

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Points** what is impurity Sources of Impurities in pharmaceuticals and methods to control

**Objective:** To study Sources of Impurities

**Topic Outcomes:** at the end of all topic you will

1 To know the Sources of Impurities in pharmaceutical preparations

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***References:***

1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points:** sources and types of impurities

**Objective:** To study Sources of Impurities

**Topic Outcomes:** at the end of all topic you will

1 To know the Sources of Impurities in pharmaceutical preparations

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***References:***

1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points:** principle, reaction and procedure involved in the limit test for chloride

**Objective:** To study limit test

**Topic Outcomes:** at the end of all topic you will

1 To know the control test for Impurities in pharmaceutical preparations

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***References:***

1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points:** limit test sulphate iron

**Objective:** To study limit test

**Topic Outcomes:** at the end of all topic you will

1 To know the control test for Impurities in pharmaceutical preparations

***References:***

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points :** limit test lead and heavy metals,

**Objective:** To study limit test

**Topic Outcomes:** at the end of all topic you will

1 To know the control test for Impurities in pharmaceutical preparations

***References:***

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points :** limit test arsenic

**Objective:** To study limit test

**Topic Outcomes:** at the end of all topic you will

1 To know the control test for Impurities in pharmaceutical preparations

***References:***

---

1. 1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
3. Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points :** Modified limit test for chloride and sulphate.

**Objective:** To study limit test

**Topic Outcomes:** at the end of all topic you will

1 To know understand the modification in test

To understand the control test for Impurities in pharmaceutical preparations

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***References:***

1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Points :** History of pharmacopoeia

**Objective:** To study importance the pharmacopoeia

**Topic Outcomes:** at the end of all topic you will

To understand the history of pharmacopoeia

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***References:***

1. 1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
3. Indian Pharmacopoeia 2008.



**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points : Water:** Different official waters

**Objective:** To study official water

**Topic Outcomes:** at the end of all topic you will

1 To know understand the modification in test

To understand the different official water prescribed as per pharmacopoeia and it preparations process

***References:***

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson – Impurities in pharmaceutical substances:**

**Sub Points :** Official control test for water

**Objective:** To study control test of official water

**Topic Outcomes:** at the end of all topic you will

1 To know understand the modification in test

To understand the control test of official water prescribed as per pharmacopoeia

***References:***

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
- Indian Pharmacopoeia 2008.

**Name of topic/lesson** – Acids, Bases and Buffers

**Sub Points** – Acids, Bases and Buffers: Buffer equations and buffer capacity in general,

**Objective:** To study importance of acid base and buffers

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, acid base and buffers in pharmaceutical preparations

Acids and Bases

There are various theories of acids and bases (e.g. Arrhenius theory, Bronsted Lowry theory and Lewis theory). These theories are actually different definitions for acids and bases. Since these are only definitions, we cannot say that one theory is more right or wrong than any other and further the use of a particular theory is for a particular chemical situation i.e. whether we are considering ionic reactions in aqueous solution, in non-aqueous solutions or in a fused melt and whether we are measuring the strengths of acids and bases.

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
-

**Name of topic/lesson** – Acids, Bases and Buffers

**Sub Points** – Buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions.

**Objective:** To study importance of acid base and buffers

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, acid base and buffers in pharmaceutical preparations

**Introduction** : Buffers are widely employed in the field of pharmaceutical chemistry and pharmacy. They are used as ingredients in pharmaceutical preparations either to adjust the pH of the preparation to a value required for maximum stability or to maintain the pH within a specified range for optimal physiological activity. Control of pH is an important aspect to be considered for chemical stability and solubility of the drug and for patient comfort.

