrhiza liquid from I.P., U.S.P.
4. When is this preparation used?
5. Name one marketed preparation with similar use.
6. What are draughts?
7. Enlist different types of mixtures.
8. Name two sedative agents.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 14

IA 1

1.0 Title:

To prepare and submit the Mixture containing Small Dose of Potent Medicament.

2.0 Prior concepts:

Monophasic Liquid dosage form.

3.0 New concepts:

Formulation of mixture containing very small amount of potent medicament.

Proposition 1: Hyoscine hydrobromide

1. Potent medicament, very active ingredient at low concentration.
2. Use in parkinsonism.

4.0 Learning Objectives:

Intellectual Skill:

Students will be able to understand the purpose of mixture containing small dose of potent medicament.

Motor Skill:

Ability to prepare and label mixture correctly.

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, Funnel, glass rod, etc.

6.0 Prescription:

To calculate and dispense.

R

Hyoscine hydrobromide gr 1/150

Aquam chloroform 3 ii

Fiat Mistura Signatura : Ter in die sumenda. Mitte: 3 iii

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. 1 grain (65 mg) of hyoscine hydrobromide is dissolved in 25 fluid drachm. (i.e. $25 \times 4 = 100$ ml of Chloroform water.
2. Then 2 fl. drachm i.e. ($2 \times 4 = 8$ ml) of the above solution is diluted upto 3 fl. ounce (i.e. $3 \times 30 = 90$ ml) with chloroform water.
3. Transfer to dispensing bottle, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of this preparation?
2. What is the maximum dose of Hyoscine hydrobromide?
3. Give the name of one marketed preparation for similar purpose and its manufacturer.
4. One drachm is equal to which spoonful?
5. Which mortar should be used to powder potent drugs?
6. What happens in parkinson's disease?
7. Name any other potent medicament.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 15

IA 2

1.0 Title:

To prepare and submit Official Mixture B.P.

2.0 Prior concepts:

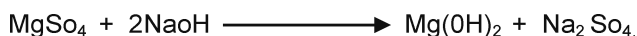
Definition, types of mixtures, storage and stability of mixtures.

3.0 New concepts:

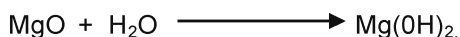
Formulation of official mixture.

Proposition 1: Magnesium hydroxide

It is formed by alkali reaction with magnesium sulphate.



Mg(OH)_2 can also be formed by hydration method of light Magnesium oxide.



The purpose of getting Magnesium hydroxide in soluble form is to get a preparation having optimum viscosity otherwise it may have jelly like consistency in first case and in second case the product has less viscosity and drug particles easily settle down. The Mg(OH)_2 precipitate is washed several times with purified water using calico cloth for filtration to get rid of soluble sulphate ions because sulphates are bulky and they irritate G.I. tract. The removal of sulphate ion is checked by testing the filtrate with Barium Chloride solution (BaCl_2). The washing is continued till almost all sulphate ions are removed. Some remaining sulphate ions which are adsorbed in the preparation are useful as laxative as little irritation is required for laxative action.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of official mixture, its method of preparation.

Motor Skill:

Ability to prepare and label mixture correctly.

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, Funnel, Calico cloth, etc.

6.0 Prescription:

R

Magnesium sulphate 47.5 g

Sodium hydroxide 15.0 g

Light Magnesium oxide 52.5 g

Chloroform 2.5 ml

Purified water freshly boiled and cooled to 1000 ml

Send: 30 ml

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Dissolve sodium hydroxide in 100 ml of purified water.
2. Add light Magnesium oxide to form a smooth cream and then add sufficient purified water to produce 75 ml. Pour this suspension in a thin stream into a solution of magnesium sulphate in 75 ml of purified water stirring continuously during mixing. Allow the precipitate to subside. Remove the clear liquid.
3. Transfer the residue to a thick calico strainer, allow to drain wash the precipitate with purified water until the washing gives only a light reaction for sulphate ions.
4. Mix, wash the precipitate with purified water. Dissolve precipitate in chloroform in this mixture. Add sufficient water to produce the volume.
5. Transfer to a container cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

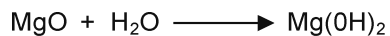
9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the other name for this mixture?
2. Why magnesium hydroxide precipitate is done in double way i.e.



3. Why precipitate is thoroughly washed with water?
4. How sulphate ions are checked?
5. Why in large dose this preparation acts as a laxative?
6. If laxative action is undesired what inclusion you would make?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 16

IA 1

1.0 Title:

To prepare and submit Simple Syrup.

2.0 Prior concepts:

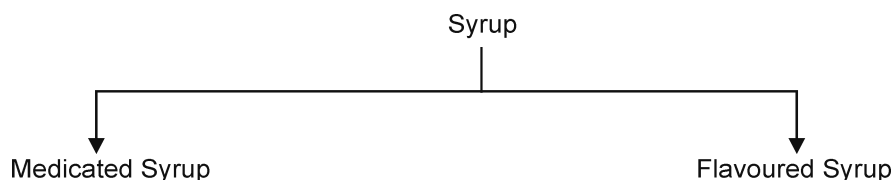
Definition of syrup and storage.

3.0 New concepts:

Formulation and method of preparation.

Proposition 1:

Syrup: Concentrated or nearly saturated solution of sucrose in purified water i.e. 66.7 % w/v.



4.0 Learning Objectives:

Intellectual Skill:

To understand the use of syrup and its method of formulation.

Motor Skill:

Ability to prepare the syrup and dispense by labeling the container correctly.

5.0 Apparatus:

Mortar, Pestle, Beaker, Measuring cylinder, Funnel, etc.

6.0 Prescription:

R

Sucrose 66.7 g

Purified water 100 g

Send: 20 gms.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Add sucrose to water, heat until it dissolves with occasional stirring.
2. Add sufficient purified water.
3. Filter if necessary and adjust the weight to 20 gms.
4. Transfer to a container, cork it, attach prepared label and submit.

Note: One or more suitable antimicrobial preservatives may be added.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What are the two types of syrups?
2. What are the advantages of using syrup as a dosage form?
3. Why there is no need to add preservative in syrup?
4. What are the methods of preparation of syrup?
5. At what temperature syrup should be stored?
6. What are the adjuncts used in the formulation?
7. What is the relevance of quantities by weight of sucrose and water in this formulation?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 17

IA 1

1.0 Title:

To prepare and submit Codeine Linctus B.P.C.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation and method of preparation of linctus.

4.0 Learning Objectives:

Intellectual Skill:

To understand linctuses and its method of preparation.

Motor Skill:

Ability to prepare and label the formulation correctly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, Funnel, Filter paper, etc.

6.0 Prescription:

Prepare and dispense 50 ml of codeine Linctus B.P.C.

R

Codeine Phosphate	3.0 g
Lemon syrup	200 ml
Benzoic acid solution	20 ml
Chloroform spirit	20 ml
Compound tartrazine solution	10 ml
Syrup	to 1000 ml
Send 30 ml.	

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh codeine phosphate, dissolve it in water, heat gently if required.
2. Add benzoic acid solution, compound tartrazine solution and chloroform spirit.
3. Add lemon syrup, filter if required and adjust the volume by adding more of syrup.
4. Fill the preparation in coloured bottle to protect from light, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of benzoic acid?
2. Why is lemon syrup used in addition to simple syrup?
3. What is the meaning of potent drug?
4. What is the maximum dose of codeine phosphate?
5. Study pharmacological and toxicological effects of codeine.
6. Mention use of chloroform spirit.
7. Mention one such marketed preparation and its manufacturer/supplier.

8. Write five names of permitted colouring agents.
9. How this preparation can be misused?
10. What precaution should be taken to avoid its misused?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 18

IA 1

1.0 Title:

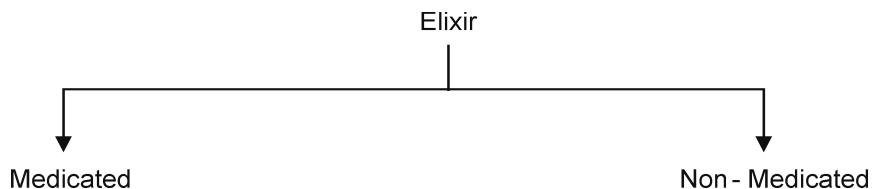
To prepare and submit Chloral Hydrate Elixir.

2.0 Prior concepts:

Monophasic liquid dosage form, classification.

3.0 New concepts:

Formulation of Elixir, uses of the adjuncts used in the formulation of Elixir



4.0 Learning Objectives:

Intellectual Skill:

Students will be able to understand the purpose of preparing Elixir.

Motor Skill:

Ability to prepare and label Elixir correctly.

5.0 Apparatus:

Glass rod, Beaker, Measuring cylinder, Funnel, etc.

6.0 Prescription:

Prepare and dispense 50 ml of codeine Linctus B.P.C.

Rx

Chloral Hydrates	40 g
Purified water	20 ml
Black currant syrup	200 ml
Syrup	to 1000 ml

Send: 30 ml

Label: One 5 ml spoonful to be given at night.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately chloral hydrate and dissolve in water.
2. Add black currant syrup, rinse the measure with syrup until no colour remains.
3. Adjust volume with syrup and shake well.
4. Transfer to a suitable container, cork it, attach prepared label, and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is an elixir?
2. What is the use of black currant syrup?
3. What are hypnotics?
4. Mention one such marketed Elixir and its manufacturer.
5. How do elixirs differ from mixtures?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 19

I B 3

1.0 Title:

To prepare and submit Throat Paint.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Throat paint containing phenol.

4.0 Learning Objectives:

Intellectual Skill:

To understand how to formulate and dispense throat paint.

Motor Skill:

Ability to prepare the throat paint and label it correctly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, etc.

6.0 Prescription:

Prepare and dispense 50 ml of codeine Linctus B.P.C.

R

Liquefied Phenol

1.0 ml

Glycerin

ad 100 ml

Fiat Pigmentum. Mitte \mathfrak{z} i

Signatura : Guttare ope penicilli omni secunda hora applicandum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh phenol carefully and take it in a beaker.
2. Dissolve in glycerin.
3. Transfer to a measure and make up the volume with glycerin.
4. Fill the preparation in coloured fluted bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define throat paints.
2. Mention one such marketed preparation.
3. What is the composition of liquefied phenol?
4. Why phenol should be handled carefully?
5. In what concentration phenol is useful as disinfectant?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 20

I B 3

1.0 Title:

To prepare and submit Mandl's Paint.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Compound iodine paint.

Proposition 1:

Potassium iodide helps to dissolve iodine.

4.0 Learning Objectives:

Intellectual Skill:

To understand how to formulate and dispense compound paint of iodine.

Motor Skill:

Ability to prepare and label throat paint correctly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, etc.

6.0 Prescription:

Rx

Potassium Iodide	25.0 g
Iodine	12.5 g
Alcohol 90 %	40.0 ml
Purified water	25.0 ml
Peppermint oil	4.0 ml
Glycerin to produce	1000 ml

Prepare and dispense 30 ml of Compound Iodine Paint B.P.C.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh iodine and potassium iodide accurately.
2. Dissolve potassium iodide in water. Add iodine and stir until completely dissolved.
3. Dissolve peppermint oil in alcohol 90 % in a small container and transfer it into iodine solution.
4. Mix well, add glycerin and mix thoroughly. Transfer to a measure and make up the volume with glycerin.
5. Transfer the preparation into well closed, coloured fluted bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Why this preparation should be dispensed in coloured bottle?
2. What is the purpose of using glycerin as a base?
3. Why potassium iodide is used along with iodine?
4. Name different solutes soluble in glycerin.
5. Name other liquids that can be used as solvent in throat paints.
6. Can this preparation be diluted with water? Why?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 21

I B 3

1.0 Title:

To prepare and submit Gargle containing Potassium Chlorate.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation and method of preparation of gargles.

4.0 Learning Objectives:

Intellectual skills:

To understand purpose of gargles and its method of preparation.

Motor skill:

Ability to prepare gargles and label it correctly.

5.0 Apparatus:

Beaker, glass rod, funnel, measuring cylinder, filter paper

6.0 Prescription:

R

Potassium chlorate 30.0 g

Patent blue V 0.01 g

(Coloured index number 42051
food grade of commerce)

Liquefied phenol 15.0 ml

Water q.s.1000 ml

Fiat Collutorium. Mitte \mathfrak{z} ij

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weight accurately potassium chlorate and dissolve in three forth volume of warm water.
2. Cool, add liquefied phenol.
3. Add the dye solution. (Since the quantity of dye is very small, stock solution can be prepared and used. (50 mg in 100 ml)).
4. Filter if necessary in a measure and make up the volume.
5. Transfer to a light resistant bottle to protect from light, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define gargles.
2. How will you handle phenol? Why?
3. Mention one marketed gargle preparation and its manufacturer.
4. What is action of liquefied phenol?
5. What is the use of patent blue?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 22

I B 3

1.0 Title:

To prepare and submit Mouth Wash.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation and method of preparation of mouth wash.

4.0 Learning Objectives:

Intellectual skills:

To understand the purpose of mouth wash and its method of preparation.

Motor skill:

Ability to prepare and label mouth wash correctly.

5.0 Apparatus:

Beaker, glass rod, funnel, measuring cylinder, cotton wool, filter paper

6.0 Prescription:

Prepare 30 ml of Zinc sulphate and Zinc chloride mouth wash B.P.C.

R

Zinc sulphate	20.0 g
Zinc chloride	10.0 g
Dilute Hydrochloric acid	10 ml
Compound Tartrazine solution	ml
Chloroform solution double strength	500 ml
Water to make	1000 ml

Fiat Collutorium. Mitte j

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Powder zinc chloride quickly in a mortar (Zinc chloride is deliquescent so it will absorb moisture) and weigh the required quantity.
2. Also weigh zinc sulphate and dissolve both ingredients in three quarter of water and dilute hydrochloric acid.
3. Add compound tartrazine solution and chloroform solution.
4. Filter if necessary thro sintered glass filter to remove particulate impurity.
5. Transfer to a measure and make up to volume.
6. Fill in the bottle, cork it, attach prepared label and submit.

Note: Active ingredients are astringent zinc salts. Zinc chloride usually contain some oxychloride impurity, which makes the solution turbid. This turbidity disappears when dilute Hydrochloric acid is added. The solution is to be used in to oral cavity and it comes in contact with the mucous membranes and should be free from irritant particles.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention use of chloroform solution.
2. Mention use of compound tartrazine solution.
3. Mention one such marketed preparation and its manufacturer.

4. Write therapeutic uses of Zinc sulphate and Zinc chloride.
5. Why dilute hydrochloric acid is used?
6. How does mouth wash differ from gargle?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 23

I B 3

1.0 Title:

To prepare and submit Ear drops.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation and method of preparation of ear drops

4.0 Learning Objectives:

Intellectual skills:

To understand the use of ear drops and their formulation.

Motor skill:

Ability to prepare and label ear drops correctly.

5.0 Apparatus:

Beaker, Glass rod, Funnel, Measuring cylinder, Cotton wool, Filter paper

6.0 Prescription:

Prepare 30 ml of Zinc sulphate and Zinc chloride mouth wash B.P.C.

R

Boric acid	2.0 %
Alcohol 95 %	20.0 %
Water to make	100 %

Fiat auristillae. : Mitte: ss

Label: Three or four drops to be placed in each ear occasionally.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately boric acid and take it in a beaker.
2. Dissolve in three quarters of purified water.
3. Add alcohol. Filter if necessary. (to eliminate particulate impurities)
4. Transfer to a measure and make up to volume with purified water.
5. Fill in the vials (20 ml) fit rubber plug, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
 container for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention use of alcohol in this preparation.
2. Mention one such marketed preparation and its manufacturer.
3. Can ear drops be in suspension form? Why?
4. Name the other solvents used for ear drops.
5. Collect the names of other preparations used for Ear.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 24

I B 3

1.0 Title:

To prepare and submit Ear Drops.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation and method of preparation of ear drops

4.0 Learning Objectives:

Intellectual skills:

To understand the purpose of ear drops.

Motor skill:

Ability to prepare and label ear drops correctly.

5.0 Apparatus:

Beaker, Glass rod, Funnel, Measuring cylinder, Cotton, Filter paper

6.0 Prescription:

R

Sodium Bicarbonate 5.0 g
Glycerin 30.0 ml
Purified water q.s. 100 ml

Prepare 15 ml of ear drops.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately sodium bicarbonate and dissolve in purified water.
2. Add glycerin. Filter through filter paper.
3. Transfer to a measure and make up to the volume with purified water..
4. Fill in the 20 ml vials fix a rubber plug, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define ear drops.
2. Mention one such marketed preparation.
3. Should ear drops be sterilized?
4. Why glycerin is selected here as vehicle?
5. Find the formula for Phenol ear drops from B.P.C.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 25

I B 3

1.0 Title:

To prepare and submit Nasal Drops.

2.0 Prior concepts:

Monophasic liquid dosage forms for external use.

3.0 New concepts:

Formulation of nasal drops.

4.0 Learning Objectives:

Intellectual skills:

To understand purpose of nasal drops and its method of preparation.

Motor skill:

Ability to prepare nasal drops and label it correctly.

5.0 Apparatus:

Beaker, Glass rod, Funnel, Measuring cylinder, Filter paper

6.0 Prescription:

R

Ephedrine Hydrochloride	0.5 g
Chlorbutol	0.5 g
Sodium chloride	0.5 g
Purified water	q.s. 100 ml

Fiat Naristillae: Mitte 3 ss

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately all solid ingredients and dissolve in warm purified water.
2. Cool. Filter if necessary and make up the volume through filter paper.
3. Transfer to a vial, plug it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
 bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention use of chlorbutol.
2. What is the purpose of using sodium chloride?
3. Mention name of one similar marketed preparation and its manufacturer.
4. Why water to be used in such preparations is freshly boiled and cooled?
5. Mention the names of at least two preservatives.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 26

I B 3

1.0 Title:

To prepare and submit Nasal Drops containing Atropine Sulphate.

2.0 Prior concepts:

Monophasic liquid dosage forms.

3.0 New concepts:

Formulation of Nasal drops.

4.0 Learning Objectives:

Intellectual skills:

To understand purpose of nasal drops and its method of preparation.

Motor skill:

Ability to prepare nasal drops and label it correctly.

5.0 Apparatus:

Beaker, glass rod, funnel, measuring cylinder, filter paper

6.0 Prescription:

R

Atropine sulphate 50 mg

Normal saline solution 100 ml

Prepare 15 ml of Nasal drops.

Two drops to be placed in each nostril as directed.

Fiat Naristillae: Mitte \mathfrak{z} ss

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately atropine sulphate and take it in a beaker.
2. Dissolve in three fourth volume of normal saline solution.
3. Filter if necessary and make up to volume with normal saline.
4. Transfer to a vial, plug it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the composition of normal saline solution?
2. How is atropine sulphate useful in preparation of nasal drops?
3. What are potent drugs?
4. What is nebula?
5. Learn the methods of weighing minimum quantities for potent drugs.

(Space for answers)

Date

Signature of Subject Teacher

I B 3

To prepare and submit Inhalation.

Liquid preparations not meant for internal use.

Formulation of inhalation that is liquid preparation containing volatile substance.

Ability to prepare inhalation and label it correctly.

Beaker, glass mortar and pestle, funnel, measuring cylinder.

Fiat inhalatio: Mitte 3j

[illegible]

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately menthol and light magnesium carbonate.
2. Finely powder menthol in a glass mortar.
3. Add the oil and stir until the solid dissolves.
4. Add the light magnesium carbonate in small amounts and mix well.
5. Gradually add the vehicle to produce a pourable cream.
6. Transfer to a measure. Rinse mortar with water and add the rinsing to the measure and make up the volume.
7. Transfer to a bottle with intermittent shaking attach prepared label, cork the bottle and submit.

