Subject Name: PHARMACEUTICAL INORGANIC CHEMISTRY
Subject Code: 13PH0104

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

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<tr>
<th>Sr No</th>
<th>Course Contents</th>
<th>Total Hrs</th>
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<td>1</td>
<td><strong>Impurities in pharmaceutical substances:</strong> 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. <strong>General methods of preparation:</strong> assay for the compounds superscripted with an asterisk (*), properties and medicinal uses of inorganic compounds belonging to the following classes.</td>
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<td>2</td>
<td><strong>Acids, Bases and Buffers:</strong> 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. <strong>Major extra and intracellular electrolytes:</strong> 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. <strong>Dental products:</strong> Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.</td>
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<td>3</td>
<td><strong>Gastrointestinal agents</strong>&lt;br&gt;<strong>Acidifiers:</strong> Ammonium chloride* and Dil. HCl&lt;br&gt;<strong>Antacid:</strong> Ideal properties of antacids, combinations of antacids, Sodium Bicarbonate*, Aluminium hydroxide gel, Magnesium hydroxide mixture&lt;br&gt;<strong>Cathartics:</strong> Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite&lt;br&gt;<strong>Antimicrobials:</strong> Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations</td>
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<td><strong>Miscellaneous compounds</strong>&lt;br&gt;<strong>Expectorants:</strong> Potassium iodide, Ammonium chloride*.&lt;br&gt;<strong>Emetics:</strong> Copper sulphate*, Sodium potassium tartrate&lt;br&gt;<strong>Haematinics:</strong> Ferrous sulphate*, Ferrous gluconate&lt;br&gt;<strong>Poison and Antidote:</strong> Sodium thiosulphate*, Activated charcoal, Sodium nitrite333&lt;br&gt;<strong>Astringents:</strong> Zinc Sulphate, Potash Alum</td>
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<td><strong>Radiopharmaceuticals:</strong> Radio activity, Measurement of radioactivity, Properties of 𝛼, 𝛽, 𝛾 radiations, Half life, radio isotopes and study of radio isotopes - Sodium iodide 1131, Storage conditions, precautions &amp; pharmaceutical application of radioactive substances.</td>
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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)
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
4. M.L Schroff, Inorganic Pharmaceutical Chemistry
5. Bentley and Driver's Textbook of Pharmaceutical Chemistry
7. Indian Pharmacopoeia