**Composition of standard buffer solutions:**

**Selection of pharmaceutical buffer:**

**Selection Criteria of Antioxidants:**

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
  4. Bentley & Driver's Text Book of Pharmaceutical Chemistry Revised by L. M. Atherden, 8<sup>th</sup> edition, Oxford Medical Publications.
-

**Name of topic/lesson** – Acids, Bases and Buffers

**Sub Points Helium**, Measurements of tonicity, calculations and methods of adjusting isotonicity.

**Objective:** To study importance of acid base and buffers

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, acid base and buffers in pharmaceutical preparations

Methods of calculating Isotonicity

Freezing Point Method:

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 14**

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**Name of topic/lesson** – b) Major extra and intracellular electrolytes:

**Sub Points** –Functions of major physiological ions.

**Objective:** To study importance of Major extra and intracellular electrolytes:

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, Major extra and intracellular electrolytes:

About 56% of the adult human body is fluid. Although most of this fluid is inside the cells and is called intracellular fluid, about one third is in the space outside the cells and is called extracellular fluid. The extracellular fluid is in constant motion throughout the body. In the extracellular fluid are the ions and nutrients needed by the cells for the maintenance of cellular life. Therefore, all the cells live in essentially the same environment, the extracellular fluid, for which reason the extracellular fluid is called internal environment of the body

Measurement of electrolyte concentrations (plasma) is usually limited to  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cl}^-$ , and  $\text{HCO}_3^-$ . The sum of the concentration of sodium and unmeasured cations ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{K}^+$ ) equals the sum of the concentration of  $\text{Cl}^-$  and  $\text{HCO}_3^-$  and unmeasured anions (phosphates, proteins, sulphates, derivatives of organic acids).

### **References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
  4. Remington The Science and Practice of Pharmacy by Remington, 20<sup>th</sup> edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 15**

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**Name of topic/lesson** – b) Major extra and intracellular electrolytes:

**Sub Points** – Electrolytes used in the replacement therapy: Sodium chloride\*

Sodium

**Objective:** To study importance of electrolytes in replacement therapy

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, Major extra and intracellular electrolytes:

The sodium and its associated anions, mainly chloride, account for more than 90% of the solute in extracellular fluid compartment. The concentration of sodium is 142mEq/l in extracellular fluid, and 10 mEq/l in intracellular fluid. Plasma sodium is a reasonable indicator of plasma osmolarity under many conditions. When plasma sodium is reduced below normal level a person is said to have hyponatremia. When plasma sodium is elevated above normal level a person is said to have hypernatremia.

To discuss the General methods of preparation and assay for compounds superscripted with asterisk (\*). Properties and Medicinal uses of Inorganic Compounds belonging to the following classes

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
  4. Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins.
-

**Name of topic/lesson – b) Major extra and intracellular electrolytes:**

**Sub Points – Potassium chloride, Calcium gluconate\* and Oral Rehydration Salt (ORS)**

**Points –**Functions of Oral Rehydration Salt (ORS)

**Objective:** To study importance of Oral Rehydration Salt (ORS)

**Topic Outcomes:** at the end of all topic you will

1 To know the concept of ORS

To discuss the General methods of preparation and assay for compounds superscripted with asterisk (\*). Properties and Medicinal uses of Inorganic Compounds belonging to the following classes

**Oral Rehydration Salt (ORS)**

Combinations of glucose and saline solutions are usually sufficient in short term therapy for restoring electrolyte loss. But in severe deficit of electrolytes due to heavy blood loss or chronic diarrhea, solutions containing additional electrolytes are usually required. The combination products are of two types :

1. fluid maintenance therapy
2. electrolyte replacement therapy

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
3. . Indian Pharmacopoeia

Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins



**Name of topic/lesson** – b) Major extra and intracellular electrolytes:

**Sub Points** – Physiological acid base balance.

**Objective:** To study importance of Physiological acid base balance.

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, Physiological acid base balance.

Abnormalities of the pH of body are frequently encounter and are of major clinical importance. Acedemia and alkalemia refer respectively to an abnormal decrease or increase in the pH of the blood. Acidosis and alkalosis refer respectively to clinical state that can lead to either acedemia or alkalemia. However in each condition the extent to which there is an actual change in pH depends in part on the degree of compensation which varies in most clinical disturbances. It is most convenient to evaluate clinical disturbances of pH by reference to  $\text{HCO}_3^- - \text{H}_2\text{CO}_3$  System

**References:**

1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
3. . Indian Pharmacopoeia

Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins

**Name of topic/lesson** – Dental products

**Sub Points** – Dentifrices

**Objective:** To study importance of dental products and its daily use

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of dental products, proper use

It is also known as Dental caries, or tooth decay, involves a gradual demineralization (softening) of the enamel and dentin.