Note: 1 g of light magnesium carbonate for each 2 ml of oil or 2 g of volatile solid gives satisfactory results for uniform dispersion of oil on shaking.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Why boiling water should not be used?
2. Mention one such marketed preparation and its manufacturer.
3. What is the use of light magnesium carbonate in this preparation?
4. Differentiate light and heavy magnesium carbonate and in which preparations heavy magnesium carbonate can be used.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 28

I B 3

1.0 Title:

To prepare and submit Potassium Permanganate solution (Douche).

2.0 Prior concepts:

Monophasic liquid dosage forms for body cavities.

3.0 New concepts:

Proposition 1:

A douche is a medicated solution for rinsing a body cavity. Word 'douche' is often used for vaginal solution. Vaginal solutions may be called as irrigations.

4.0 Learning Objectives:

Intellectual Skill:

To understand the different solutions meant for bladder, rectum, vagina or nasal cavities.

Motor Skill:

Ability to prepare the vaginal solution and label it appropriately.

5.0 Apparatus:

Glass mortar pestle, Measuring cylinder, Beaker, Funnel, Glass rod, Conical flask, Sintered glass filter

6.0 Prescription:

Rx

Supply 500 ml of 0.1 % Potassium permanganate solution.

Label: Prepare 1 litre volume of a 1 in 4000 solution for use as a vaginal douche.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Transfer accurately weighed quantity of potassium permanganate to a glass mortar.
2. Grind the crystals with water, add more water and regrind.
3. Allow undissolved crystals to settle and pour the supernatant into a conical flask taking precautions not to spill.
4. Add more water, regrind, decant. Repeat these procedures until the entire solid has dissolved and the mortar is free from colour.
5. Filter through a clean sintered glass filter and make up to volume through filter.
6. Transfer to a narrow mouthed coloured fluted bottle with permanganate resistant coat in the cap.

Note: The strength of prescribed solution is 1 in 1000. so to prepare 1 in 4000 vaginal douche, this must be diluted with 3 times its volume of warm water ie 250 ml to 1 litre.

Use a label written in red. As this preparation is for hospital use, it is labeled with its proper name and strength and the dilution directions must be given in milliliters.

Not to be taken is the appropriate warning.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. State the purpose of using glass apparatus.
2. Is it necessary to sterilize the above preparation and why?
3. How douche is administered?
4. If the douche is dispensed in the form of powder or tablet what is the direction for its use?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 29

I B 3

1.0 Title:

To prepare and dispense Atropine Sulphate Eye Drops.

2.0 Prior concepts:

Definition and types of ophthalmic preparations, Essential characteristics of ophthalmic preparations.

3.0 New concepts:

Formulation and method of preparation of eye drop by maintaining Isotonicity.

Proposition 1:

When medicament is added to an isotonic solution the product will be hypertonic. This may not be important since eye can tolerate a range equivalent to 0.6 - 1.4% sodium chloride solution. A method has been devised to overcome the difficulty of speedy extemporaneous dispensing.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of maintaining isotonicity in the preparation of eye drop.

Motor Skill:

Ability to prepare eye drop correctly by following procedure of rapid adjustment to isotonicity and label it properly.

5.0 Apparatus:

Beaker, Pipette, Stirrer, Funnel, (Sterile previously).

6.0 Prescription:

R

Atropine sulphate	1 %
Sterile water	q.s.
Normal saline solution	30 ml

Make 15 ml of an eye drop.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

Weigh 300 mg of atropine sulphate (or any other substance mention in list) and dissolve in 4.3 ml of water (or quantity mention in list). Then diluted to 30 ml with saline water sterile the preparation and dispense it by proper labeling. (Normal saline solution = 0.9 gm NaCl in 100 ml).

As per B.P.C. 1% solution of Atropine sulphate freezes at = - 0.0740c.

Therefore 300 mg of 1% Atropine sulphate in 30 ml freezes at - 0.0740c.

A freezing point of - 0.520c (the freezing point of lachrymal secretion) is given by 300 mg in

$$\frac{0.074}{0.52} \times 30 = 4.27 \text{ ml}$$

This may be approximated to 4.3 ml.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the freezing point of lachrymal secretion?
2. Name the other two drugs, which are prepared by rapid adjustment to Isotonicity method?
3. Name the two method for sterilization of eye drops.
4. What is the freezing point of atropine sulphate?

5. What is the use of atropine sulphate?
6. What are the other methods for the preparation of eye drop other than rapid adjustment to isotonicity?
7. Write down the prescription for buffered eye drop.
8. What is the freezing point of:
 1. Cocaine Hydrochloride.
 2. Physostigmine Salicylate.
9. Calculate the volume of water to produce a solution isotonic with lachrymal secretion.
10. Name the various preservatives used to preserve the eye drops.
11. What is the pH of Tear?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 30

I B 3

1.0 Title:

To prepare and submit Eye Lotion.

2.0 Prior concepts:

Monophasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Eye lotions are meant to be used by means of an eye bath.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of an eye lotion.

Motor Skill:

Ability to prepare and label the formulation appropriately.

5.0 Apparatus:

Beaker, Glass rod, Sintered glass filter

6.0 Prescription:

R

Zinci chloridi

gr x

Aquam

ad 3 x

Fiat collyrium.

Signatura: More dicto utendum. Mitte 3 ij

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Boil suitable excess of purified water.
2. Weigh accurately zinc chloride and take it in a beaker.
3. Dissolve in freshly boiled and cooled purified water, filter through sintered glass filter.
4. Transfer to a bottle, cork it, attach prepared label and submit.

Note: Zinc chloride usually contains oxychloride, which is insoluble and causes the solution opalescent. So the filtration must be carried out. Dilute hydrochloric acid must not be added to bring about solution of oxychloride.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What are the two types of eye lotions?
2. Give the example of another eye lotion.
3. Why eye lotions are required to be isotonic with lachrymal solution?
4. Define eye lotions?
5. How do eye lotions differ from eye drops?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 31

1.0 Title:

Report of visit to Hospital / Retail Pharmacy.

2.0 Prior concepts:

Dispensing pharmacy includes knowledge and practical experience preparation of dosage forms on small scale. it also involve storage and dispensing of formulation.

3.0 New concepts:

Proposition 1:

Visit to hospital includes taking rounds in different departments of hospital observation of work undertaken by the hospital pharmacist and his / her responsibilities information collected should be used for writing a report on visit.

Proposition 2:

Visit to retail pharmacy includes observation of display of medicaments, stock records storage requirements, overall procedure followed in the shop. Information collected should be used for writing a report on visit.

4.0 Learning Objectives:

After the visit the students should be able to

1. Understand different processes.
2. Understand the responsibilities of pharmacist.
3. Draw the layout of dispensing unit of hospital of retail pharmacy.
4. Be able to write report on the visit.

5.0 Apparatus:

Diary, Pen, Pencil, Eraser, Scale, etc.

6.0 Procedure:

1. Fix the date and time of visit to hospital / retail pharmacy by talking permission from appropriate authority.
2. Before the visit the teacher will explain the functions of different departments, equipments used, procedures followed.
3. Guide the students about information to be collected during visit.
4. Assign responsibility of collecting information to different group / batch of students.
5. A batch of student may visit and study one or more areas in the hospital or in retail pharmacy as per availability of time.
6. Write information collected at the space provided in the manual.
7. Teacher should guide the students in writing report of visit.

7.0 Format for visit report:

Date and Time of visit:

1. List the various departments in the hospital or list the areas in the pharmacy

2. Explain the general procedure followed in the hospital right from the time patient enters the hospitals.
OR
Explain the procedure followed in the pharmacy regarding stock of medicines right from placing the order.

3. Explain the method of maintaining records of patients in hospital pharmacy
OR
Explain the method of maintaining records of patients in retail pharmacy if it is done.

4. Write about the storage of medicines in hospitals / retail pharmacy.

5. List the precautions taken in hospital / retail pharmacy. Also mention the dress code.

6. Write about the licenses required for hospital / retail pharmacy, their renewal, eligibility of persons, etc.
7. Draw the layout of hospital / retail pharmacy.
8. Write about any additional related information collected during the visit.

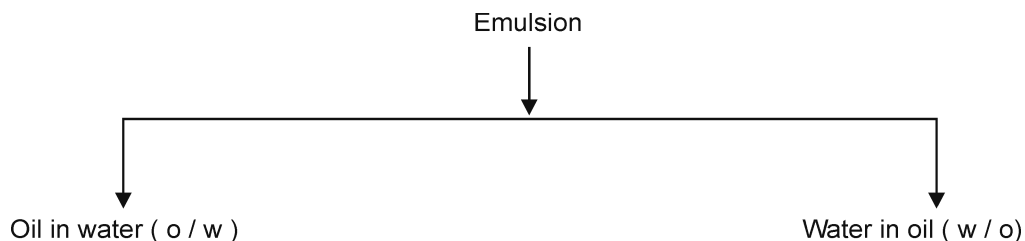
Date _____

Signature of Subject Teacher

Introduction to Biphasic Liquid Dosage forms: Emulsion

An Emulsion:

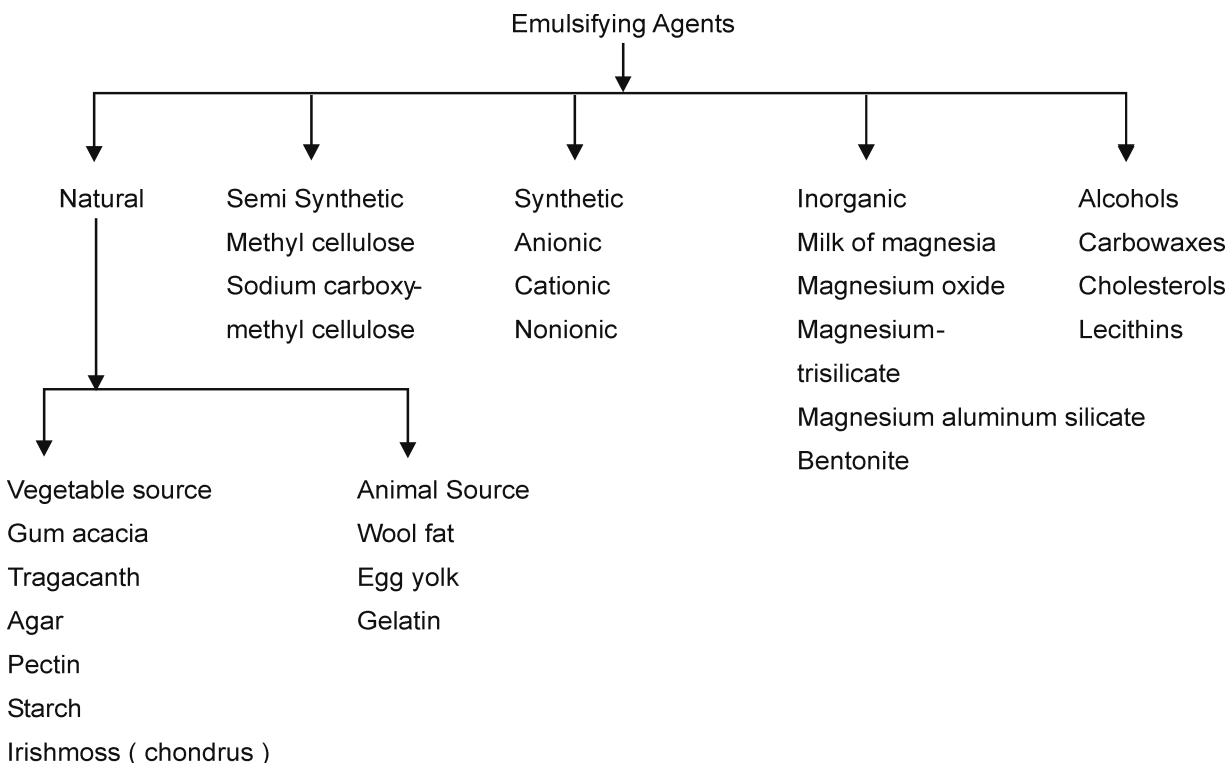
An emulsion is a heterogeneous system, consisting of at least one immiscible liquid dispersed in the form of droplets (diameter 0.1 μm to 100 μm) is called dispersed phase and the liquid in which the globules are dispersed is called continuous phase. Two immiscible liquids cannot be dispersed for long period, so an emulsifying agent having peculiar structure in which one end is hydrophilic and other is lipophilic is used. Because of that it is possible for emulsifying agent to form a thin film at the interface and reduce the interfacial tension.



There are tests to decide the type of Emulsion.

1. **Dye test:**
2. **Dilution test:**
3. **Conductivity test:**
4. **Fluorescence test:**

Emulsifying Agents can be divided as follows:



Emulsions for oral mixture are made with naturally occurring gums as they are inert with receptive therapeutic agent.

Acacia is the best emulsifying agent for extemporaneous preparations for oral emulsion and are stable over a wide pH range 2 - 10 but they are too sticky for external use.

Tragacanth increases viscosity, however it is not good emulsifying agent. Monovalent soaps which form o/w type of emulsion are not useful for oral mixture as they cause haemolysis.

Preparation of emulsions

The following methods are commonly used for the preparation of emulsions on a small scales:

1. Dry gum method
2. Wet gum method
3. Bottle method
4. Other methods.

1. Dry gum method:

1. Measure the required quantity of oil in a dry measure and transfer it into a dry mortar.
2. Add the calculated quantity of gum acacia into it and triturate so as to form a uniform mixture.
3. Add required quantity of water and triturate vigorously till a clicking sound is produced and the product becomes white or nearly white due to the total internal reflection of light. The emulsion produced at this stage is known as primary emulsion.
4. Add more of water with trituration to produce required volume.

The following table shows the proportion of oil, water and gum acacia required for different types of oils.

Sr. No.	Type of the oil	Example	Ratio of oil : Water : Gum
1	Fixed oil	Castor oil	4 : 2 : 1
		Almond oil	
		Arachis oil	
		Cod liver oil	
2.	Volatile oil	Turpentine oil	2 : 2 : 1
		Peppermint oil	
		Cinnamon oil	
3.	Mineral oil	Liquid paraffin	3 : 2 : 1

2. Wet gum method:

In this method, the proportion of oil : water ; gum for preparing the primary emulsion is the same as given in the table.

1. Calculate the quantity of oil, water and gum required for preparing the primary emulsion.
2. Powder the gum acacia in a mortar. Add water and triturate it with gum as to form mucilage.
3. Add the required quantity of oil in a small portion with rapid trituration until a clicking sound is produced and the produce becomes white or nearly white. At this stage the emulsion is known as primary emulsion.
4. Add more of water in small portion to the primary emulsion with trituration to produce the required volume of uniform emulsion.
5. Transfer the emulsion to a bottle, cork it, label and submit.

3. Bottle method:

Bottle method is used for preparation of emulsions of volatile and other non-viscous oils. The proportion of Oil : Water : Gum is 2 : 2: 1.

1. Measure the required quantity of the oil and transfer into a large bottle. Add required quantity of powdered gum acacia.
2. Shake the bottle vigorously, until the oil and gum are mixed thoroughly.
3. Add the calculated amount of water all at once.
4. Shake the mixture vigorously to form a primary emulsion.
5. Add more of water in small portions with constant agitation to produce required volume.

Recommended Containers: Screw capped plain bottles.

Special Labeling instructions: Shake well before use.

Enemas: These are solutions, suspensions or oil in water emulsions of medicaments intended for rectal administration.

Container: Single use plastic pack with rectal nozzle.

Experiment No. 32

I A 2

1.0 Title:

To prepare and submit Emulsion containing Castor Oil.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Formulation of emulsion for internal use.

4.0 Learning Objectives:

Intellectual Skill:

To understand the use and preparation of the emulsion by wet gum method.

Motor Skill:

Ability to prepare the emulsion carefully so that it is stable.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Beaker.

6.0 Prescription:

R

Olei Ricini

\mathfrak{z} i

Aquam Cinnamomi

ad \mathfrak{z} iv

Fiat emulsio. Mitte \mathfrak{z} j

Signatura: Cochleare magnum quater in die capiendum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Calculate the quantity of emulsifier (gum acacia) and of oil and water for primary emulsion.
2. Follow wet gum method.
3. Transfer to a measure and make up the volume with cinnamon water.
4. Transfer to a bottle, cork it, attach label and submit.

8.0 Labeling of formulation:

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Name two emulsifying agents.
2. For which preparations acacia is used as emulsifying agent?
3. What is dry gum method?
4. What is the type of emulsion meant for oral use?
5. How will you ensure the type of emulsion you have prepared?
6. What is the purpose of cinnamon water?
7. What is meant by primary emulsion?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 33

1.0 Title:

To identify the type of given Emulsion by Dilution Method.

2.0 Prior concepts:

Definition of emulsion, types of emulsion, continuous phase, dispersed phase.

3.0 New concepts:

Different methods of identifying the type of emulsion.

4.0 Learning Objectives:

Intellectual Skill:

To understand the method of determination of type of emulsion by dilution method.

Motor Skill:

Ability to determine the type of emulsion by dilution method.

5.0 Apparatus:

Test tubes, Pipettes, etc.

6.0 Prescription:

R

Use sample from experiment no. 32.

7.0 Stepwise procedure:

1. Take 5 ml quantity of emulsion in test tube, add equal quantity of water, shake the test tube well and observe it.
2. Take another 5 ml quantity of emulsion in another test tube and add equal quantity of oil, shake the test tube well and observe it.

8.0 Observation Table:

	Observation	Inference
Test tube: 1	Emulsion does not break.	O/w type of emulsion.
Test tube: 2	Emulsion breaks.	W/o type of emulsion.

9.0 Result:

From the above observation it is concluded that the given sample of emulsion is type.

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Name the emulsifying agent for w/o type of emulsion.
2. What is cracking of emulsions?

Experiment No. 34

I A 2

1.0 Title:

To prepare and submit Emulsion containing Turpentine oil.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Formulation of emulsion for internal use.

4.0 Learning Objectives:

Intellectual Skill:

To understand the meaning of draught, its method of preparation and its use.

Motor Skill:

Ability to prepare the emulsion by dry gum method and label it correctly.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Beaker, Funnel.

6.0 Prescription:

R

Olei terebinthinae 8 ml

Aquam Cinnamomi ad 40 ml

Fiat haustus : Mitte \mathfrak{z} j

Signatura : Statim capiendus.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Calculate the quantity of emulsifying agent, oil and water for primary emulsion.
2. Follow dry gum method.
3. Transfer to a measure and make up the volume with cinnamon water.
4. Transfer to a bottle, cork it, attach label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the type of this emulsion?
2. What is the other use of turpentine oil?
3. Write the proportion of Acacia for fixed and volatile oil?
4. What are the qualities of primary emulsion?
5. Find the names of other volatile oils used in form of emulsion.
6. What is a draught?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 35

1.0 Title:

To identify the given sample of Emulsion by Dye Test.

2.0 Prior concepts:

Definition of emulsion, types of emulsions, continuous phase, dispersed phase.

3.0 New concepts:

Different methods of identifying the type of emulsion.

4.0 Learning Objectives:

Intellectual Skill:

To understand the method of determination of type of emulsion by dye test.

Motor Skill:

Ability to determine the type of emulsion by dye test.

5.0 Apparatus:

Test tube, Slides, etc.

6.0 Prescription:

R

Use sample from experiment no. 34.

7.0 Stepwise procedure:

1. Take small quantity of emulsion in two different test tubes.
2. Add little amount of water-soluble Amaranth solution and oil soluble scarlet red dye in above test tubes separately. Take one drop of each on different slides and observe under microscope.

8.0 Observation Table:

		Observation	Inference
Slide: 1	One drop of emulsion containing Amaranth solution.	Continuous phase is coloured and droplets are colourless	o/w type of emulsion
Slide: 2	One drop of emulsion containing Scarlet Red solution.	Droplets are coloured and continuous phase is colourless.	o/w type of emulsion

9.0 Result:

From the above observation it is concluded that the given emulsion is of type.

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is creaming of emulsions?
2. Name the emulsifying agent for o/w type of emulsions.

Experiment No. 36

IA 2

1.0 Title:

To prepare and submit Emulsion containing Olive Oil.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Formulation of emulsion for internal use.

