



Faculty of Pharmacy
Bachelor of Pharmacy (B. Pharm.)
(W. E. F.: 2023-24)
Document ID: SUTFPHB-01

Name of Faculty	:	Faculty of Pharmacy
Name of Program	:	Bachelor of Pharmacy
Course Code	:	1BPH04
Course Title	:	Pharmaceutical Inorganic Chemistry
Type of Course	:	Basic Pharmaceutical Sciences
Year of Introduction	:	2023-24

Prerequisite	:	Zeal to learn the subject
Course Objective	:	This subject deals with the monographs of inorganic drugs and pharmaceuticals.
Course Outcomes	:	At the end of this course, students will be able to:
	CO1	To remember about the sources and types of impurities, principles involved in the limit test; to apply various methods for the determination of impurities in inorganic drugs and pharmaceuticals.
	CO2	To understand the general methods of preparation of inorganic pharmaceuticals
	CO3	To analyze various inorganic pharmaceutical compounds
	CO4	To understand the assessment of the quality of inorganic pharmaceutical compounds
	CO5	To remember study of various inorganic compounds as medicinal and pharmaceutical agents

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
SEE	CIA	SEE	CIA					
03	01	04	06	75	25	35	15	150

Legends: L-Lecture; T-Tutorial/Teacher Guided Theory Practice; P - Practical, C - Credit, SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with COs
1	<p>Impurities in pharmaceutical substances: History of Pharmacopoeia, Sources and types of impurities, principle involved in the limit test for Chloride, Sulphate, Iron, Arsenic, Lead and Heavy metals, modified limit test for Chloride and Sulphate.</p> <p>General methods of preparation, assay for the compounds superscripted with asterisk (*), properties and medicinal uses of inorganic compounds belonging to the following classes</p>	10	22.22%	CO1 CO2 CO3
2	<p>Acids, Bases and Buffers: Buffer equations and buffer capacity in general, buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity.</p> <p>Major extra and intracellular electrolytes: Functions of major physiological ions, Electrolytes used in the replacement therapy: Sodium chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS), Physiological acid base balance.</p> <p>Dental products: Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.</p>	10	22.22%	CO1 CO2 CO3
3	<p>Gastrointestinal agents</p> <p>Acidifiers: Ammonium chloride* and Dil. HCl</p> <p>Antacid: Ideal properties of antacids, combinations of antacids, Sodium Bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture</p> <p>Cathartics: Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite</p> <p>Antimicrobials: Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*,</p>	10	22.22%	CO1 CO2 CO3 CO4

	Chlorinated lime*, Iodine and its preparations			
4	Miscellaneous compounds Expectorants: Potassium iodide, Ammonium chloride*. Emetics: Copper sulphate*, Sodium potassium tartarate, Haematinics: Ferrous sulphate*, Ferrous gluconate Poison and Antidote: Sodium thiosulphate*, Activated charcoal, Sodium nitrite Astringents: Zinc Sulphate, Potash Alum	08	17.77%	CO1 CO2 CO3 CO4
5	Radiopharmaceuticals: Radio activity, Measurement of radioactivity, Properties of α , β , γ radiations, Half-life, radio isotopes and study of radio isotopes - Sodium iodide I131, Storage conditions, precautions & pharmaceutical application of radioactive substances.	07	15.55%	CO3 CO5

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	40	40	00	20	00	00

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorial	Teaching Hours
1	Limit test for Chlorides and Sulphates	04
2	Modified limit test for Chlorides and Sulphates	04
3	Limit test for Iron	04
4	Limit test for Heavy metals	04
5	Limit test for Lead	04
6	Identification test of Magnesium hydroxide	04
7	Identification test of Ferrous sulphate	04
8	Identification test of Sodium bicarbonate	04
9	Identification test of Calcium gluconate	04
10	Identification test of Copper sulphate	04
11	Preparation of inorganic pharmaceuticals Boric acid	04
12	Preparation of inorganic pharmaceuticals Potash alum	04
13	Preparation of inorganic pharmaceuticals Ferrous sulphate	04



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14	Swelling power of Bentonite	04
15	Neutralizing capacity of aluminum hydroxide gel	04

Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	Digital balance
2	Conical Flask
3	Beaker
4	Test Tube

Suggested Learning Websites

Sr. No.	Name of Website
1	https://pci.nic.in/pdf/Syllabus_B_Pharm.pdf
2	https://www.aicte-india.org/downloads/bpharma.pdf
3	https://www.ipc.gov.in/
4	https://www.ayush.gov.in/
5	https://ayudmla.gujarat.gov.in/home.php
6	https://www.fda.gov/
7	https://www.pharmacopoeia.com/
8	https://ipapharma.org/
9	https://gpat.nta.nic.in/
10	https://drnaitikrivedi.com/
11	https://gdc4gpat.com/course/gpat/
12	https://niscpr.res.in/
13	https://delnet.in/
14	https://ihubgujarat.in/
15	https://www.ssipgujarat.in/

Reference Books

Sr. No.	Name of Reference Books
1	A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London
2	A.I. Vogel, Text Book of Quantitative Inorganic analysis
3	P. Gundu Rao, Inorganic Pharmaceutical Chemistry
4	Bentley and Driver's Textbook of Pharmaceutical Chemistry
5	John H. Kennedy, Analytical chemistry principles
6	Anand & Chatwal, Inorganic Pharmaceutical Chemistry
7	Indian Pharmacopoeia.