



VIDHYADEEP UNIVERSITY

VIDHYADEEP INSTITUTE OF PHARMACY, ANITA, SURAT



B. PHARMACY SEMESTER: I

Subject Name: PHARMACEUTICAL INORGANIC CHEMISTRY

Subject Code: BP104TP

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

Course Outcomes: Upon completion of this course the student should be able to

CO	STATEMENTS
C104.1	To discuss the history and concept of pharmacopoeia and examine impurities in inorganic pharmaceuticals
C104.2	To explain the method of preparation, assay, properties, medicinal uses of acids, bases, buffers
C104.3	To explain the method of preparation, assay, properties, medicinal uses extra and intracellular electrolytes and dental product
C104.4	To evaluate the medicinal importance of gastrointestinal agents
C104.5	To justify the medicinal importance of Expectorants, emetics, Haematinics and poison and its antidotes
C104.6	To inculcate the handling and applications of radiopharmaceuticals

Teaching Scheme and Examination Scheme:

Teaching Scheme (hr/ Week)				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Internal	External	Internal	External
				Theory Exam		Practical Exam	
3	1	4	8	25	75	25	75

Sr No	Course content	(hr)
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:	8

	<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*, Chlorinated lime*, Iodine and its preparations</p>	
4	<p>Miscellaneous compounds:</p> <p>Expectorants: Potassium iodide, Ammonium chloride*.</p> <p>Emetics: Copper sulphate*, Sodium potassium tartarate</p> <p>Hematinic: Ferrous sulphate*, Ferrous gluconate</p> <p>Poison and Antidote: Sodium thiosulphate*, Activated charcoal, Sodium nitrite³³³</p> <p>Astringents: Zinc Sulphate, Potash Alum</p>	8
5	<p>Radiopharmaceuticals:</p> <p>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: PHARMACEUTICAL INORGANIC CHEMISTRY

Subject Code: BP104TP (Practical)

- 1) Limit tests for following ions
- 2) Limit test for Chlorides and Sulphates
- 3) Modified limit test for Chlorides and Sulphates
- 4) Limit test for Iron
- 5) Limit test for Heavy metals
- 6) Limit test for Lead
- 7) Limit test for Arsenic
- 8) II Identification test Magnesium hydroxide Ferrous sulphate Sodium bicarbonate Calcium gluconate Copper sulphate
- 9) Test for purity
- 10) Swelling power of Bentonite
- 11) Neutralizing capacity of aluminum hydroxide gel
- 12) Determination of potassium iodate and iodine in potassium Iodide IV Preparation of inorganic pharmaceuticals
- 13) 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