4.0 Learning Objectives:

Intellectual Skill:

To understand type of oil, its use method of preparation.

Motor Skill:

Ability to follow dry gum method correctly and prepare a stable emulsion.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Funnel, Beaker.

6.0 Prescription:

R

Olei Olivae

\mathfrak{z} i

Aquam

ad \mathfrak{z} iv

Fiat emulsio. Mitte \mathfrak{z} j Signatura : Cochleare medium bis in die sumendum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Calculate the quantities of olive oil, water and gum acacia for primary emulsion.
2. Follow dry gum method correctly.
3. Transfer to a measure and make up the volume with water.
4. Fill in the bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention four properties of an ideal emulsifying agents.
2. What is HLB? What is HLB value of acacia?
3. What is function of emulsifying agent?
4. What is use of olive oil?
5. Learn about transparent emulsions.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 37

IA 2

1.0 Title:

To prepare and submit Acacia Emulsion containing Soluble Substance.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Formulation of emulsion, which contains soluble substances like ferric ammonium citrate.

4.0 Learning Objectives:

Intellectual Skill:

To understand the use and method of preparation of emulsion containing soluble substances.

Motor Skill:

Ability to prepare the emulsion carefully and label it correctly.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Beaker.

6.0 Prescription:

R

Olei Morrhuæ

Syrupi

Ferri et Ammonii citratis

Aquam Cinnamomi

Fiat emulsio. Mitte \mathfrak{z} i

Signatura : Cochleare parva duo bis in die capienda.

\mathfrak{z} i

\mathfrak{z} ii

\mathfrak{z} i

ad \mathfrak{z} iii

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Calculate the quantities of gum acacia, cod liver oil, cinnamon water for primary emulsion.
2. Prepare primary emulsion by gum method.
3. Dilute syrup with cinnamon water.
4. Dissolve ferric ammonium citrate in diluted syrup.
5. Add the above syrup gradually to the primary emulsion with constant trituration.
6. Transfer the emulsion to a suitable measure and adjust exactly to volume.
7. Fill in the bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of cinnamon water?
2. What is the use of syrup?
3. What is the use of cod liver oil? Find minimum and maximum dose of cod liver oil.
4. What precautions are necessary for electrolytes (such as Ferric Ammonium citrate) before addition to primary emulsion?
5. Learn about micro emulsions.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 38

I A 2

1.0 Title:

To prepare and submit Emulsion containing Small Portion of Oily substance.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Proposition 1:

Formulation of emulsion containing calciferol when the concentration of oil is less than 10 % of finished emulsion, it can be diluted with a fixed oil.

4.0 Learning Objectives:

Intellectual Skill:

To understand the problem in preparation of emulsion containing less than 10 % of oily liquid and its remedial measure.

Motor Skill:

Ability to use fixed oil in appropriate quantity to make up for the oily liquid in given prescription and to prepare emulsion carefully.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Beaker.

6.0 Prescription:

R

Liquoris calciferolis m ii

Glycerini m v

Aquam ad 3 i

Fiat emulsio. Mitte 3 j

Signatura : Miro dicto danda.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

Each dose of solution of calciferol should be diluted to 6 minims with olive oil that is to a volume representing 10 % of finished emulsion.

7.0 Stepwise procedure:

1. Measure liquid calciferol and olive oil accurately.
2. Calculate quantities of oil (sum of calciferol and olive oil), water and gum for primary emulsion.
3. Follow dry gum method and prepare primary emulsion.
4. Dilute glycerin with remaining quantity of distilled water and add gradually to primary emulsion with constant trituration.
5. Complete the addition, transfer to a measure and make up the volume. Stir to make the emulsion uniform.
6. Fill in the bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Give four names of fixed oils.
2. State the problem in preparation of emulsion, which contains less 10 % of oily liquid.
3. State 2 names of substances, which are often prescribed in an emulsion, with a dose representing appreciably less than 10 % of finished emulsion.

4. Learn use and minimum, maximum doses of calciferol.
5. Why glycerin is used in this preparation?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 39

IA 2

1.0 Title:

To prepare and submit Emulsion containing Substances Insoluble in Oil and Water.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Proposition 1:

Phenolphthalein is insoluble in water and oil. So it can be finely powdered and mixed with acacia before adding liquid paraffin, which is the oily phase

4.0 Learning Objectives:

Intellectual Skill:

To understand preparation of emulsion containing mineral oil and a substance insoluble in oil and water phase.

Motor Skill:

Ability to prepare emulsion successfully and label it correctly.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Beaker.

6.0 Prescription:

R

Liquid paraffin	2 oz
Phenolphthalein	30 gr
Agar	20 gr
Acacia	½ oz
Syrup	½ oz
Cinnamon water	q.s. 6 oz

Make an emulsion. Label: Three teaspoonfuls to be taken twice a day. Submit 30 ml.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

Each dose of solution of calciferol should be diluted to 6 minims with olive oil that is to a volume representing 10 % of finished emulsion.

7.0 Stepwise procedure:

1. Heat required quantity of shredded agar with about 10 ml of distilled water in a tared dish over a small flame, until solution is effected.
2. While hot, adjust it to 10 ml by weight, add concentrated cinnamon water, 4 minims (to convert distilled water used to cinnamon water. If cinnamon water is used initially, most of the contained volatile oil would be volatilized). Then add syrup and mix.
3. Weigh accurately phenolphthalein, acacia, finely powder phenolphthalein and mix with acacia before adding the liquid paraffin
4. Make primary emulsion in a hot mortar by dry gum method using cinnamon water.
5. Add the hot mixture obtained in step 2 to the warm primary emulsion with constant trituration.
6. Transfer to a measure and adjust to volume.
7. Fill in the bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of agar?
2. Why is agar used along with acacia?
3. What is the maximum dose of liquid paraffin?
4. What is therapeutic use of phenolphthalein?
5. Write chemical content of Agar and find its source.
6. Why should phenolphthalein be mixed first with acacia?
7. What is creaming of emulsions?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 40

I A 2

1.0 Title:

To prepare and submit Liquid Paraffin Emulsion.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Proposition 1:

Preparation of emulsion with methyl cellulose.

4.0 Learning Objectives:

Intellectual Skill:

To understand preparation of emulsion using cellulose derivative as emulsifying agent.

Motor Skill:

Ability to prepare emulsion successfully and label it correctly.

5.0 Apparatus:

Mortar, pestle, Measuring cylinder, Pipettes, Beaker.

6.0 Prescription:

R

Methyl cellulose	20	4.0 g
Liquid paraffin		50.0 ml
Vanillin		0.1 g
Syrup		25.0 ml
Cinnamon water	to	200 ml

Label: The liquid paraffin emulsion.

Submit: 30 ml

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

Each dose of solution of calciferol should be diluted to 6 minims with olive oil that is to a volume representing 10 % of finished emulsion.

7.0 Stepwise procedure:

1. Weigh accurately all the ingredients.
2. Add about 6 ml of boiling water to methyl cellulose.
3. Dissolve vanillin in 9.4 ml of double strength chloroform water and add to above solution mix till homogeneous.(emulsifying machines may be used)
4. Add syrup and liquid paraffin and triturate briskly.
5. Make up the volume with distilled water.
6. Transfer to a bottle, cork it, attach prepared label and submit.

Note: Product can be passed through hand homogenizer before making up the volume.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What does to number written after methyl cellulose indicate?
2. Mention 2 substances that are incompatible with methyl cellulose.
3. Write the structure of sodium carboxy methyl cellulose and find differences in solubilities in

hot water between methyl cellulose and sodium carboxy methyl cellulose.

4. Name two incompatible substances with sodium carboxy methylcellulose.
5. What is the use of vanillin?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 41

I B 4

1.0 Title:

To prepare and submit Organic Soap Emulsion.

2.0 Prior concepts:

Biphasic liquid dosage forms, for external use.

3.0 New concepts:

Proposition 1:

Triethanolamine soaps is formed in situ.

Proposition 2:

They are less alkaline than alkali soaps and are more suitable for application to the skin but not for internal use preparations.

4.0 Learning Objectives:

Intellectual Skill:

To understand preparation of emulsion with Triethanolamine soaps.

Motor Skill:

Ability to prepare and label the preparation appropriately.

5.0 Apparatus:

Measuring cylinder, Pipettes, Beaker.

6.0 Prescription:

R

Triethanolamine	15 minims
Oleic acid	60 minims
Benzyl benzoate	6 drachms
Water	4 floz
Prepare 30 ml of emulsion.	

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Mix triethanolamine with water.
2. Mix oleic acid with benzyl benzoate.
3. Add oily solution to aqueous solution and stir.
4. Transfer to bottle, cork it, attach label and submit.

Note 1: Liquid fatty acids such as oleic acid get emulsified in cold. Warming is not necessary.

Note 2: Vigorous stirring promotes frothing and should be avoided.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is triethanolamine?
2. What is the proportion of triethanolamine to fatty acid for a stable emulsion?
3. What is advantage of triethanolamine soap over soft soap from application point of view?
4. Is this emulsion a liniment, lotion or application?
5. What precaution should be taken before making up the volume?
6. What should be the ideal container for liniments?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 42

I B 4

1.0 Title:

To prepare and submit Emulsion (Lime Cream Type).

2.0 Prior concepts:

Biphasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

w/o emulsions of fixed oils in which calcium soap is the emulsifying agent, are termed as lime creams.

Proposition 2:

Some oils like olive oil contain sufficient free acid to form enough soap with limewater to emulsify the rest of the oil.

4.0 Learning Objectives:

Intellectual Skill:

To understand the use of calcium soap in preparation of emulsion for external use.

Motor Skill:

Ability to prepare a stable w/o emulsion by following the method correctly.

5.0 Apparatus:

Mortar, Pestle, Glass rod, Beaker.

6.0 Prescription:

R

Calaminae 1 g
Zinci oxidi 1 g
Olei olivae
Liquoris calcii hydroxidi ana 15 ml
Fiat Emulsio.
Signa: Quotidie utendum.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately zinc oxide and calamine and mix them in mortar.
2. Triturate the mixture with olive oil.
3. Add calcium hydroxide solution and triturate briskly until a cream is formed.
4. Fill in the bottle, cork it, attach prepared label and submit.

Note: Calcium hydroxide solution must be freshly prepared.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention the purpose of using freshly prepared calcium hydroxide solution.
2. Give one test to identify the type of this emulsion.
3. State other name for calcium hydroxide solution.
4. Write chemical composition of calamine.
5. Try to understand importance of sterilization of minerals like Calamine, Talc, etc.
6. What is meant by 'emulgent is formed in situ'?
7. Is this preparation a lotion, liniment or application?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 43

I B 4

1.0 Title:

To prepare and submit Turpentine Liniment B.P.

2.0 Prior concepts:

Biphasic liquid dosage forms, meant for external use.

3.0 New concepts:

Proposition 1:

Emulsion type liniment made with soft soap.

4.0 Learning Objectives:

Intellectual Skill:

To understand method of preparation of soap emulsions.

Motor Skill:

Ability to prepare and label emulsion meant for external use, correctly.

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, Pipette, Beaker, Muslin cloth.

6.0 Prescription:

R

Soft soap	75 g
Camphor	50 g
Turpentine oil	650 ml
Purified water	225 ml
Prepare 30 ml of Turpentine Liniment B.P.	

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Triturate camphor with soft soap.
2. Gradually add turpentine oil to form a smooth suspension.
3. Place about 15 ml of purified water in a bottle and add oily suspension in small quantities shaking after each addition.
4. Strain through muslin and adjust to volume with purified water.
5. Fill in the bottle, cork it, attach prepared label and submit

Note 1: Straining through muslin helps to remove air. As the emulsion tends to become aerated, set the product aside for sometime before adjusting the volume.

Note 2: Even if the quantities of all ingredients add upto 1000, they do not produce 1000 ml of liniment. To get prescribed volume, about 20 % more can be taken.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention the proportion of soft soap to be used as emulsifying agent for fixed oils, volatile oils and fats, when its quantity is not specified.
2. What are counter irritants?
3. What is the soft soap? Find the composition.
4. What type of emulsion you get when you use soft soap as emulsifying agent ?

5. Define liniments. Find method of applications.
6. Which is the latest British Pharmacopoeia?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 44

I B 4

1.0 Title:

To prepare and submit Liniment (Ammonium Soap Type).

2.0 Prior concepts:

Biphasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Unlike fixed oils, liquid paraffin and turpentine oil do not contain any free acid, hence cannot be emulsified by means of alkaline substances unless a free fatty acid is added.

4.0 Learning Objectives:

Intellectual Skill:

To understand preparation of soap emulsion in which soap is formed by interaction of free fatty acid with some alkaline liquid.

Motor Skill:

Ability to prepare soap emulsion carefully to get a stable product.

5.0 Apparatus:

Measuring cylinder, pipettes, Bottle, Beaker.

6.0 Prescription:

R

Oleic acid	1 ml
Dilute solution of ammonia	5 ml
Turpentine oil	25 ml
Purified water	to 100 ml

Label: The liniment. To be rubbed in as directed.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Mix turpentine oil and oleic acid in a bottle 50 percent larger in size, than the prescribed volume.
2. Add an equal volume of warm water (approximately 50 °C) to the dilute ammonia solution. Add the dilution to the oily portion and shake vigorously until a cream is formed.
3. Transfer to a measure and make up the volume if required. Mix.
4. Fill in the bottle, cork it, attach prepared label and submit.

Note: In this preparation soap is made by interaction of a fatty acid and ammonia during the preparation of emulsion, which is made by agitation.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention different types of emulsions for external use on the basis of emulsifying agents.
2. Give reason: Liniments are not applied on broken skin.
3. Mention one such marketed preparation along with its manufacturer.
4. Name the soap formed from reaction mentioned in procedure.
5. What are rubefacients?
6. What is the concentration of dilute ammonia solution?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 45

I B 4

1.0 Title:

To prepare and submit White Liniment B.P

2.0 Prior concepts:

Biphasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Emulsion type liniment can be made with an ammonium soap.

Proposition 2:

Common ion effect, Bottle method of preparation of emulsion.

4.0 Learning Objectives:

Intellectual Skill:

To understand the effect of common ammonium ion and high percentage of turpentine oil that causes phase inversion.

Motor Skill:

Ability to prepare and label liniment correctly.

5.0 Apparatus:

Measuring cylinder, Pipettes, Beaker, Bottle.

6.0 Prescription:

R

Ammonium chloride 12.5 ml

Dilute ammonia solution 45 ml

Oleic acid 85 ml

Turpentine oil 250 ml

Purified water 625 ml

Send 30 ml.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Mix turpentine oil and oleic acid in a bottle 50 percent larger than the prescribed volume.
2. Add an equal volume of warm water (approximately 50 °C) to the dilute ammonia solution and add the dilution in small amounts to the oily liquid, shaking vigorously after each addition.
3. Dissolve ammonium chloride in the rest of water and add to the bottle in small amounts, again shaking vigorously after each addition.
4. Fill in the bottle, cork it, attach prepared label and submit.

Note: Turpentine oil is emulsified with ammonium oleate produced from oleic acid and dilute ammonia solution. Ammonium oleate is o/w emulsifying agent but preparation also contains ammonium chloride which due to the common ion effect, depresses ionization of the soap and there by its phase inversion producing a w/o emulsion.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Why the instruction "to be rubbed in" is given on the label of liniment?
2. Are liniments always emulsions? If not give one such example.
3. How liniments differ from lotions from application point of view?
4. Explain common ion effect.
5. What is rectified turpentine oil?
6. What is the difference between Turpentine liniment and White liniment?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 46

I B 4

1.0 Title:

To prepare and submit Benzyl Benzoate Application B.P.

2.0 Prior concepts:

Biphasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Applications may be solutions, suspension or emulsion.

Proposition 2:

This application is oil in water emulsion.

4.0 Learning Objectives:

Intellectual Skill:

To understand use and method of preparation of this emulsion.

Motor Skill:

Ability to prepare and label this application correctly.

5.0 Apparatus:

Measuring cylinder, Pipettes, Beaker, Glass rod.

6.0 Prescription:

R_x

Benzyl benzoate 250 g

Emulsifying wax 20 g

Purified water q.s. 1000 ml

Prepare 30 ml of application.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Melt emulsifying wax. Add benzyl benzoate and mix. Allow the mixture to cool to about 60 °C.
2. Warm water to about 60 °C.
3. Transfer oily mixture to the jar and add water in one amount upto the mark. It is difficult to make further additions accurately once the jar has been shaken.
4. Shake well and continue to shake at interval until cold.
5. Transfer to bottle, cork it, attach prepared label and submit.

Note: It's a type of anionic emulsifying wax emulsion.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What are the components of emulsifying wax?
2. Why the temperature of about 60 °C is used for mixing of oily and aqueous phase?
3. What type of emulsion is obtained by using glycol, glycerol and sorbitan esters of fatty acids?
4. By inclusion of monovalent soaps in the agents mentioned in question No. 4, what changes are observed?
5. What do you mean by application?
6. Mention one such marketed preparation and its manufacturer.
7. What is the synonym of application of Dicophane?

(Space for answers)

Date

Signature of Subject Teacher

IB 3

To prepare and submit Liniment.

Monophasic liquid dosage forms for external use.

Proposition 1:

Certain substances liquify on mixing with each other.

Such substances are called eutectic substance

Intellectual Skill:

To understand formation of eutectic mixtures.

Ability to prepare and submit eutectic mixture.

Mortar pestle, Beaker.

 \mathbb{R}

Mentholis

Camphorae

Thymolis ana3j

Fiat Linimentum

Signatura : Ope penicilli parti affectae applicandum.

[illegible]

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh all the ingredients accurately.
2. Take all the ingredients in a dry mortar and mix together to form a liquid.
3. Transfer to a dry bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Find the other examples for eutectic combinations.
2. Why eutectic combinations give liquids?
3. What type of container should be suitable for this type of preparations?
4. If solid form is expected which additional substance be added to small amount of eutectic substance?
5. Learn individual therapeutic uses of each menthol, camphor and thymol.
6. Can this preparation be an example of incompatibility? How?
7. What is the difference between liniments and lotions?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 48

I B 3

1.0 Title:

To prepare and submit Camphorated Oil.

2.0 Prior concepts:

Monophasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Liniment of camphor.

4.0 Learning Objectives:

Intellectual Skill:

To understand preparation of solution form of liniments.

Motor Skill:

Ability to prepare and label liniment correctly.

5.0 Apparatus:

Wide mouth bottle, Measuring cylinder, Beaker.

6.0 Prescription:

R

Camphor 200 g

Arachis oil 800 g

Prepare 30 ml of camphorated oil.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh out arachis oil in a dry wide mouthed bottle fitted with a perfectly fitting stopper with cork.
2. Add camphor and tie down the stopper.
3. Place in a cold-water bath and heat until camphor dissolves (upto 75 °C).
4. Shake occasionally but do not remove the stopper until solution has cooled to room temperature.
5. Transfer the required volume in a dry bottle, cork it, attach prepared label and submit.

Note: This preparation can be used in preparing turpentine and acetic acid liniment.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Find solubility figures for camphor in arachis oil.
2. Name the liniment prepared by extraction method.
3. Name the liniment prepared by solution method but where solute and solvent both are liquids.
4. Why coloured fluted bottles are recommended for liniments?
5. What is the source for camphor?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 49

I B 3

1.0 Title:

To prepare and submit Turpentine and Acetic acid liniment.

2.0 Prior concepts:

Monophasic liquid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Camphorated oil can be used in preparation of other liniments.

4.0 Learning Objectives:

Intellectual Skill:

To understand the use and method of preparation of above mentioned liniment.

Motor Skill:

To prepare and label liniment correctly.

5.0 Apparatus:

Dry bottle, Measuring cylinder.

