



Shree H. N. Shukla Institute of Pharmaceutical Education & Research

(Affiliated to Gujarat Technological University, Approved by PCI)

Shree H. N. Shukla College Campus, Nr. Lalpari Lake, B/H. Marketing Yard,
Amargadh – Bhichari, Raikot. Mo. 9099063150, 9727753360

B.Pharm SEMESTER: I

Subject Name: PHARMACEUTICAL INORGANIC CHEMISTRY

Subject Code: BP104TP

Scope: This subject deals with the monographs of inorganic drugs and pharmaceuticals

Objectives: Upon completion of course student shall be able to

1. know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
2. understand the medicinal and pharmaceutical importance of inorganic compounds

Teaching scheme and examination scheme:

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	1	4	6	80	20	80	20

Sr No	Course Contents	Total Hrs
1	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 General methods of preparation , assay for the compounds superscripted with asterisk (*) , properties and medicinal uses of inorganic compounds belonging to the following classes	10
2	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. 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. Dental products: Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.	10
3	Gastrointestinal agents Acidifiers: Ammonium chloride* and Dil. HCl Antacid: Ideal properties of antacids, combinations of antacids, Sodium Bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture Cathartics: Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite Antimicrobials: Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations	10
4	Miscellaneous compounds Expectorants: Potassium iodide, Ammonium chloride*.	8



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	<p>Emetics: Copper sulphate*, Sodium potassium tartarate Haematinics: Ferrous sulphate*, Ferrous gluconate Poison and Antidote: Sodium thiosulphate*, Activated charcoal, Sodium nitrite³³³ Astringents: Zinc Sulphate, Potash Alum</p>	
5	<p>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.</p>	7

Practical

I Limit tests for following ions

Limit test for Chlorides and Sulphates
 Modified limit test for Chlorides and Sulphates
 Limit test for Iron
 Limit test for Heavy metals
 Limit test for Lead
 Limit test for Arsenic

II Identification test

Magnesium hydroxide Ferrous sulphate Sodium bicarbonate Calcium gluconate Copper sulphate

III Test for purity

Swelling power of Bentonite
 Neutralizing capacity of aluminum hydroxide gel
 Determination of potassium iodate and iodine in potassium Iodide
IV Preparation of inorganic pharmaceuticals
 Boric acid Potash alum Ferrous sulphate

Recommended Books (Latest Editions)

1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London, 4th edition.
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition
4. M.L. Schroff, Inorganic Pharmaceutical Chemistry
5. Bentley and Driver's Textbook of Pharmaceutical Chemistry
6. Anand & Chatwal, Inorganic Pharmaceutical Chemistry
7. Indian Pharmacopoeia

LEARNING OUTCOMES:

UNIT	LEARNING OUTCOME
1	Knowledge to Impurities in pharmaceutical substances.
2	Knowledge of Acids, Bases and Buffers.
3	Knowledge Gastrointestinal agents.
4	Knowledge to Miscellaneous compounds.
5	Knowledge to Radiopharmaceuticals.



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BOOK LIST:

Sr. no	Book name	Price (Rs.)
1	A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London, 4th edition.	1000/-
2	A.I. Vogel, Text Book of Quantitative Inorganic analysis.	525/-
3	P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition.	346/-
4	M.L Schroff, Inorganic Pharmaceutical Chemistry.	220/-
5	Bentley and Driver's Textbook of Pharmaceutical Chemistry.	495/-
6	Anand & Chatwal, Inorganic Pharmaceutical Chemistry .	173/-
7	Indian Pharmacopoeia Set (2018).	60,000/-