6.0 Prescription:

Rx

Glacial acetic acid 10 ml

Liniment of camphor 45 ml

Turpentine oil to 100 ml

Prepare 30 ml of Liniment.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Take required quantity of camphorated oil prepared in previous experiment in a dry bottle.
2. Add glacial acetic acid and shake well.
3. Transfer to a bottle, cork it, attach label and submit.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention the method of application of liniments.
2. Why shake well instruction is needed even though it is not a true emulsion?
3. Why glacial acetic acid is included in formulation?
4. What is A.B.C. liniment?
5. Suggest volatile oils as perfume in liniments.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 50

I B 3

1.0 Title:

To prepare and submit Calamine Lotion B.P.

2.0 Prior concepts:

Biphasic liquid dosage forms, for external use.

3.0 New concepts:

Proposition 1:

Lotions can be suspensions.

Proposition 2:

Suspension containing indiffusible solid for external use with bentonite as suspending agent.

4.0 Learning Objectives:

Intellectual Skill:

To understand use of bentonite in dispersion of insoluble medicament.

Motor Skill:

To prepare and label lotion appropriately.

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, pipettes, Beaker.

6.0 Prescription:

R

Calamine 150 g

Zinc oxide 50 g

Bentonite 30 g

Sodium citrate 5 g

Liquefied phenol 5 ml

Glycerol 50 ml

Purified water freshly boiled and cooled to 1000 ml

Prepare 30 ml of calamine lotion B.P.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction :

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Prepare a solution of sodium citrate in about 20 ml of purified water.
2. Sterilize bentonite by dry heat at 160 °C for 1 hr.
3. Triturate calamine, zinc oxide and bentonite with solution of sodium citrate to a smooth paste.
4. Add liquefied phenol and glycerol. Make up the volume with purified water.
5. Transfer to a bottle, cork it, attach prepared label and submit.

Note: Most satisfactory dispersion of bentonite is obtained, if it is first mixed intimately with insoluble medicaments. Sodium citrate causes partial defloculation of calamine and transforms bentonite from a gel to a sol. In its absence suspension is much thicker and difficult to pour from bottle.

8.0 Labeling of formulation :

Uses of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Give 2 distinguishing points between lotions and liniments.
2. What concentration of bentonite is used in external preparations?
3. Mention the purpose of sterilizing bentonite.
4. Why sodium citrate is included in the formula? How does it act?
5. What is liquefied phenol? How it differs from liquid phenol?
6. What is Humectant?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 51

I B 4

1.0 Title:

To prepare and submit Sulphur Lotion.

2.0 Prior Concepts:

Biphasic liquid dosage forms for external use.

3.0 New Concepts:

Proposition 1:

Some substances like sulphur are insoluble in water and poorly wetted by it.

Proposition 2:

Suitable wetting agent can be used to suspend sulphur in lotion.

4.0 Stepwise Procedure:

Intellectual Skill:

To understand the preparation of lotion containing poorly wettable solid.

Motor Skill:

Ability to prepare the lotion successfully using wetting agent.

5.0 Apparatus:

Mortar pestle, Measuring cylinder, Beaker, Pipette, Funnel.

6.0 Prescription:

R

Precipitated sulphur 5.0 g

Glycerin 5.0 ml

Alcohol 90 % 15.0 ml

Sodium lauryl sulphate 0.25 g

Rose water q.s. 100 ml

Fiat Lotio: Applicetur omni nocte capiti. Mitte: \mathfrak{Z} j

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Triturate sulphur and sodium lauryl sulphate with glycerin.
2. Add alcohol and mix properly.
3. Add rose water to make up to volume and mix.
4. Transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the purpose of using sodium lauryl sulphate?
2. Can sodium lauryl sulphate be replaced by tragacanth and why?
3. Define Lotions?
4. How precipitated sulphur is prepared?
5. Can extract of quillaia be used in place of sodium lauryl sulphate?
6. Comment on the following prescription

R

Zinci sulphatis 3 j

Potassae sulphuratae 3 j

Aquam ad 3 iv

Fiat lotio. Signa: Nocte adhibenda.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 52

I B 4

1.0 Title:

To prepare and submit Emulsion for Rectal Use.

2.0 Prior concepts:

Biphasic liquid dosage forms.

3.0 New concepts:

Proposition 1:

Use of mucilage of starch, as an emulsifying agent is restricted to preparations intended as enema.

4.0 Learning Objectives:

Intellectual Skill:

To understand use of starch as emulsifying agent in preparation of emulsions.

Motor Skill:

Ability to prepare and label the emulsion carefully.

5.0 Apparatus:

Measuring cylinder, Glass rod, Beaker.

6.0 Prescription:

R

Olei Ricini ℥ ss

Amyli ℥ ii

Aquam ad ℥ x

Fiat emulsio secundum artem

Signatura : Enema, hora somni utenda. Mitte ℥ ij

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh starch and triturate with sufficient water to form a smooth cream, transfer to a measure and add water to about 9.5 ounce.
2. Place in a flask and heat to boiling with frequent agitation.
3. Starch gets gelatinized and forms mucilage.
4. Remove from flame and immediately hold the flask in a stream of cold water, rotating constantly until cold. (So formation of skin can be prevented).
5. Readjust the liquid to 9.5 oz, add castor oil. Mix by vigorous stirring.
6. Transfer to a bottle, cork it, attach prepared label and submit.

Note: Products made with starch mucilage are really suspensions of large oil globules, which are prevented from coalescing by the high viscosity of starch mucilage. Since patients find warm enemas comfortable instruct accordingly.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result :

..... ml of is submitted in
bottle for inspection with special instruction on label as

10. Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. State 5 different classes of emulsifying agent s that can be used in formulation of emulsion.
2. Mention one marketed enema preparation.
3. Define enemas.
4. Can starch be used as emulsifying agent for oral preparations? Why?
5. Learn about phosphate enema formulation from B.P.C.

(Space for answers)

Date

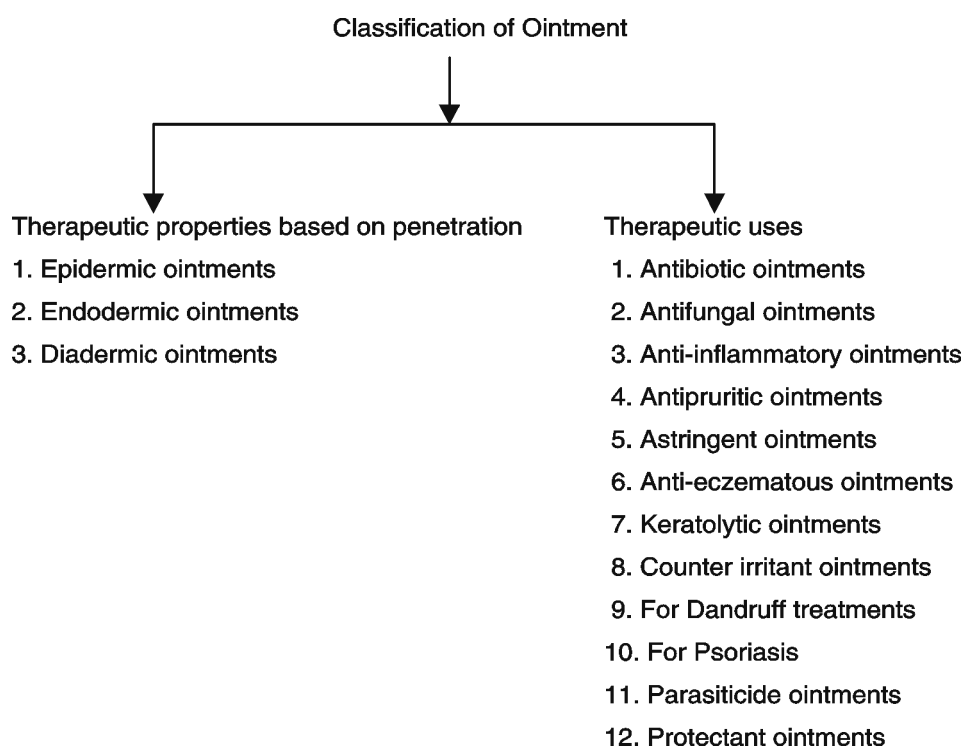
Signature of Subject Teacher

Introduction to Semisolid Dosage forms: Ointments, Creams, Pastes, Jellies and Poultices.

Semisolid dosage forms are mainly meant for external application e.g. Ointment, Creams, Jellies, Pastes, Poultices.

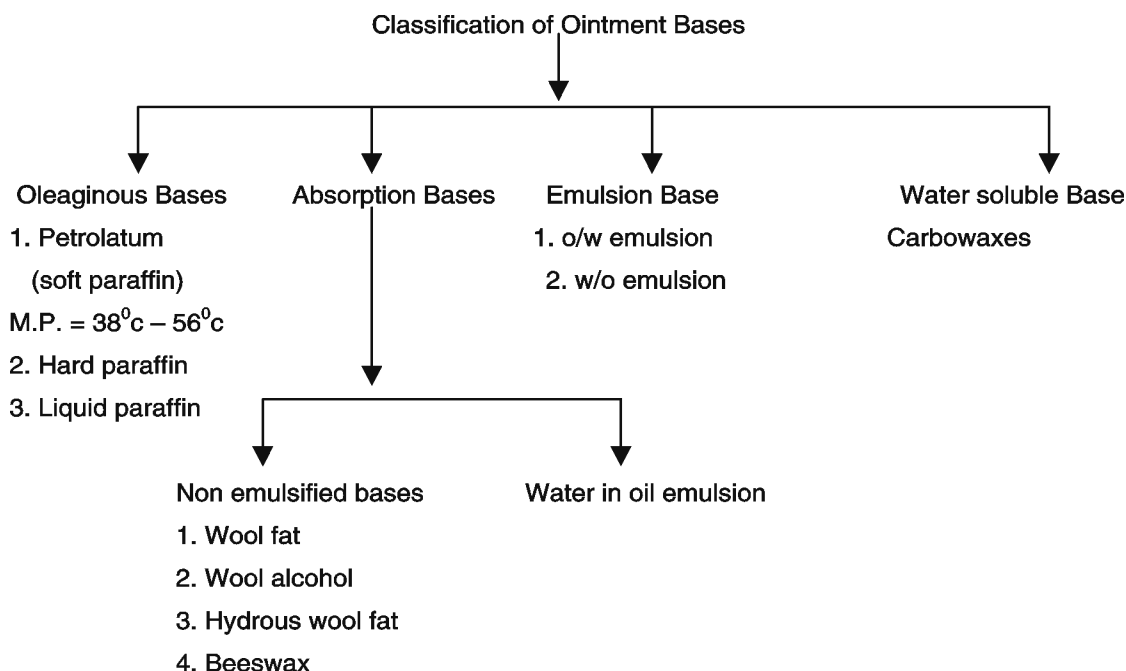
Ointments:

Ointments are semisolid preparations meant for external application to the skin or mucous membrane. They usually contain a medicament or medicaments dissolved, suspended or emulsified in an ointment base.



Ointment Bases:

It is that substance or part of an ointment, which serves as carrier or vehicle for the medicament. While selecting a suitable ointment base, the factors such as the action desired, nature of the medicament to be incorporated and the stability of ointment are to be considered.



Factors which govern the selection of an ideal base for ointments are:

Dermatological factors

1. Absorption and penetration
2. Effect on skin function
3. Miscibility with skin secretions and serum
4. Compatibility with skin secretions
5. Freedom from irritant effect
6. Emollient properties
7. Ease of application and removal

Pharmaceutical factors

1. Stability
2. Solvent properties
3. Emulsifying properties
4. Consistency

Preparation of ointment:

1. Trituration method
2. Fusion method
3. Chemical reaction method
4. Emulsification method

Additives used in ointment:

Preservatives: Methyl paraben or propyl paraben.

Humectants: Glycerin, propylene glycol or sorbitol.

Antioxidants: To prevent oxidative decomposition.

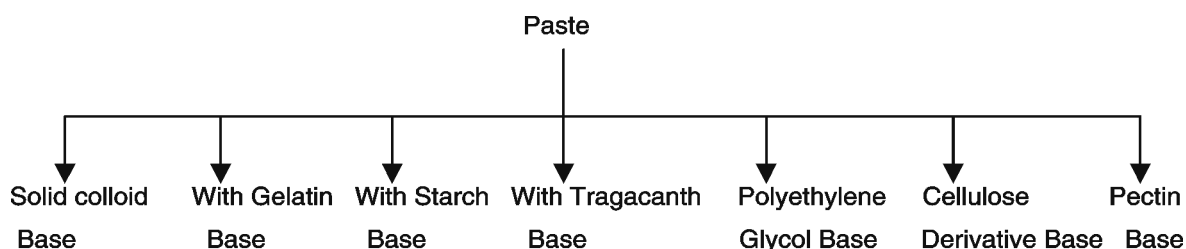
Chelating agents: To prevent the catalytic oxidative degradation of trace elements.

Creams:

These are semisolid emulsions for external use. There are two kinds aqueous and oily creams in which the emulsions are oil in water and water in oil respectively. The oil in water type is relatively non greasy. Creams are a very popular form of external medication.

Pastes:

The pastes are generally very thick and stiff semi solid preparations intended for external application to the skin. They do not melt at ordinary temperature and thus form a protective coating. Pastes are classified according to the base employed in their preparation.

**Method of preparation:**

By trituration

By fusion method

Jellies:

Jellies are transparent or translucent non greasy, semi solid preparations meant for external application to the skin or mucous membrane. They may be prepared from natural gums such as tragacanth, pectin, sodium alginate or from synthetic cellulose and sodium carboxymethyl cellulose.

Types of Jellies:

1. Medicated jellies:
2. Lubricating jellies:
3. Miscellaneous jellies: Meant for
 1. Patch testing
 2. Electro-cardiography

Formulation of jellies:**1. Gelling agent:**

1. Tragacanth
2. Sodium alginate
3. Pectin
4. Starch
5. Gelatin
6. Cellulose derivatives

2. Preservatives:

Methyl p-hydroxybenzoate (0.1 – 0.2 % w/v)

Propyl p- hydroxybenzoate (0.5 %)

Chlorocresol (0.1 – 0.2 %)

Benzoic acid (0.2 %)

Benzalkonium chloride (0.02 %)

Poultices:

Poultices are soft viscous wet masses of solid substances applied to the skin for their fomentation action in order to provide relief from pain or reduce inflammation or to act as a counter irritant.

Containers for storage:

Semisolid preparations are dispensed in glass or plastic jars having screw caps with impermeable liner. They should be stored in well closed container so as to prevent loss of volatile constituents. They can also be supplied in plastic or metallic collapsible tubes.

Label :

“Store in a cool place”. For ointment containing low melting point ingredients.

“For external use only”

Experiment No. 53

II A

1.0 Title:

To prepare and submit Emulsifying Wax I.P.

2.0 Prior concepts:

Definition, types, storage and stability of ointments.

3.0 New concepts:

Formulation and method of preparation of ointment.

Proposition 1:

Sodium lauryl sulphate is a mixture of sodium salt of sulphated normal primary alcohol. It is an anionic emulsifying agent. It is used in the preparation of emulsifying agent for producing o/w creams. Sodium lauryl sulphate reduces surface tension and can be used as wetting agent and detergent.

4.0 Learning Objectives:

Intellectual Skill:

1. To understand the type of ointment.
2. To understand the method of preparation of ointment

Motor Skill:

To prepare and label the preparation accurately.

5.0 Apparatus:

Beaker, Measuring cylinder, White tile, Ointment spatula.

6.0 Prescription:

R

Cetostearyl alcohol 900 gm

Sodium lauryl sulphate 100 gm

Purified water 40 ml

Send 10 gm.

Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Melt cetostearyl alcohol and heat to about 90 °C.
2. Add sodium lauryl sulphate mix and add purified water.
3. Continue to heat till translucent product is obtained. Cool quickly.
4. Transfer to a container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... g of is submitted in
 bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the category of this preparation?
2. Name the different bases which are used for the preparation of ointments.
3. How are the ointments classified?
4. Which factors are considered in the selection of an ideal base for ointment?
5. Explain the role of sodium lauryl sulphate.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 54

II A

1.0 Title:

To prepare and submit Simple Ointment I.P.

2.0 Prior concepts:

Definition, type, storage and stability of ointment.

3.0 New concepts:

Formulation and method of preparation of simple ointment I.P.

Proposition 1:

Simple ointment without medicament can be used as emollient. Oily type of bases provide more penetration. To increase the consistency, hard paraffin is included in the formula.

4.0 Learning Objectives:

Intellectual Skill:

1. To understand the type of ointment.
2. To understand the use of additives in ointment formulation.

Motor Skill:

Ability to formulate and prepare ointment accurately by given method of preparation.

5.0 Apparatus:

Beaker, Measuring cylinder, Evaporating dish, etc.

6.0 Prescription:

R

Wool fat 50 gm

Cetostearyl alcohol 50 gm

Hard paraffin 50 gm

Yellow or white soft paraffin 850 gm

Send 20 gm.

Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Grate hard paraffin and weigh accurately all the ingredients.
2. Place them to melt in an evaporating dish on a water bath.
3. Stir gently to aid melting and to mix the ingredients.
4. When homogeneous, remove from the water bath and stir until cold.
5. Transfer to a container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the category of this preparation?
2. Name the different bases which are used for the preparation of ointments.
3. How are the ointments classified?
4. Which factors are considered in the selection of an ideal base for ointment?
5. Explain the role of sodium lauryl sulphate.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 55

II A

1.0 Title:

To prepare and submit Sulphur Ointment B.P.

2.0 Prior concepts:

Definition, types, storage and stability of ointments.

3.0 New concepts:

Formulation and method of preparation of sulphur ointment B.P.

Proposition 1:

Sulphur is an insoluble solid incorporated by trituration method in simple ointment.

4.0 Learning Objectives:

Intellectual Skill:

1. To understand the type of ointment.
2. To understand the preparation and use of base.

Motor Skill:

Ability to prepare and label the preparation accurately.

5.0 Apparatus:

Beaker, Measuring cylinder, Ointment tile, Ointment spatula.

6.0 Prescription:

R

Precipitated sulphur, finely sifted 100 gm

Simple ointment 900 gm

Send 20 gm.

Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Simple ointment prepared in the previous experiment can be used in this experiment.
2. Weigh sulphur after sifting (180 um sieve).
3. Place on a large ointment tile. Levigate the powder (i.e. mix in the powder to form a smooth paste) with two or three times its weight of base, gradually incorporating more base until homogenous.
4. Transfer to a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... g of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. How do ointments differ from creams ?
2. What is the role of simple ointment ?
3. What do you mean by fusion method ?
4. How sulphur acts as a parasiticide ?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 56

II A

1.0 Title:

To prepare and submit Zinc Oxide Ointment B.P.

2.0 Prior concepts:

Definition, type, storage and stability of ointment.

3.0 New concepts:

Formulation and method of preparation of zinc oxide ointment.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of preparing ointment with medicament and absorption base.

Motor Skill:

Ability to prepare, label and submit the ointment correctly.

5.0 Apparatus:

Beaker, Measuring cylinder, Ointment spatula, Ointment tile.

6.0 Prescription:

R

Zinc oxide, finely sifted 150 gm

Simple ointment 850gm

Send: 20 gm. Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Take the required quantity of zinc oxide and simple ointment on an ointment tile with the help of ointment spatula.
2. Taking each time small amount of medicament and small amount of base, triturate well.

3. Transfer the ointment to the wide mouth bottle, which is previously warmed.
4. Clean the topside, close the lid and attach prepared the label.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What precautions should be taken to transfer the ointment into the container?
2. What are the requirements of ointment bases?
3. Give the name of similar marketed preparation and its manufacturer.
4. How is white soft paraffin prepared?
5. For coloured medicaments which soft paraffin is used?
6. Is there any difference in melting points of white and yellow soft paraffin?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 57

II A

1.0 Title:

To prepare and submit Methyl Salicylate Ointment B.P.

2.0 Prior concepts:

Definition, types, storage and stability of ointments.

3.0 New concepts:

Formulation and method of preparation of Methyl salicylate ointment.

Proposition 1:

Methyl salicylate is a volatile liquid and should be added to the base at as low temperature as possible.

Proposition 2:

Bees wax helps to stiffen the base.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of ointment and its method of preparation.

Motor Skill:

To prepare and label ointment correctly.

5.0 Apparatus:

Beaker, Measuring cylinder, Ointment spatula, Ointment tile, Evaporating dish, etc.

6.0 Prescription:

R

Methyl salicylate 500 gm

White Bees wax 250 gm

Hydrous wool fat 250 gm

Send 20 gm.

Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Melt the grated beeswax and hydrous wool fat in evaporation dish on a water bath.
2. Remove from heat and allow it cool.
3. Add methyl salicylate and stir till it solidifies.
4. Transfer to a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the purpose of beeswax?
2. What is the another name of hydrous wool fat?
3. Should ointments be diluted before using? Why?
4. Define Analgesics.
5. Give the name of similar marketed preparation and its manufacturer.
6. Why methyl salicylate is incorporated at very low temperature to the base?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 58

II A

1.0 Title:

To prepare and submit Paraffin Ointment I.P.

2.0 Prior concepts:

Semi solid dosage forms, Definition of ointment.

3.0 New concepts:

Formulation and method of preparation of ointment.

4.0 Learning Objectives:

Intellectual Skill:

To understand the type of ointment, bases and additives used in the preparation of ointment.

Motor Skill:

Ability to prepare and label the ointment correctly.

5.0 Apparatus:

Beaker, Glass rod, Evaporating dish, etc.

6.0 Prescription:

R

White bees wax 20 g

Hard paraffin 30 g

Cetostearyl alcohol 50 g

White soft paraffin 900 g

Send 20 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

Factor = $\frac{\text{Quantity required}}{\text{Quantity given}}$ =

7.0 Stepwise procedure:

1. Weigh all the ingredients correctly.
2. Melt together all the ingredients over water bath in an evaporating dish. Stir until cold.
3. Transfer to wide mouth bottle, which is previously washed and dried.
4. Label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Name different types of auxiliary substances included in ointments.
2. Mention different types of bases used in preparation of ointments.
3. By which property of the ingredients semisolid consistency of preparation is increased?
4. Why cetostearyl alcohol is included in the formula?
5. Which type of ointment will have more penetration?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 59

II A

1.0 Title:

To prepare and submit Emulsifying Ointment I.P.

2.0 Prior concepts:

Definition, types, storage and stability of ointment.

3.0 New concepts:

Formulation and method of preparation of ointment.

Proposition 1:

Emulsifying wax contains 10% of sodium lauryl sulphate. Sodium lauryl sulphate is a mixture of sodium alkyl sulphate consisting mainly of sodium dodecyl, $\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2\text{OSO}_3\text{Na}$. It is an anionic emulsifying agent.

4.0 Learning Objectives:

Intellectual Skill:

To understand the type and preparation of ointment.

Motor Skill:

Ability to prepare and label the ointment correctly.

5.0 Apparatus:

Beaker, Glass rod, Ointment slab, Ointment spatula, Evaporating dish, etc.

6.0 Prescription:

R

Emulsifying wax 300 g

White soft paraffin 500 g

Liquid paraffin 200 g

Send 20 gm

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Mix together all the ingredients over a hot water bath in an evaporating dish and melt them.
2. Take it out from water bath, stir until it attains room temperature.
3. Transfer to the bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Give the other anionic emulsifying agent.
2. Write the two examples of cationic emulsifying agents.
3. Which type of emulsion is obtained with sodium lauryl sulphate?
4. Write the content of emulsifying wax.
5. What is the use of emulsifying wax?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 60

II A

1.0 Title:

To prepare and submit Staining Ointment.

2.0 Prior concepts:

Definition of ointment, different types of ointment and ointment bases.

3.0 New concepts:

Formulation and preparation of ointment by using different method.

Proposition 1:

Iodine is slightly soluble in fat and vegetable oils. But it is readily soluble in concentrated potassium iodide solution in water, due to the formulation of polyiodides ($KI \cdot I_2$, $KI \cdot 2I_2$, $KI \cdot 3I_3$). These polyiodides are readily soluble in water, alcohol and glycerin.

4.0 Learning Objectives:

Intellectual Skill:

To understand the type and method of preparation of ointment.

Motor Skill:

Ability to prepare and label the ointment correctly.

5.0 Apparatus:

Glass mortar pestle, Beaker, Glass rod, Evaporating dish, etc.

6.0 Prescription:

R

Iodine	2.0 g
Potassium Iodide	2.0 g
Wool fat	2.0 g
Yellow soft paraffin	38.0 g
Water	6.0 ml
Make an ointment.	Send 20 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Dissolve iodine in the presence of potassium iodide in glycerin using mortar and pestle.
2. Melt the wool fat, yellow soft paraffin and yellow bees wax, cool to about 40 °C and add iodine solution.
3. Stir it until cold and pack in glass jar, cork it, attach label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of Iodine?
2. Why is it called as staining ointment?
3. Write about the solubility of Iodine.
4. Name the product formed by the reaction of Iodine with Potassium Iodide and write the reaction.
5. By which method this preparation is prepared ?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 61

II A

1.0 Title:

To prepare and submit Non-Staining Iodine Ointment.

2.0 Prior concepts:

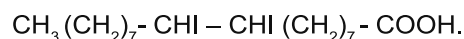
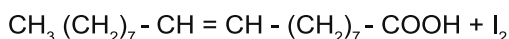
Definition and different types of ointments.

3.0 New concepts:

Formulation and preparation of ointment by using different method.

Proposition 1:

Fixed oils and many fats obtained from vegetable and animal sources contain unsaturated constituents. The iodine combines across the double bonds of the unsaturated constituents and thus free iodine is not available.



4.0 Learning Objectives:

Intellectual Skill:

To understand the types and the method of preparation of ointment.

Motor Skill:

Ability to prepare and label the ointment correctly.

5.0 Apparatus:

Beaker, Glass rod, Evaporating dish, Measuring cylinder, etc.

6.0 Prescription:

R

Iodine 50 gm

Arachis oil 150 ml

Yellow soft paraffin q.s.

Send 20 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Powder the iodine and shake with arachis oil at room temperature until dissolved.
2. Maintain the solution at 50°C, with occasional stirring until brown colour disappears.
3. Add sufficient of the yellow soft paraffin, previously heated to 40°C to produce ointment.
4. Pour the mixed mass into a warm container and allow to cool without stirring to prevent an air being entrapped in the ointment.
5. Attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of iodine?
2. Why the ointment is named as "Non-staining ointment"?
3. Which product is formed when iodine reacts with oleic acid?
4. By which method this preparation is prepared?
5. What is the percent of iodine in ointment?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 62

II A

1.0 Title:

To prepare and submit Calamine Ointment B.P.C.

2.0 Prior concepts:

Definition and different types of ointments.

3.0 New concepts:

Formulation and method of preparation of ointment containing calamine.

Proposition 1:

Calamine being insoluble solid in soft paraffin is grinded efficiently for mixing and mixed by levigation.

4.0 Learning objectives:

Intellectual Skill:

To understand the type of ointment and method of mixing of insoluble solid by levigation.

Motor Skill:

Ability to prepare and label the ointment correctly.

5.0 Apparatus:

Beaker, Glass rod, Ointment slab, Ointment spatula, etc.

6.0 Prescription:

R

Calamine (finely sifted) 150 gm

White soft paraffin 850 gm

Send: 10 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Levigate calamine with portion of white soft paraffin until the mixture is homogenous and smooth.
2. Incorporate remaining paraffin to get final product.
3. Transfer the ointment to a container, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention different non-emulsifying bases used for ointments.
2. How white soft paraffin is prepared?
3. Why white soft paraffin is not used in ophthalmic ointments?
4. Under what condition yellow and white soft paraffin is used in ointments?
5. What is calamine chemically?
6. Why minerals such as calamine are sterilized by heating before preparation?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 63

II B

1.0 Title:

To prepare and submit Cetrimide Cream B.P.

2.0 Prior concepts:

Semisolid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Cetrimide acts as an antiseptic as well as preservative. Cream is made with cationic emulsifying wax.

4.0 Learning Objectives:

Intellectual Skill:

To understand the method and use of the preparation.

Motor Skill:

Ability to prepare and label the formulation correctly.

5.0 Apparatus:

Beaker, Glass rod, Evaporating dish, Water-bath.

6.0 Prescription:

R

Cetrimide	5 g
Cetostearyl alcohol	50 g
Liquid paraffin	500 g
Purified water	
Freshly boiled and cooled	to 1000 g
Send	20 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately all the ingredients.
2. Melt the cetostearyl alcohol, add liquid paraffin and warm to 60°C
3. Dissolve the Cetrimide in freshly boiled and cooled water and warm to the same temperature.
4. Check that the temperature of both phases is 60°C and then add the aqueous phase to the oily mixture and stir continuously until cold.
5. Fill the cream in wide mouth bottle, taking precaution not to touch the sides. Tap the bottle lightly to form a uniform layer at the bottom, cork it, attach the prepared label and submit.

Note: The cream should not be applied repeatedly. Wet dressings should not be applied.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Can the preparation be freeze-dried?
2. What type of emulsion is obtained by using cationic emulsifying agent?
3. In this preparation which is the characteristic group with emulsifying property?
4. How will you determine the type of this emulsion?
5. Which emulsifying agents give oil in water type of emulsions?
6. How do creams differ from ointments?
7. What are different types of ointment emulsions?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 64

II B

1.0 Title:

To prepare and submit Zinc Cream.

2.0 Prior concepts:

Definition of creams, Bases used in the preparation of creams, stability, storage.

3.0 New concepts:

Zinc oxide acts as mild astringent.

4.0 Learning Objectives:

Intellectual Skill:

To understand the concept of preparation.

Motor Skill:

Ability to prepare and label the cream correctly.

5.0 Apparatus:

Beaker, Glass rod, Mortar Pestle. Measuring cylinder, etc.

6.0 Prescription:

R

Zinc oxide finely sifted	320 g
Calcium Hydroxide	0.45 g
Oleic acid	5 ml
Arachis oil	320 ml
Wool Fat	80g
Purified water, freshly boiled and cooled q.s.	1000 g
Send:	10 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

Factor = $\frac{\text{Quantity required}}{\text{Quantity given}}$ =

7.0 Stepwise procedure:

1. Mix the zinc oxide and calcium hydroxide triturate to a smooth paste with a mixture of oleic acid and Arachis oil.
2. Incorporate wool fat, add purified water gradually to produce 10 gm.
3. Transfer to a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What should be the particle size of zinc oxide?
2. What type of emulsion is formed by reaction of Calcium hydroxide, Oleic acid and Arachis oil?
3. Define creams.
4. Which type of emulsion is formed by monovalent soaps?
5. Can gums be used as emulsifying agents for external preparations?
6. Find the percentage of zinc oxide in this preparation.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 65

II C

1.0 Title:

To prepare and submit Unna's Paste.

2.0 Prior concepts:

Definition, types, storage and stability of pastes.

3.0 New concepts:

Formulation and method of preparation of Unna's paste.

Proposition 1:

Zinc oxide is metallic astringent, antiseptic, soothing and protective agent. It acts as a local sedative. It precipitates proteins in the discharges.

Proposition 2:

Gelatin is protein obtained by partial hydrolysis of collagen derived from the skin.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of pastes.

Motor Skill:

Ability to prepare and label the paste correctly.

5.0 Apparatus:

Beaker, Measuring cylinder, China dish, Glass rod, Sieves, Shallow tray, etc.

6.0 Prescription:

R

Zinc oxide, finely sifted 15 g

Gelatin 15 g

Glycerin 35 g

Distilled water 35 g

Send: 20 gm. Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Heat the water to boiling and remove from the heat, add the gelatin stir gently to dissolve.
2. Add the glycerin previously heated to 100 °C but not higher, stir gently to avoid entrapment of air bubbles until the solution is complete (maintain the base at 100 °C). Adjust the base weight by evaporation of water or adding hot water as required.
3. Sift the zinc oxide by passing it through 85 no sieve and add in small amounts to above molten mass.
4. Continue stirring without entrapment of air bubbles until the preparation is viscous enough to hold the powder in suspension but is still pourable.
5. Pour into a suitable vessel i.e. shallow tray of 1 cm thickness and allow it to set.
6. Traditionally the preparation is divided into small pieces (1.5 cm²) and then packed in a wide mouthed jar so that the patient can melt an appropriate number for the treatment.
7. Close the jar, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Define Humectants.
2. Why there is need to add humectant in this preparation?
3. What is the use of gelatin?
4. Define Astringents.

5. At what concentration glycerin acts as a preservative?
6. Mention different semisolid dosage forms.
7. Name one such marketed preparation and its manufacturer.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 66

II C

1.0 Title:

To prepare and submit Zinc Oxide and Salicylic Acid Paste B.P.

2.0 Prior concepts:

Definition, types, storage and stability of pastes.

3.0 New concepts:

Formulation and method of preparation of zinc oxide and salicylic acid paste.

4.0 Learning Objectives:

Intellectual Skill:

To understand the type and purpose of paste.

Motor Skill:

Ability to submit the preparation with accurate label.

5.0 Apparatus:

Beaker, Measuring cylinder, Ointment slab, Ointment spatula.

6.0 Prescription:

R

Zinc oxide, finely sifted 240 g

Salicylic acid, finely sifted 20 g

Starch, finely sifted 240 g

White soft paraffin 500 g

Send 20 gm

Label: Apply as directed by physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately all the ingredients.
2. Melt white soft paraffin, in evaporating dish in water bath, incorporate the zinc oxide, the salicylic acid and the starch and stir until cold.
3. Transfer to a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. How pastes and ointments differ from composition point of view?
2. Explain the role of Zinc oxide, Salicylic acid and Starch.
3. How pastes and ointment differ from action point of view?
4. What is an ideal container for paste? Explain mode of application of pastes?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 67

II C

1.0 Title:

To prepare and submit Bassorin Paste.

2.0 Prior concepts:

Definition of paste, Bases used for paste.

3.0 New concepts:

Formulation, method of preparation.

Proposition 1:

Bassorin paste: A component of tragacanth called Bassorin swells with water to form a jelly. Hence, the name Bassorin paste is formed. If water is added directly to tragacanth powder, the surface particles swell and prevent access of water to those in the center. So a distributing agent is required to ensure free swelling throughout. For this purpose alcohol or glycerin can be used.

4.0 Learning Objectives:

Intellectual Skill:

To understand the method and purpose of preparation.

Motor Skill:

Ability to prepare and label the preparation correctly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, Mortar pestle, etc.

6.0 Prescription:

R

Tragacanth in powder 5 gm

Alcohol 10 ml

Glycerol 2 gm

Water q.s. 100 ml

Send 20 gms

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh all the ingredients accurately.
2. Add the weighed quantity of tragacanth powder in a mortar add alcohol to it and triturate briskly.
3. Add as quickly as possible the glycerin and water with stirring.
4. Transfer the required quantity in a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. How pastes can be classified on the basis of bases used in their preparation?
2. Give one formulation containing bassorin paste as a base.
3. How do pastes differ from ointments?
4. Name the preservative in this preparation.
5. Name the distributive agent.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 68

II C

1.0 Title:

To prepare and submit Dithranol Paste.

2.0 Prior concepts:

Definition of paste, uses of additives used in the preparation of paste.

3.0 New concepts:

Formulation and method of preparation of paste.

Proposition 1:

Dithranol can be incorporated in bassorin paste.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of preparing paste with medicament and its method of preparation.

Motor Skill:

Ability to prepare and label the paste correctly.

5.0 Apparatus:

Beaker, Glass rod, Ointment slab, Ointment spatula. Measuring cylinder, etc.

6.0 Prescription:

R

Dithranol 0.1 %

Bassorin paste q.s.

Prepare the paste.

Send 10 gm.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh dithranol and bassorin paste (prepared in earlier experiment) accurately.
2. Place them on the ointment tile. Incorporate dithranol into the paste to get homogenous mixture.
3. Transfer to a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. At what percent dithranol is useful in the treatment of psoriasis?
2. What is the formula of bassorin paste?
3. How do pastes differ from jellies?
4. Mention one marketed preparation for similar purpose and its manufacturer

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 69

II D

1.0 Title:

To prepare and submit Dithranol Paste.

2.0 Prior concepts:

Definition of paste, uses of additives used in the preparation of paste.

3.0 New concepts:

Formulation and method of preparation of paste.

Proposition 1:

Dithranol can be incorporated in bassorin paste.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of preparing paste with medicament and its method of preparation.

Motor Skill:

Ability to prepare and label the paste correctly.

5.0 Apparatus:

Beaker, Glass rod, Ointment slab, Ointment spatula. Measuring cylinder, etc.

6.0 Prescription:

R

Sodium alginate	7 g
Glycerol	7 g
Methyl Hydroxybenzoate	0.2 g
Calcium gluconate	0.05 g
Purified water, freshly	
Boiled and cooled	to 100 g
Send 20 gms.	

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Wet the sodium alginate with the glycerol in a glass mortar.
2. Dissolve the preservative and calcium gluconate in about 80 ml of water with the aid of heat. Cool to about 60°C and stir rapidly with a high-speed stirrer.
3. Add the sodium alginate glycerol mixture to the vortex in small amounts and continue stirring until the dispersion is homogeneous.
4. Pack in a tightly closed container, attach prepared label and submit.

Note: Preferably, this base should be stored overnight before use.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in

bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the role of calcium salt?
2. What is the use of sodium alginate in the above preparation?
3. Name the dispersing agent used in the preparation of sodium alginate jelly.
4. Name the other gelling agents that can be used in preparation of jellies.
5. What is the role of glycerol in this preparation?
6. Mention the different preservatives that can be used in preparation of jellies.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 70

II E

1.0 Title:

To prepare and submit Kaolin Poultice B.P.C.

2.0 Prior concepts:

Semi solid dosage forms for external use.

3.0 New concepts:

Formulation, method of preparation of poultices.

Proposition 1:

Kaolin poultice: Heavy kaolin is heated at 120°C for 1 hour to kill the spores of clostridium tetanii, which are likely to be present in it. Kaolin poultice is never heated above 120°C.]

4.0 Learning Objectives:

Intellectual Skill:

To understand the techniques of preparation of poultices.

Motor Skill:

Ability to prepare and label poultices in a correct manner.

5.0 Apparatus:

Beaker, Glass rod, Porcelain dish, Measuring cylinder, etc.

6.0 Prescription:

R

Heavy kaolin finely sifted and dried at 1000c	527 g
Boric acid finely sifted	45 g
Thymol	0.5 g
Peppermint oil	0.5 ml
Methyl salicylate	2 ml
Glycerin	425 g

Send 10 gms. To be used as directed.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Sieve kaolin and boric acid through a No. 180 sieve.
2. Mix the heavy kaolin and boric acid with glycerin to form a smooth paste in a mortar.
3. Transfer to a heat resistant glass jar, protect suitably (with paper or aluminium foil) and heat at 120°C for 1 hour in hot air oven with occasional stirring (heating can also be done on a sand bath)
4. Dissolve the thymol in methyl salicylate and peppermint oil.
5. Add this solution to the cooled mixture and mix thoroughly.
6. Transfer it into a suitable container, close it tightly, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gms of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Why glycerin is not heated above 140°C?
2. Why poultices are stored in a well-closed container?
3. Give the use of heavy kaolin.
4. Why poultice is to be heated for at least about 1 hour at 120°C?
5. Where light kaolin is used?

(Space for answers)

Date

Signature of Subject Teacher

Introduction to Suppositories and Pessaries.

Suppositories are solid dosage forms of medicament for insertion into body cavity other than mouth. They may be inserted into rectum, vagina or nasal cavity.

The medicament is incorporated into the suppository base and the product is formulated in such a way that it will either melt or dissolve in the body cavity fluid to release the medicament.

Medicaments are prescribed in suppositories for three reasons:

1. To exert a direct action on the rectum.
2. To promote evacuation of the bowel.
3. To provide a systemic effect.

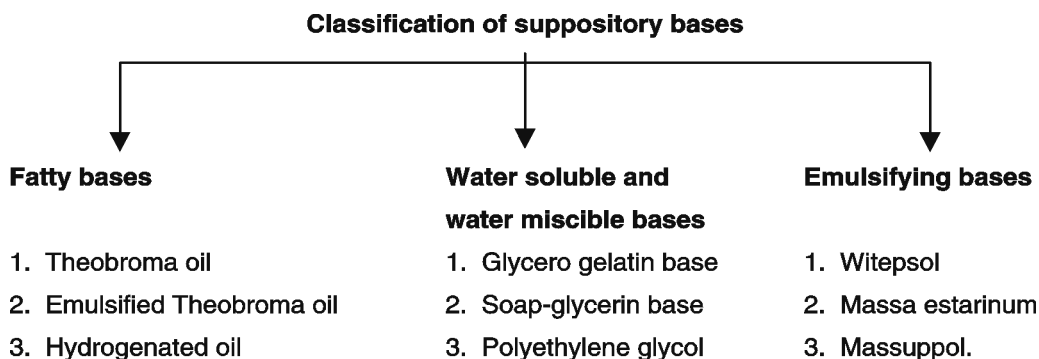
Systemic treatment by rectal route is for:

1. Treating patients who are unconscious or mentally disturbed.
2. Administering drugs, such as aminophylline, that cause gastric irritation or cause vomiting or get destroyed in acidic pH.

Suppository bases.

They should have following properties:

1. They should melt at body temperature.
2. They should keep their shape when being handled.
3. They should release the medicament readily.
4. They should be stable if heated above their melting point.



Preparation of suppository:

1. Rolling method
2. Hot process or Fusion method
3. Cold compression method

1. Rolling method: The suppository base is rolled and then the desired shape is given with hand.
2. Hot process or Fusion method: The suppository base is melted. The medicament is incorporated in it and filled in lubricated mould.
3. Cold compression method: The method is useful for thermolabile and insoluble drugs.

Lubricants used for different bases:

Sr. No.	Name of the Base	Lubricant used
1.	Cocoa butter	Soft soap 10 gm Glycerin 10 gm Alcohol 90% 50 ml
2.	Glycero-gelatin	Liquid paraffin or Arachis oil
3.	Emulsifying Base (synthetic base)	No lubricant is used.

Moulds:

Suppository moulds of various types and sizes are available having 6-12 cavities. They are generally made up of stainless steel, nickel copper alloy, brass, aluminum or plastic.

Calibration of mould:

Generally a standard mould of one-gram capacity is used. The calibration is necessary because the size of the suppository remains same but the weight varies. To find out the capacity of the mould with cocoa butter as the base following procedure is used.

Procedure:

Lubricate the mould properly. Melt the base till 2/3 melts in evaporating dish in water bath. Remove from the heat, stir till the rest melts. Overheating may occur if the base is left over the heat until completely melted. Fill each cavity of mould to overflowing. The cavities are overfilled to prevent depressions in the tops of the suppositories due to contraction of the base during cooling. Leave till the mass has set and then remove the excess from the mould with a sharp knife or razor blade or slightly warm spatula. Leave in a cool place for 10 to 15 minutes. Then open the mould and remove the suppositories. Weigh individual suppository and find the average weight.

Displacement value:

The volume of a suppository from a particular mould is uniform but its weight will vary because the densities of medicament differ from density of base.

"The quantity of the drug which displaces one part of the base" is known as displacement value.

For example: Displacement value of Iodoform is 4 which means 4 grams of Iodoform displaces 1 gram of cocabutter as a base.

Packaging and storage:

Suppositories are packed in partitioned boxes that hold the suppositories upright. Glycerin and Glycerinated gelatin suppositories are packed in tightly closed screw capped glass containers. Many commercial suppositories are wrapped in aluminium foil or PVC polyethylene. Theobroma oil suppositories, should be refrigerated.

Labeling:

"Store in a cool place" is necessary.

The warning "For rectal use only" or "For vaginal use only" should be given in red ink.

Experiment No. 71

II F

1.0 Title:

To prepare and submit Soap-Glycerin Suppository B.P.C.

2.0 Prior concepts:

Definition of suppository, suppository base, types of suppository.

3.0 New concepts:

Calibration of mould, method of preparation.

4.0 Learning Objectives:

Intellectual Skill:

To formulate the suppositories by using different bases.

Motor Skill:

Ability to prepare, pack and label suppositories carefully.

5.0 Apparatus:

Beaker, Glass rod, Spatula. China dish, Moulds, etc.

6.0 Prescription:

R

Glycerin 90 gm

Sodium carbonate 4.5 gm

Stearic acid 7.5 gm

Send Such 6 suppositories.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Dissolve the sodium carbonate in the glycerin with the aid of gentle heat.
2. Add the stearic acid and heat carefully until effervescence ceases and solution is complete.
3. Skim the surface, and pour the solution when it is quite hot and free from bubbles; overfill the moulds.
4. Keep the mould over ice in a refrigerator for 15 minutes.
5. Trim the level when set.
6. Open the mould and remove the suppositories.
7. Wrap the individual suppository in a wax paper or thin foil, place in a suitable container, attach prepared label and submit.

Note: Specific gravity of soap glycerin mass is 1.25.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... Suppositories are packed in a and submitted in
for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What are the different bases used in the preparation of suppositories?
2. Write down the formula for displacement value.
3. Write any three examples of medicaments with their displacement value.
4. Give any one example of marketed suppository.
5. What are advantages of soap glycerin suppositories?
6. Why overfilling of moulds is done?
7. What is the specific gravity of soap glycerin?
8. What is the role of sodium carbonate?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 72

II F

1.0 Title:

To prepare and submit Glycerol Suppository B.P.

2.0 Prior concepts:

Definition of suppository, suppository bases, types of suppositories.

3.0 New concepts:

Calibration of mould, method of preparation.

Proposition 1:

It is a mixture of glycerin and water, which is made stiff by the addition of gelatin.

4.0 Learning Objectives:

Intellectual Skill:

To formulate and dispense the suppositories by using different bases.

Motor Skill:

Ability to prepare, pack and label suppositories carefully.

5.0 Apparatus:

Beaker, Glass rod, Spatula. China dish, Moulds, etc.

6.0 Prescription:

R

Gelatin 14 g

Glycerin 70 g

Purified water q.s. 100 g

Send 6 suppositories.

Label: One to be used as and when necessary.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

Factor = $\frac{\text{Quantity required}}{\text{Quantity given}}$ =

7.0 Stepwise procedure:

1. Lubricate the mould using lubricating agent.
2. Weigh the glycerol into suitable dish and heat to 100°C but not higher.
3. Soak gelatin in water and glycerol in a tared dish. Record the weight.
4. Transfer the dish to the boiling water bath for 15 minutes or until solution is complete. Stir gently to avoid incorporation of air bubbles.
5. When the solution is complete weigh the dish and if necessary add hot purified water to obtain correct weight.
6. Pour the hot mass into the lubricated chilled moulds.
7. Leave the mould in refrigerator for about ½ an hour.
8. Open the mould for removal of suppositories from the mould.
9. Packaging: Glycero-gelatin suppositories being hygroscopic should be supplied in a well-closed glass or plastic, screw cap containers. For paperboard pack wrap suppository individually in metal foil.
10. Attach prepared label and submit.

Note: Specific gravity of gelato glycerin mass is 1.2

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... suppositories are packed in a and submitted in
for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the use of Glycero-Gelatin base?
2. Name the Lubricating agent used to lubricate the mould.
3. To avoid the incompatibility two grades of gelatin are used, name those grades.
4. How do glycerin suppositories release the medicament?
5. Why these types of suppositories require careful storage?

6. Why there is no need to overfill the mould?
7. What is the specific gravity of gelato glycerin base?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 73

II F

1.0 Title:

To prepare and submit Suppository Containing Soluble Solids.

2.0 Prior concepts:

Definition of suppository, suppository base, types of suppositories.

3.0 New concepts:

Calibration of mould, method of preparation.

Proposition 1:

The melting point of cocoa butter is lowered when substances are dissolved in it.

4.0 Learning Objectives:

Intellectual Skill:

To formulate the suppositories by using different bases.

Motor Skill:

Ability to prepare, pack and label suppositories carefully.

5.0 Apparatus:

Beaker, Glass rod, Spatula. China dish, Moulds, etc.

6.0 Prescription:

Prepare 6 suppositories each having the following content.

Chloral hydrate gr iij

Cocoa butter q.s.

Label: Use as directed by the physician.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Lubricate the mould and invert it on ice to drain and cool.
2. Place in a dish the weighed amount of cocoa butter, stand it over warm water bath until 2/3 is melted and then remove it from water bath. The remainder will melt with stirring, this will prevent over heating of the base.
3. Take the weighed quantity of powdered medicament on a warm slab and pour over it about ½ of the melted base. Work into a smooth cream as quickly as possible using spatula.
4. Transfer to the dish and stir to form a homogenous mixture.
5. Cool the mixture on cold water until the mass becomes pourable. Fill the moulds and cool.
6. Stand the mould for half an hour in a cold place or on ice.
7. Remove the suppositories from mould, wrap with aluminum foil, transfer to a suitable container, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... Suppositories are packed in a and submitted in
for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Name any one of marketed preparation containing chloral hydrate.
2. Why there is need for excess filling of mould when using cocoa butter as a base?
3. What is the major disadvantage of cocoa butter as base?
4. Which is the stable form of cocoa butter?
5. Give the name of unstable crystals formed due to overheating.
6. Write down the composition of lubricating agent used to lubricate the mould.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 74

II G

1.0 Title:

To prepare and submit Pessaries of Cocoa Butter Containing Liquid.

2.0 Prior concepts:

Definition of suppository, pessaries, bases used.

3.0 New concepts:

Calibration of mould, method of preparation.

Proposition 1:

The addition of an oily liquid to cocoa butter lowers its melting points and if proportion is large the mixture will be a soft paste.

4.0 Learning Objectives:

Intellectual Skill:

To formulate the pessaries by using different bases.

Motor Skill:

Ability to prepare, pack and label pessaries carefully.

5.0 Apparatus:

Beaker, Glass rod, Spatula. China dish, Moulds, etc.

6.0 Prescription:

R

Olei Eucalypti m. x.

Olei Theobromatis q.s.

Fiat Pessus.

Mitte tales sex. Signa : Unus hora somni utendus.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Lubricate the mould using lubricating agent and invert it on ice to drain and cool.
2. Place in a dish the weighed amount of cocoa butter stand it over warm water bath until 2/3 is melted.
3. Add eucalyptus oil, stir until it is pourable.
4. Pour into previously cleaned, lubricated and cooled mould taking excess filling into consideration.
5. Trim off the excess when moderately cold. Cool further for 15 minutes and remove.
6. Wrap each suppository with aluminum foil, store in a suitable container, attach prepared label and submit.

Note: Bees wax is required to be added in preparations containing 10-15% of liquid. Overheating should be avoided.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... Pessaries are packed in a and submitted in
for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Why there is need to add bees wax?
2. Write down the use of this suppository.
3. What is the displacement value for liquids?
4. Why over heating of cocabutter is to be avoided?
5. Write the source for cocabutter (Theobroma oil).

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 75

II G

1.0 Title:

To prepare and submit Pessaries of Cocoa Butter Containing Insoluble Medicaments.

2.0 Prior concepts:

Definition of suppository, pessaries, bases used.

3.0 New concepts:

Method of preparation of pessaries containing insoluble medicament like boric acid.

4.0 Learning Objectives:

Intellectual Skill:

To formulate and prepare pessaries containing insoluble medicament.

Motor Skill:

Ability to prepare, pack and label pessaries carefully.

5.0 Apparatus:

Beaker, Glass rod, Spatula. China dish, Mould, etc.

6.0 Prescription:

R

Acidi Borici gr x

Cacaonis Butyri q.s.

Fiat Pessus

Mitte tales quinque. Signa : Unus omni nocte utendus.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Displacement value of boric acid is 1.5.

Direction:

Factor = $\frac{\text{Quantity required}}{\text{Quantity given}}$ =

7.0 Stepwise procedure:

1. Lubricate the mould and invert it on ice to drain and cool.
2. Place in a dish the weighed amount of shred cocoa butter stand it over warm water bath until 23 melted and then remove it. The remainder will melt with stirring.
3. Place on a warm slab the weighed quantity of medicament and melted base.
4. Stir to form a homogenous mixture with ointment spatula.
5. Return it to the water bath for a few seconds stirring until the mass becomes pourable. Over fill each cavity of the mould.
6. Stand the mould for half an hour in a cold place or ice and then trim off the excess using a sharp knife.
7. Take out the pessaries from mould, wrap individually, transfer to a suitable container, attach prepared label and submit.

Note: As pessaries are of 60 grains weight, if suppository mould weighing 15 grains is to be used, boric acid to be taken will be 2.5 grains proportionately in place of 10 grains.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... Pessaries are packed in a and submitted in
.....for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is composition of cocabutter?
2. Find the Latin names, sizes and shapes of
 - a. Urethral bougies
 - b. Nasal bougies
 - c. Ear cones

3. What should be the mould size for pessaries?
4. Learn compositions of various synthetic bases.

(Space for answers)

Date

Signature of Subject Teacher

Introduction to Solid Dosage Forms: Powders and Other Oral Unit Dosage Forms.

The solid dosage forms are available mostly in unit dosage forms, such as Tablets, Capsules, Pills, Cachets, Powders or Tablet triturates.

Powders:

The pharmaceutical powder is a mixture of finely divided drug and or chemicals in dry form. These are solid dosage forms of medicament, which are meant for internal and external use.

Classification:

1. Bulk powder for internal use.
2. Bulk powder for external use.
3. Simple and compound powder for internal use.
4. Powders enclosed in cachets and capsules.
5. Compressed powders (tablets).

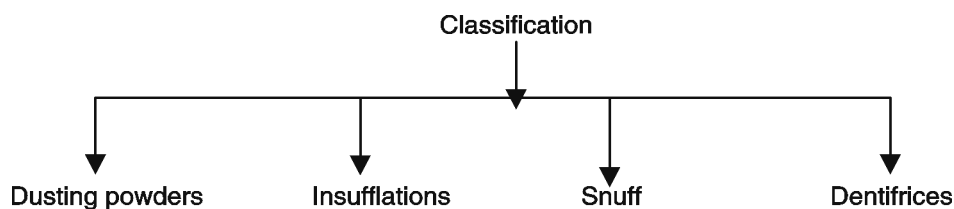
1. Bulk powder for internal use:

Powders are dispensed in bulk, when accuracy of dosage is not important. They are supplied in wide mouthed containers that permit easy removal of spoonful of powder.

Examples: Rhubarb powder B.P.C. (Gregory's powder), Compound Bismuth powder.

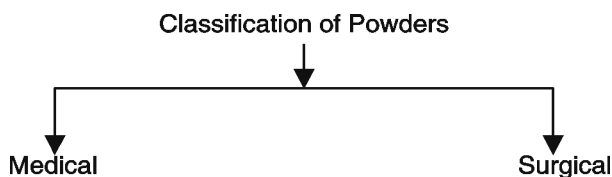
2. Bulk powder for external use:

These are non-potent substances. These powders are supplied in cardboard, glass or plastic container. The dusting powders are supplied in perforated or sifter top container.



1. Dusting powders:

These are generally applied to the skin in very fine state to avoid local irritation. Hence dusting powders should be passed through sieve no. 80 to enhance their action.



A. Medical:

These are used mainly for superficial skin conditions and sterility is rarely essential. Medical dusting powders are not intended for application to open wounds or areas of broken skin.

B. Surgical:

These are used in body cavities and major wounds, on burns and on the umbilical area of infants, hence they must be sterile.

2. Insufflations:

These are medicated dusting powders meant for introduction into body cavities such as nose, throat, ears and vagina with the help of apparatus known as "Insufflator". Insufflations should be finely divided powders, so that a stream of fine particles of medicaments get applied to the site of application.

3. Snuffs:

These are finely divided solid dosage forms of medicament which are inhaled into nostrils for its antiseptic, bronchodilator and decongestion action. Snuffs are dispensed in flat metal boxes with hinged lid.

4. Dentifrices (Tooth powder):

These are applied with the help of toothbrush for cleaning the surface of teeth. They contain suitable detergent or soap. Some abrasive substances such as calcium sulphate, magnesium carbonate, sodium carbonate and sodium chloride are used in fine powder. A strong abrasive substance should not be used as it may damage the tooth structure.

5. Simple and compound powders for internal use:

Each individual dose is enclosed in paper in divided powders. The number of ingredient may be one (simple powder) or more than one (compound powder). The minimum quantity of powder should not be less than 100 mg.

1. Simple powder:

A simple powder contains only one ingredient either in crystalline or amorphous form, which should be reduced to fine powder and wrapped as individual doses.

2. Compound powders:

Compound powders contain two or more than two substances which are mixed together and divided into desired no of individual doses.

6. Powders enclosed in cachets:

Cachets are the solid unit dosage form of drugs. These are moulded from rice paper. They are used to enclose nauseous or disagreeable powders and are available in different sizes to hold the drugs from 0.2 -15 g of powder.

Cachets are of two types:

1. Wet seal cachets
2. Dry seal cachets

Direction:

Immerse in water for few seconds and swallow with a draught of water.

7. Tablet triturates:

These are powders moulded into tablets. Moulded tablets are flat, circular disc, usually contain a potent substance which is mixed with lactose, dextrose or some other suitable diluent.

Packaging and storage:

Tablet triturates are packed in an air-tight container to protect from moisture.

General method of preparation of powders:

During powdering, weighing and mixing there is a loss of powders, which cannot be avoided. Therefore, calculate the quantity for one extra powder than required. It is difficult to weigh the quantity less than 2 grain or 100 mg on dispensing balance therefore, this quantity must be triturated with a suitable diluent such as lactose.

The crystalline substances are powdered separately and then weigh the required quantity of each ingredient. Mix all the ingredients in the ascending order of their weight and mix thoroughly to obtain a homogenous powder.

Mixing of powders:

Powders may be mixed by one of the following methods

- | | | |
|----------------|----------------|-----------------------|
| 1. Spatulation | 2. Trituration | 3. Geometric dilution |
| 4. Sifting | 5. Tumbling | |

Dispensing of powders involving special problem:

A number of problems arise while dispensing a powder containing volatile substances, hygroscopic and deliquescent powders, eutectic mixtures, efflorescent powders, explosive substances and potent drugs. So special considerations are done while dispensing such powders.

1. Volatile substances:

The volatilization of substances like menthol, camphor and essential oils may take place on incorporation in powders or should be wrapped in wax paper and outer wrapper may be of any thick paper.

2. Hygroscopic deliquescent powders:

The powders which absorb moisture from atmosphere such as ammonium chloride, iron and ammonium citrate, pepsin, phenobarbitone, sodium bromide, sodium iodide such substances are supplied in granular form or should be double wrapped. For deliquescent substances wrapping in ammonium foil or plastic cover is advisable.

3. Efflorescent powder:

Some crystalline substances become wet or liquefy during trituration. Ex. : caffeine, Citric acid, ferrous sulphate, etc. This difficulty may be overcome by using anhydrous salt or an inert substance.

4. Eutectic mixture:

When two or more substances are mixed together they liquefy due to the formation of a new compound, which has a lower melting point than room temperature. Example: menthol, thymol, camphor, salol, etc. An equal amount of any inert absorbent like magnesium carbonate, light magnesium oxide, kaolin, starch, lactose is mixed with eutectic substance.

Granules:

These are the certain solid medicaments, which are administered, orally in large doses. Because they cannot be prescribed in tablet and capsules; sweetening, flavouring, colouring agent and a suitable granulating agent is added to make a coherent mass.

Effervescent granules:

They are specially prepared solid dosage form of medicament producing effervescence meant for internal use. They contain medicament mixed with citric acid, tartaric acid and sodium bicarbonate. Sometime sweetening agent may be added.

Method of preparation:

1. Heat method
2. Wet method.

Packaging of powder for divided dosage form for internal use should be done appropriately.

Double wrapping:

White demy paper gives inadequate protection to volatile, hygroscopic and deliquescent substances unless it is lined with greaseproof. If greater moisture resistance is required, use waxed paper. The inner paper is cut a few mm smaller each way than the white demy and it is satisfactory to fold both papers together. Sometimes it is necessary to wrap each packet externally in aluminium foil.

Experiment No. 76

III A 1

1.0 Title:

To prepare and submit Powder.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Powders can be packed in individual doses for uniformity of dosage.

Proposition 2:

Double wrapping is necessary for powders containing volatile or hygroscopic substances.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of divided powders.

Motor Skill:

Ability to prepare and wrap divided powders in correct manner.

5.0 Apparatus:

Mortar pestle, Spatula, White paper, Wax paper.

6.0 Prescription:

Prepare 12 powders each to contain:

Aspirin 5 gr

Citric acid $\frac{1}{2}$ gr

Calcium carbonate $1\frac{1}{2}$ gr

Label: The powder. Dissolve in water and take when necessary.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Powder an excess of each ingredients if not already in fine powder and weigh out the required amounts.
2. It is advisable to weigh for 13 powders and then submit 12 powders Triturate citric acid with calcium carbonate gradually and then incorporate aspirin.
3. Weigh out 12 x 7 grain powders and double wrap as directed.
4. Transfer to a suitable box, cover it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... packets of are submitted in
 container for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention two advantages of powders as dosage forms.
2. Mention two names each of volatile and hygroscopic substances that require double wrapping.
3. What is the purpose of calcium carbonate in above formulation?
4. Explain the terms: Analgesic and Antipyretic.
5. What is maximum dose of Aspirin beyond which it will have toxic effects?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 77

III A 1

1.0 Title:

To prepare and submit Powder.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Powders containing small doses.

Proposition 2:

In such cases an inert diluent like lactose can be used to make the quantity of individual powder weighable.

4.0 Learning Objectives:

Intellectual Skill:

To understand the preparation of powders containing small doses and the use of an intent diluent

Motor Skill:

To prepare powder using diluent and wrap properly.

5.0 Apparatus:

Mortar pestle, Spatula, White paper.

6.0 Prescription:

R

Codeine phosphate gr 1/ 6

Fiat Pulvis.

Signatura : Unus omni nocte sumendus. Mitte tales decem

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

Note: In imperial system minimum weighable quantity is 2 grains. So that much quantity of codeine phosphate can be weighed and diluted with [(2 gr x 12) - 2 gr] that is 22 grains of lactose for making 12 packets.

1. Weigh both powders accurately.
2. Mix them in ascending order of their weights and adding them in quantities that will double the weight of the mixture by each addition.
3. Weigh the required number of powders and wrap them.
4. Transfer the packets to a suitable box, cover it, attach prepared label and submit.

Note: Codeine phosphate or lactose does not require double wrapping.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... packets of are submitted in
 container for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the minimum weighable quantity in metric system?
2. Can any diluent other than lactose be used? Why?
3. What is minimum and maximum dose of codeine phosphate?
4. What are schedule H drugs?
5. Which type of mortar, pestle to be used for powdering potent drugs?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 78

III A 1

1.0 Title:

To prepare and submit Powder.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Powder containing fluid volume, the weights of which is not known.

Proposition 2:

Adjustment of mixed material by inert material.

4.0 Learning Objectives:

Intellectual Skill:

To understand the use of inert diluent for adjustment of the remaining ingredients containing volatile oil.

Motor Skill:

To prepare and wrap the powders containing volatile oil appropriately.

5.0 Apparatus:

Glass Mortar pestle, Spatula, White paper, Wax paper.

6.0 Prescription:

R

Sodii Bicarbonatis gr x

Rhei pulverati gr iii

Olei menthae piperitae mss

Fiat Pulvis.

Signetur: Unus e cyatho vinoso aquae post cibos quoties opus sit capiendus. Mitte novem.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

Note: Prescribed amounts yield a powder weighing between 13 and 14 grains, so adjustment to 14 grains with lactose will be suitable. Quantities can be weighed for 10 powders.

1. Weigh the dry ingredients accurately and mix together with peppermint oil in glass mortar.
2. Transfer whole of the material to a weighing scale, add lactose to produce 140 grains.
3. Return to the mortar and mix thoroughly, weigh out the prescribe number of powders.
4. Double wrap the powder, transfer to a container, cover it, attach prepared label and submit.

Note: Volatile oil being included in the formula double wrapping is required.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... packets of are submitted in
 container for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the difference between bulk powders and divided powders? Give two points.
2. What you mean by divided dosage form?
3. What are the active constituents of Rhubarb?
4. Learn folding methods of wrapping.
5. One wineglassful = ml.
6. One tumblerful = ml

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 79

III A 1

1.0 Title:

To prepare and submit Powder.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Powders containing small doses of potent medicament.

4.0 Learning Objectives:

Intellectual Skill:

To understand the preparation of powders containing potent medicament.

Motor Skill:

Ability to prepare and submit powder packets in correct manner.

5.0 Apparatus:

Mortar pestle, Spatula, White paper, etc

6.0 Prescription:

R

Hyoscinae Hydrobromidi gr 1/150

Fiat Pulvis.

Mitte duodecim.

Signatura : Capiat unum bis in die

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

Note: Material should be weighed for 15 packets. So minimum of 1 gr quantity of hyoscine hydrobromide can be mixed with sufficient lactose to yield 10 grains. So the product will contain 1 grain in 10 grains or 1/10 grain in 1 grain.

1. Weigh 1 grain of hyoscine hydrobromide and triturate with 9 grains of lactose uniformly.
2. From the above triturate of hyoscine hydrobromide, 1 grain is diluted with [(2 gr x 15 packets) - 1] i.e. 29 grains of lactose to give the prescribed amount in each packet.
3. Mix thoroughly, weigh out the required number of powders and wrap.
4. Transfer to a suitable container, cover it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... packets of are submitted in
 container for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What are sedatives and hypnotics?
2. Mention two advantages of divided powders.
3. What can be the disadvantage of powder as dosage form?
4. Convert 1/150 grain into micrograms.
5. What is meant by motion sickness?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 80

III A 1

1.0 Title:

To prepare and submit Gregory's Powder.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Bulk powders are not packed into individual doses.

4.0 Learning Objectives:

Intellectual Skill:

To understand the preparation of bulk powders.

Motor Skill:

Ability to prepare and label the bulk powders.

5.0 Apparatus:

Mortar pestle, Spatula, etc

6.0 Prescription:

Rx

Heavy magnesium carbonate 325 g

Light magnesium carbonate 325 g

Rhubarb in powder 250 g

Ginger in powder 100 g

Prepare 30 g of Rhubarb Powder Compound B.P.C.

Label: One 5 ml spoonful to be taken as directed.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh all the ingredients accurately.
2. Mix all the ingredients in mortar in order of their weight. Do not grind too vigorously as the powders may get compacted.
3. Occasionally loosen the powder from the bottom of the mortar and scrape it from the sides with the help of spatula.
4. Fill in the light resistant, airtight wide mouth bottle to prevent discolouration of rhubarb.
5. Attach prepared label and submit.

Note: Ginger and rhubarb have volatile constituents.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention maximum dose for rhubarb.
2. State function of ginger powder in the formulation.
3. How are bulk powders dispensed?
4. What do you mean by mixing in geometrical ascending order?
5. Differentiate between simple and compound powder.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 81

III A 2

1.0 Title:

To prepare and submit Effervescent Granules Containing Iron and Ammonium Citrate.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Effervescent granules are uncoated granules generally containing acid substances and carbonates which react rapidly in presence of water to release carbon dioxide.

4.0 Learning Objectives:

Intellectual Skill:

To understand technique of preparation of effervescent granules.

Motor Skill:

Ability to prepare and label effervescent granules in correct manner.

5.0 Apparatus:

Evaporating dish, Sieves, Spatula, Hot air oven.

6.0 Prescription:

R

Sodium bicarbonate in powder 20.40 gm

Tartaric acid in powder 10.80 gm

Citric acid in powder 7.20 gm

Refined sugar in powder 6.00 gm

Iron and ammonium citrate in powder 2.15 gm

Prepare 25 gm of effervescent citro tartarate of soda containing 5 % of iron and ammonium citrate.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Place a porcelain dish in boiling water bath.
2. Weigh all the ingredients accurately and mix in ascending order of weight.
3. Place all the powders in the hot porcelain dish.
4. Press down with a bone spatula until the mixture has formed either a loose cake or a damp coherent mass.
5. Have ready a No. 8 sieve super imposed upon a No. 20 or 24 and quickly press the mixture through the top sieve and then shake.
6. The fine granules will drop through the lower sieve, leaving upon it practically uniform granules which constitute the required product.
7. Spread the granules on a tray, dry in a warm place at temperature about 50 °C - 60 °C.
8. Pack dry granules in dry wide mouth bottle, cork it, attach prepared label and submit.

Note: Ginger and rhubarb have volatile constituents.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. State purpose of citric acid.
2. What is exsiccation?

3. Mention two factors, which lead to loss of weight in granulation?
4. Write the chemical reaction between acids and sodium bicarbonate.
5. Why two acids are included in formula?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 82

III A 1

1.0 Title:

To prepare and submit Compound Magnesium Trisilicate Oral Powder B.P.

2.0 Prior concepts:

Solid dosage forms for internal use.

3.0 New concepts:

Proposition 1:

Official bulk powder for internal use.

4.0 Learning Objectives:

Intellectual Skill:

To understand technique of preparation of bulk powders.

Motor Skill:

Ability to prepare and label bulk powder correctly.

5.0 Apparatus:

Mortar pestle, Spatula, etc.

6.0 Prescription:

R

Magnesium Trisilicate 250 g

Chalk in powder 250 g

Sodium bicarbonate 250 g

Heavy magnesium carbonate 250 g

Prepare 25 g of compound powder.

Label: To be used as directed.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh all the ingredients accurately and take in a dry mortar.
2. Mix the ingredients, occasionally loosen the powder from the bottom and scrape it from the sides.
3. Transfer to a suitable dry bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention maximum dose for magnesium trisilicate.
2. State two advantages of powders as dosage form.
3. Mention different types of powders for internal use.
4. Find the uses and maximum doses of individual drugs included in formula.
5. Mention different sieve numbers and related micron sizes for powders for external use?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 83

III A 2

1.0 Title:

To prepare and submit Calomel Tablet Triturates.

2.0 Prior concepts:

Solid dosage forms, definition of tablet triturates.

3.0 New concepts:

Proposition 1: Tablet triturates

Formulation and method of preparation of tablets triturates containing calomel.

Proposition 2:

Displacement value of calomel is 3.74.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose of tablet triturates containing potent medicament.

Motor Skill:

Ability to prepare and label the tablet triturate correctly.

5.0 Apparatus:

Mortar pestle, Spatula, Butter paper, Mould, etc.

6.0 Prescription:

Prepare 21 tablet triturates, each containing 2 mg of calomel.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh the required quantity of calomel and lactose.
2. Make a stiff paste of calomel and lactose with 60 % alcohol and then press into the perforations. Ensure that each cavity is filled and smooth off the excess with spatula.

3. Then superpose the filled plate and press down thus leaving the paste in the form of a tablet, resting on the pegs.
4. Leave the tablets to dry for one or two hours, and then pack into pillboxes, attach prepared label and submit.

Note: Lactose is used as diluent. Mould capacity is taken as 100 mg.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... (units) of is submitted in
 bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. State the meaning of displacement value.
2. What is the need to calculate displacement value?
3. Mention the purpose of using alcohol.
4. What is the different between compressed tablet and tablet triturates?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 84

III B 3

1.0 Title:

To prepare and submit Tooth Powder.

2.0 Prior concepts:

Solid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Dentifrices are the preparation meant to be applied to teeth.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of tooth powders.

Motor Skill:

Ability to prepare dental preparation and label it correctly.

5.0 Apparatus:

Mortar pestle, Spatula, etc.

6.0 Prescription:

R

Hard soap, in fine powder	5 gm
Precipitated calcium carbonate	93.5 gm
Saccharin sodium	0.2 gm
Cinnamon oil	0.2 ml
Peppermint oil	0.4 ml
Methyl salicylate	0.8 ml

Prepare 25 g of tooth powder.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh all the ingredients accurately.
2. Divide precipitated calcium carbonate into two parts.
3. Thoroughly triturate saccharin sodium, the volatile oils and methyl salicylate with one half.
4. Mix the hard soap in fine powder with the second half.
5. Mix the two powders thoroughly and pass through a fine sieve.
6. Transfer to a suitable dry container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention purpose of peppermint and cinnamon oil in formulation.
2. State four qualities of a good dentifrice.
3. State different forms in which common dentifrices can be available.
4. What are abrasives?
5. Why hard soap is included in formulation?
6. What is the use of methyl salicylate?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 85

III B 3

1.0 Title:

To prepare and submit Insufflations.

2.0 Prior concepts:

Solid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Insufflations are medicated dusting powders for nose, throat, ear or any body cavities.

Proposition 2:

Powder containing liquefiable substances.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of insufflations.

Motor Skill:

Ability to prepare and label insufflation correctly.

5.0 Apparatus:

Mortar pestle, Spatula, etc.

6.0 Prescription:

R

Mentholis 5 parts

Camphorae 5 parts

Ammonii chloridi 30 parts

Magnesii carbonates ponderosi 60 parts

Fiat Insufflatio. Mitte 3 iv. Signa: Pro naso

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Separately powders slight excess of each crystalline ingredient.
2. Weigh out required quantity of each ingredient.
3. Mix menthol with ammonium chloride and keep it aside.
4. Separately mix camphor with magnesium carbonate.
5. Mix both the portions together.
6. Transfer to a dry wide mouth bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention the names of substances that tend to liquefy.
2. Which device is used for insufflations?
3. What are deliquescent powders?
4. What are efflorescent powders?
5. What are douche powders?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 86

III B 3

1.0 Title:

To prepare and submit Boric Acid Containing 1% of Iodine.

2.0 Prior concepts:

Solid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Use of solvent facilitates subdivision and distribution.

Proposition 2:

Iodine is soluble in alcohol, which serves as a distributive agent.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of dusting powder.

Motor Skill:

Ability to prepare and label a dusting powder with liquefied substances.

5.0 Apparatus:

Glass mortar pestle, Spatula, etc.

6.0 Prescription:

R

Send ½ oz boric acid containing 1% of iodine.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Prepare 9% w/v solution of iodine in 95% alcohol.(1/2 oz is 240 grains. Considering wastage, it is convenient to prepare 300grains of powder.)Transfer 37 minims of this solution in small quantities to a mortar containing 297 grains of boric acid and mix thoroughly.
2. Mix to get a homogenous mixture, after every addition. Pass through a hair sieve.
3. Transfer to a dry amber colored bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the reason for using alcohol as distributive agent?
2. Mention different forms of powders for external use.
3. Which type of sieve material is required for iodine containing fine powders?
4. Why potassium iodide is required in many iodine preparations?
5. What type of container should be suitable for iodine preparations?
6. Why metal sieve cannot be used for this preparation?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 87

III B 3

1.0 Title:

To prepare and submit Dusting powder.

2.0 Prior concepts:

Solid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Dusting powders are powders in fine state of subdivision that can be used for external application to areas where skin is intact.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of powders for external use.

Motor Skill:

Ability to prepare and label dusting powder appropriately.

5.0 Apparatus:

Mortar pestle, Spatula, Sieves No. 80, etc.

6.0 Prescription:

R

Zinci oxidi 20.0

Acidi salicylici 2.0

Amyli pulverisati 78.0

Fiat Pulvis subtilis. Mitte \mathfrak{z} j. Signa: Pulvis conspersus.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Separately powder slight excess of each crystalline ingredient.
2. Weigh out required quantity of each ingredient and mix them gradually in ascending order of their weights.
3. Pass the material through sieve No. 80.
4. Sterilize in oven maintaining 160°C for one hour.
5. Transfer to a dry wide mouth bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What precaution will be taken while using talc as one of the ingredient powder?
2. Why the dusting powders are required to be sifted?
3. Explain expected qualities of dusting powders?
4. Which sieve number (micron size) is used for sifting?
5. What is the role of starch powder?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 88

III B 3

1.0 Title:

To prepare and submit Dusting Powder.

2.0 Prior concepts:

Solid dosage forms for external use.

3.0 New concepts:

Proposition 1:

Dusting powders are usually mixtures of substances like zinc oxide, starch and boric acid.

4.0 Learning Objectives:

Intellectual Skill:

To understand the purpose and method of preparation of dusting powder.

Motor Skill:

Ability to prepare and label dusting powder appropriately.

5.0 Apparatus:

Mortar pestle, Spatula, Sieve No - 80, etc.

6.0 Prescription:

Rx

Boric acid ½ oz.

Zinc oxide ½ oz.

Label: The dusting powder. To be applied to the face and neck frequently.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Separately powder each ingredient.
2. Weigh out the required quantities of each ingredient and mix gradually in a mortar.
3. Pass the material through sieve no-80.
4. Transfer to a dry bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... gm of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention two names of natural mineral substances that are used in preparation of dusting of powders?
2. Can the dusting powder be applied on broken skin? Why?
3. What type containers are ideal for dusting powders?
4. What are atomisers?

(Space for answers)

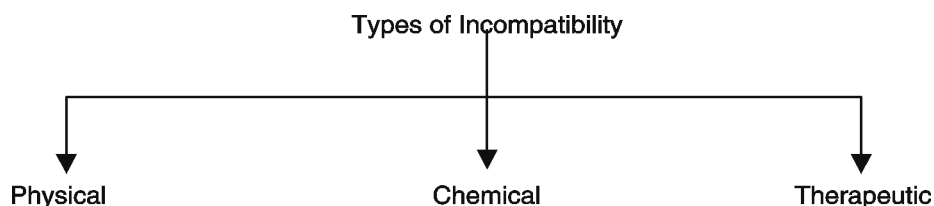
Date

Signature of Subject Teacher

Introduction to Incompatibility

III B 3

Incompatibility occurs as a result of mixing of two or more antagonistic substances and an undesirable product is formed which may affect the safety, efficacy and appearance of pharmaceutical preparations. The interaction of a drug with another drug or of a drug with additives or adjuncts; dosage errors, etc. comes under incompatibility.



1. Physical incompatibility:

When two or more than two substances are combined together, physical change take place and an unacceptable product is formed.

Physical incompatibility is due to following reasons:

1. Immiscibility
2. Insolubility
3. Precipitation
4. Liquefaction

1. Immiscibility:

Oils and water are immiscible with each other. To overcome this incompatibility an emulsifying agent is used.

2. Insolubility:

In liquid preparations containing indiffusible solids such as chalk, aromatic chalk powder, acetyl salicylic acid, zinc oxide, calamine, etc. a suspending agent may added.

3. Precipitation:

A drug in solution may be precipitated, if the solvent in which it is insoluble is added to the solution. e.g. Resins are insoluble in water. This can be prevented by slowly adding the undiluted tincture with vigorous stirring to the diluted suspension or by adding thickening agent.

4. Liquefaction:

When certain low melting point solids are mixed together, a liquid or soft mass is produced e.g. camphor, menthol, thymol, phenol, etc. These substances can be dispensed by:

1. Triturate together to form liquid and mixed with an absorbent like light kaolin or magnesium carbonate.
2. The individual medicament is powdered separately and mixed with an absorbent and then combined together.

2. Chemical incompatibility:

Chemical incompatibility may be a result of chemical interactions between the ingredients and a toxic or inactive product may be formed. Chemical incompatibility is of two types:

1. **Tolerated:** In this the chemical interaction can be minimized by changing the order of mixing or mixing the solutions in dilute forms but no alternation is made in the formulation.
2. **Adjusted:** In this chemical interaction can be prevented by addition or substitution of one of the reacting ingredients with another of equal therapeutic value.

Precipitate yielding interaction:

The precipitate formed due to reaction between strong solutions may be diffusible or indiffusible. The method A and B is followed.

Method A

For diffusible precipitate:

Divide the vehicle into two equal portions. Dissolve one of the reacting substances in one of the portion and the other in other portion. Mix the two portions by slowly adding one to the other.

Method B

For Indiffusible precipitate:

Divide the vehicle into two equal portions. Dissolve one of the reacting substances in one portion. Weigh a suitable quantity of compound tragacanth powder (2 gms/100ml) and transfer in a mortar and use part of second portion of vehicle to produce smooth mucilage. Then add other reacting substances. Mix the two portions by slowly adding one portion to the other.

3. Therapeutic Incompatibility:

This may be as a result of prescribing certain drugs to a patient with the intention to produce a specific degree of pharmacological action, but the nature or intensity of the action produced is different from that intended by the prescriber.

This occurs due to following reasons:

1. Error in dosage,
2. Wrong dose or dosage form,
3. Contra-indicated drugs,
4. Synergistic and antagonistic drugs,
5. Drug interaction.

For experiments related to incompatibility, identify the type of incompatibility and give the code number to the individual experiments.

Experiment No. 89

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

If the mixture contains only 6 minims per ounce of strychnine hydrochloride solution, and if alcohol is also present, strychnine when formed will not get precipitated.

Proposition 2:

Such formulation results into simple mixture.

4.0 Learning Objectives:

Intellectual Skill:

To understand the type of incompatibility and method of preparation.

Motor Skill:

Ability to prepare and label the mixture correctly.

5.0 Apparatus:

Mortar, pestle, Funnel, Measuring cylinder, Cotton wool, etc.

6.0 Prescription:

R

Liquoris strychninae hydrochloridi m xxxvi

Ferri et ammonii citratis 3 j

Spiritus ammoniae aromatici 3 ii

Aquam ad 3 vi

Fiat mistura. Signa: Cochleore magnum post singulos cibos sumendum. Mitte 3 j.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh out all the ingredients accurately.
2. Mix ferric ammonium citrate and strychnine hydrochloride in three fourth of vehicle.
3. Add aromatic spirit of ammonia. Filter if necessary through cotton.
4. Make up the volume, transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What happens when strychnine hydrochloride is dissolved in water in presence of ammonia solution?
2. What is the concentration of strychnine in nux-vomica tincture?
3. What is strychnine hydrochloride chemically?
4. What is the limit of strychnine hydrochloride in minims per ounce of mixture for non-precipitation with alkaline substances?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 90

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Ferric chloride is compatible with iodides when an alkali citrate is present because iron is converted to an organic compound which does not yield ferric ions.

4.0 Learning Objectives:

Intellectual Skill:

To understand oxidation of iodides with ferric salts and the remedial measure to overcome this oxidation.

Motor Skill:

Ability to prepare the mixture methodically to avoid oxidation.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, etc.

6.0 Prescription:

R

Liquoris ferri perchloridi 1 ml

Potassii iodidi 2 g

Potassii citratis 4 g

Aquam ad 60 ml

Fiat mistura. Signa: 15 ml bis in die sumenda.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh out all the ingredients accurately.
2. Dissolve potassium citrate in three quarters of the vehicle.
3. Add solution of ferric chloride and then potassium iodide. Mix filter if necessary.
4. Adjust the volume with water.
5. Transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention different types of incompatibility.
2. What is the other alternative method of correcting a mixture containing ferric salt and an iodide?
3. What happens when ferric chloride is first mixed with potassium citrate?
4. Learn oxidation-reduction reactions between ferric chloride and potassium iodide.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 91

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Lemon syrup contains citric acid and will liberate salicylic acid from sodium salicylate. Lemon syrup can be replaced by lemon tincture and simple syrup, without altering therapeutic action of mixture.

4.0 Learning Objectives:

Intellectual Skill:

To understand decomposition of salicylates and precipitation of salicylic acid in presence of acid and the adjusted type of incompatibility.

Motor Skill:

Ability to make necessary changes in the formulations and prepare it accordingly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, etc.

6.0 Prescription:

Rx

Sodii salicylatis 5 g
Syrupi limonis 20 ml
Aquam ad 75 ml

Fiat mistura. Signa: 15 ml pro dose, more dicto sumenda. Mitte \mathfrak{z} j

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

Note: Lemon syrup 20 ml can be replaced with 19 ml of syrup and 1.2 ml of lemon tincture

1. Weigh sodium salicylate accurately and dissolve in some amount of water.
2. Add syrup and lemon tincture.
3. Filter if necessary and make up the volume with water.
4. Transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the composition of syrup?
2. Mention the purpose of lemon tincture in this formulation.
3. Give another example of adjusted incompatibility.
4. Mention the acid present in syrup of lemon.
5. In which pharmacopoeia simple syrup is prepared by percolation method?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 92

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Sulphuric acid which is used to dissolve quinine sulphate would decompose sodium salicylate and prevent formation of a clear mixture.

Proposition 2:

Such incompatibility can be tolerated by using compound tragacanth powder (2%).

4.0 Learning Objectives:

Intellectual Skill:

To understand the precipitation of salicylic acid as indiffusible solid.

Motor Skill:

Ability to prepare the formulation successfully in case of tolerated incompatibility.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, Mortar pestle, etc.

6.0 Prescription:

R

Sodii salicylatis ℥ ii
Quininae sulphatis gr xii
Acidi sulphurici diluti m xxx
Aquam ad ℥ vi

Fiat mistura. Signa: Cocheleare magna dicto tertiis horis sumenda. Mitte ℥ j

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Divide water into two equal parts.
2. Add quinine sulphate and dilute sulphuric acid in one part.
3. Triturate compound tragacanth powder, sodium salicylate and other part of water.
4. Mix the two solutions together and make up the volume if required.
5. Transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. State the maximum dose for quinine sulphate.
2. Give another example of tolerated incompatibility.
3. Can sulphuric acid be omitted to avoid the incompatibility?
4. Name different antimalarial drugs.
5. Which organism causes malaria?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 93

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Ferric salicylate is soluble in solution of sodium bicarbonate, carbon dioxide is liberated and clear mixture is formed.

4.0 Learning Objectives:

Intellectual Skill:

To understand the reaction of ferric salts with salicylates to form ferric salicylate and the preparation of a clear mixture.

Motor Skill:

Ability to prepare methodically the given formulation.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, Mortar pestle, Funnel, Cotton wool, etc.

6.0 Prescription:

R

Sodii Salicylatis ℥ i
 Sodii Bicarbonatis ℥ ii
 Liquoris Ferri Perchloridi mxv
 Aquam ad ℥ vj

Fiat mistura. Signa: Cocheleare amplum ter in die sumendum. Mitte ℥ j

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh sodium salicylate and sodium bicarbonate accurately and dissolve in half the quantity of water.
2. Add ferric chloride solution and allow the effervescence to cease.
3. Filter through cotton wool and pass sufficient water through the filter to make up the volume.
4. Transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. State the method of preparation of such formulation in absence of bicarbonate.
2. Mention the maximum dose of sodium salicylate.
3. Why the quantity of sodium bicarbonate is twice the quantity of sodium salicylate?
4. Why CO_2 is liberated on mixing of sodium bicarbonate with ferric chloride?
5. If CO_2 is not allowed to come out and packed directly what will happen to the container?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 94

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Sulphuric acid liberates hydriodic acid from potassium iodide and the hydriodic acid is partly oxidised by sulphuric acid yielding iodine. The iodine, hydriodic acid and quinine sulphate combines to form a compound called herapathite.

4.0 Learning Objectives:

Intellectual Skill:

To understand the herapath reaction for quinine.

Motor Skill:

Ability to prepare and label the mixture correctly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, etc.

6.0 Prescription:

R

Quininae Sulphatis gr xxiv

Acido Sulphurici Diluti ℥ i

Potassii Iodidi ℥ ii

Aquam ad ℥ vj

Fiat mistura. Signa: Cochleare amplum quartis horis sumendum. Mitte ℥ j

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately all the ingredients.
2. Dissolve quinine sulphate in dilute sulphuric acid and little water.
3. Separately dissolve potassium iodide in half the quantity of water.
4. Mix the two solutions and make up the volume.
5. Transfer to a bottle, cork it, attach prepared label and submit.

Note: The mixture is clear at first but after about 3 days it may deposit bronze or olive green scales.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Mention the purpose of using dilute sulphuric acid.
2. Write other name for herapathite.
3. How many days are required to complete the reaction?
4. What is the type of this incompatibility?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 95

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

In presence of glycerin borax decomposes to form sodium metaborate and boric acid. Boric acid reacts with glycerin to form monobasic glyceryl-boric acid which then reacts with bicarbonates liberating carbon dioxide.

4.0 Learning Objectives:

Intellectual Skill:

To understand the incompatibility causing evolution of carbon dioxide.

Motor Skill:

Ability to prepare and label the formulation correctly.

5.0 Apparatus:

Beaker, Glass rod, Measuring cylinder, etc.

6.0 Prescription:

R

Sodium bicarbonate 1.5 g

Borax 1.5 g

Phenol 0.75 g

Glycerin 25.0 g

Water q.s. 100 ml

Make 50 ml of spray solution.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh sodium bicarbonate and borax accurately.
2. Mix them with glycerin and half the quantity of water in a big beaker.
3. After the effervescence ceases make up the volume with water.
4. Transfer to a bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Give another example of incompatibility causing evolution of carbon dioxide.
2. Give the reactions involved in this formulation.
3. What is Latin term for spray solution?
4. What is the reason for CO₂ liberation?
5. What is the use of borax?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 96

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Oil and water are immiscible with each other. They can be made miscible with emulsifying agent.

4.0 Learning Objectives:

Intellectual Skill:

To understand the physical incompatibility and its method of correction.

Motor Skill:

Ability to prepare the formulation correctly so as to overcome the incompatibility.

5.0 Apparatus:

Mortar pestle, Measuring cylinder, Funnel, etc.

6.0 Prescription:

R

Castor oil	15 ml
Water	q.s. 60 ml
Label: 15 ml to be taken.	Submit: 30 ml.

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

Factor = $\frac{\text{Quantity required}}{\text{Quantity given}}$ =

7.0 Stepwise procedure:

1. Use gum acacia as emulsifying agent.
2. Weigh it accurately for castor oil and follow dry gum method to complete the emulsion.
3. Transfer the finished product to a suitable container, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in

bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What will be the composition of primary emulsion?
2. Give one example of physical incompatibility, which involves liquefaction of solids.
3. What is micro emulsion?
4. What is the role of emulsifying agents?

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 97

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Phenacetin is an Indiffusible substance. It requires compound powder of tragacanth as suspending agent to make stable suspension.

4.0 Learning Objectives:

Intellectual Skill:

To understand the physical type of incompatibility and its correction.

Motor Skill:

Ability to prepare the formulation and label it correctly

5.0 Apparatus:

Mortar, Pestle, Measuring cylinder, Funnel, etc.

6.0 Prescription:

Rx

Phenacetin 3g

Caffeine 1g

Orange syrup 12ml

Water upto 90ml

Make a mixture. Label: To be used as directed. Submit 30 ml

Type	Translation	Quantity given in Imperial system	Quantity given in metric system	Quantity taken in metric system
.....
.....
.....
.....
.....
.....

Direction:

$$\text{Factor} = \frac{\text{Quantity required}}{\text{Quantity given}} = \dots\dots\dots$$

7.0 Stepwise procedure:

1. Weigh accurately phenacetin, caffeine and compound tragacanth powder and triturate with 3/4th volume of water.
2. Filter thro muslin cloth. Add orange syrup and make up to volume with water.
3. Transfer to the bottle, cork it, attach prepared label and submit.

8.0 Labeling of formulation:

Use of preparation:

9.0 Result:

..... ml of is submitted in
bottle for inspection with special instruction on label as

10.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is the concentration of compound tragacanth powder to be added as suspending agent?
2. Name other suitable suspending agent and its concentration.
3. Mention different methods for correcting physical incompatibilities.
4. Find therapeutic action and maximum dose of caffeine.
5. Write the composition of compound powder of tragacanth.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 98

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Maximum daily dose of atropine sulphate is 2 mg.

4.0 Learning Objectives:

Intellectual Skill:

To understand the therapeutic type of incompatibility.

Motor Skill:

Ability to detect the error in prescription and refer it back to the prescriber.

5.0 Prescription:

R

Atropine sulphate 0.006 g

Phenobarbitone 0.015 g

Aspirin 0.300 g

Prepare 10 capsules.

6.0 Stepwise procedure:

1. Identify the error in prescription.
2. Refer back the prescription to the prescriber to avoid the problem.

7.0 Result:

In the given prescription therapeutic incompatibility is observed due to
.....

8.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Give one example of therapeutic incompatibility with over dose of the medicament.
2. Give one example of therapeutically antagonistic prescribed combination.

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 99

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Amphetamine sulphate and ephedrine sulphate both are sympathomimetic drugs. They show additive effect.

4.0 Learning Objectives:

Intellectual Skill:

To understand the therapeutic type of incompatibility.

Motor Skill:

Ability to detect the error in prescription and refer it back to the prescriber.

5.0 Prescription:

Rx

Amphetamine sulphate 20 mg

Ephedrine sulphate 100 mg

Syrup upto 100 ml

Make a mixture.

6.0 Stepwise procedure:

1. Identify the error in prescription.
2. Refer back the prescription to the prescriber to reduce the dose of each drug.

7.0 Result:

In the given prescription, therapeutic incompatibility is observed due to

.....

8.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. What is additive effect?
2. What are sympathomimetic agents?
3. Mention other name for sympathomimetic agents.
4. What is the maximum dose of amphetamine?
5. Complete the sentence: Alkaloidal salts are used in formulation instead of alkaloids because

(Space for answers)

Date

Signature of Subject Teacher

Experiment No. 100

1.0 Title:

To identify the type of Incompatibility and Perform Accordingly.

2.0 Prior concepts:

Incompatibility and its types.

3.0 New concepts:

Proposition 1:

Tetracycline is inactivated by calcium present in milk.

4.0 Learning Objectives:

Intellectual Skill:

To understand the therapeutic type of incompatibility.

Motor Skill:

Ability to detect the error in prescription and refer it back to the prescriber.

5.0 Prescription:

R

Tetracycline hydrochloride 250 mg

Send 10 capsules.

Direction: Take one capsule every six hours with milk.

6.0 Stepwise procedure:

1. Identify the error in prescription.
2. Refer back the prescription to the prescriber for change in the direction, as this incompatibility is unintentional.

7.0 Result:

In the given prescription therapeutic incompatibility is observed due to

.....

8.0 Questions:

Answer Q. Q. Q. Q. (Question numbers to be allotted by the teacher.)

1. Give one example of intentional type of therapeutic incompatibility.
2. Mention different reasons of therapeutic incompatibilities.
3. Why milk is to be avoided along with the dose?
4. In which preparations, dose of medicine is taken with milk?

(Space for answers)

Date

Signature of Subject Teacher

Pattern for Annual Practical Examination

Total Marks: (80)

Q.1 Synopsis (20)

Following points may be covered in synopsis.

- A.** Comments on the prescriptions, which are given to the candidates for dispensing, should cover: (12)
1. Translation from Latin to English.
 2. Conversion of imperial system to metric system.
 3. Type of preparation.
 4. Modification and procedure.
 5. Use of individual ingredients in the prescription and use of formulation.
 6. Selection of appropriate container and important labeling instructions to be given.
- B.** Explanation of terms like expectorants, astringents, emollients, rubefacients, counterirritants, etc. (04)
- C.** One calculation related to potent drugs or displacement value or posology. (04)

Q.2 Dispensing of preparations given in the synopsis. (50)

The following types of prescriptions may be given.

Group: A. Emulsion; Mixture containing indiffusible solid, precipitate-forming liquids or slightly soluble liquid. (20)

Group: B. Chemically incompatible preparation, Divided dosage form, Suppository, Ointment, Paste, Cream, Tablet Triturates, Effervescent granules, Eye lotions, Liniments. (18)

Group: C. Simple lotions, Inhalations, Throat paints, Ear drops, Nasal drops, Bulk powders. (12)

Evaluation of preparations shall include following aspects:

1. Quality of preparation.
2. Volume.
3. Presentation; container, label.

Q.3 Viva Voce. (10)

Questions may include following points:

1. Theory related to preparations.
2. Technology.
3. Special labeling requirements.
4. Posology.
5. Other subject related matters.

Work of evaluation of practical examination will be distributed equally between internal and external examiner.

Reference Books

1. Official Books: I.P., B.P., U.S.P., B.P.C., Martindale The Extra Pharmacopoeia.
2. Remington The Science and Practice of Pharmacy: Volume 1 and Volume 2.
3. Cooper and Gunn's Dispensing for Pharmaceutical Students:
11th and 12th Editions.
4. Pharmaceutics - II, By R. M. Mehta.
5. Merck Index.

List of Laboratory Manuals Developed by MSBTE **For Diploma In Pharmacy**

First Year

- | | |
|--|--------|
| 1. Pharmaceutics - I | (0805) |
| 2. Pharmaceutical Chemistry - I | (0806) |
| 3. Pharmacognosy | (0807) |
| 4. Biochemistry and Clinical Pathology | (0808) |
| 5. Human Anatomy and Physiology | (0809) |

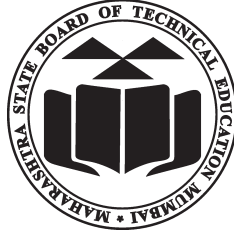
Second Year

- | | |
|-----------------------------------|--------|
| 1. Pharmaceutics - II | (0811) |
| 2. Pharmaceutical Chemistry - II | (0812) |
| 3. Pharmacology and Toxicology | (0813) |
| 4. Hospital and Clinical Pharmacy | (0816) |

PHARMACIST'S OATH

- I swear by the Code of Ethics of Pharmacy Council of India in relation to the community and shall act as an integral part of health care team.
- I shall uphold the laws and standards governing my profession.
- I shall strive to perfect and enlarge my knowledge to contribute to the advancement of pharmacy and public health.
- I shall follow the system, which I consider best for pharmaceutical care and counseling of patient.
- I shall endeavour to discover and manufacture drugs of quality to alleviate sufferings of humanity.
- I shall hold in confidence the knowledge gained about the patients in connection with my professional practice and never divulge unless compelled to do so by the law.
- I shall associate with organizations having their objectives for betterment of Profession of Pharmacy and make contribution to carry out the work of those organizations.
- While I continue to keep this oath unviolated, may it be granted to me to enjoy life and practice of pharmacy respected by all, at all times!
- Should I trespass and violate this oath, may the reverse be my lot!

HEAD OFFICE



Secretary,
Maharashtra State Board of Technical Education
49, Kherwadi, Bandra (East), Mumbai - 400 051
Maharashtra (INDIA)
Tel: (022)26471255 (5 -lines)
Fax: 022 - 26473980
Email: -secretary@msbte.com
Web -www.msbte.org.in

REGIONAL OFFICES:

MUMBAI

Deputy Secretary (T),
Mumbai Sub-region,
2nd Floor, Govt. Polytechnic Building,
49, Kherwadi, Bandra (East)
Mumbai - 400 051
Phone: 022-26473253 / 54
Fax: 022-26478795
Email: rbtemumbai@msbte.com

PUNE

Deputy Secretary (T),
M.S. Board of Technical Education,
Regional Office,
412-E, Bahirat Patil Chowk,
Shivaji Nagar, Pune
Phone: 020-25656994 / 25660319
Fax: 020-25656994
Email: rbtepn@msbte.com

NAGPUR

Deputy Secretary (T),
M.S. Board of Technical Education
Regional Office,
Mangalwari Bazar, Sadar, Nagpur - 440 001
Phone: 0712-2564836 / 2562223
Fax: 0712-2560350
Email: rbteeng@msbte.com

AURANGABAD

Deputy Secretary (T),
M.S. Board of Technical Education,
Regional Office,
Osmanpura, Aurangabad -431 001.
Phone: 0240-2334025 / 2331273
Fax: 0240-2349669
Email: rbteau@msbte.com