If it is not treated then microorganisms may invade the pulp, causing inflammation and infection, with subsequent death of the pulp and abscess of the alveolar bone surrounding the root's apex, requiring root canal therapy.

2. To understand the process of dental caries.

3. To understand chemical details and use of compounds

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  - . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
-

**Name of topic/lesson – Dental products**

**Sub Points-** Anti-caries agents. Role of fluoride in the treatment of dental caries

**Objective:** To study importance of dental products and its daily use

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of dental products, proper use

It is also known as Dental caries, or tooth decay, involves a gradual demineralization (softening) of the enamel and dentin.

If it is not treated then microorganisms may invade the pulp, causing inflammation and infection, with subsequent death of the pulp and abscess of the alveolar bone surrounding the root's apex, requiring root canal therapy.

2. To understand the process of dental caries.

3. To understand chemical details and use of compounds

4. To study role of fluoride in treatment of dental caries.

5. The application of fluoride in daily used dental products.

**References:**

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5. 1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.

6. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry

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**Name of topic/lesson – Dental products**

**Sub Points** – Desensitizing agents, Calcium carbonate,

**Objective:** To study importance of dental products and its daily use

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of dental products, uses of Desensitizing agents

Desensitizing agents reduce the pain in sensitive teeth caused by cold, heat or touch.

a. These products should be non-abrasive and should not be used on a regular basis unless directed by a dentist

3. To study chemical details and use of compounds

4. The application of Desensitizing agents used dental products.

**References:**

1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
- . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry

**Name of topic/lesson – Dental products**

**Sub Points –** Sodium fluoride and Zinc eugenol cement.

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of dental products, uses of Desensitizing agents

Desensitizing agents reduce the pain in sensitive teeth caused by cold, heat or touch.

a. These products should be non-abrasive and should not be used on a regular basis unless directed by a dentist

3. To study chemical details and use of compounds

4. The application of Desensitizing agents used dental products.

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  - . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.22**

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**Name of topic/lesson** – Gastrointestinal agents

**Sub point : introduction**

**Objective:** To know the concept of Gastrointestinal agents

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Gastrointestinal agents and classification of Agents as per there mechanism of action

**References:**

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6. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  7. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  8. . Indian Pharmacopoeia
-

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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.23**

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**Name of topic/lesson** – Gastrointestinal agents

**Points – Acidifiers**

Ammonium chloride\* and Dilute hydrochloric acid

**Objective:** To study Acidifiers as Gastrointestinal agents

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

---

9. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  10. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 11.. Indian Pharmacopoeia
-

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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 24**

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**Name of topic/lesson** – Gastrointestinal agents

**Sub Points** – Antacid: Ideal properties of antacids, combinations of antacids,

**Objective:** To study inorganic chemicals used as Antacids

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

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7. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  8. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  9. . Indian Pharmacopoeia
  10. Bentley & Driver's Text Book of Pharmaceutical Chemistry Revised by L. M. Atherden, 8<sup>th</sup> edition, Oxford Medical Publications.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.25**

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**Name of topic/lesson** – Gastrointestinal agents

**Sub Points,** Antacids Sodium Bicarbonate\*, Aluminum hydroxide gel,.

**Objective:** To study inorganic chemicals used as Antacids

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

---

4. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  5. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  6. . Indian Pharmacopoeia
-

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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 26**

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**Name of topic/lesson** – Gastrointestinal agents

**Points** – Magnesium hydroxide mixture Cathartics

**Objective:** To study inorganic chemicals used as (cathartics) Gastrointestinal agents

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

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5. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  6. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  7. . Indian Pharmacopoeia
  8. Remington The Science and Practice of Pharmacy by Remington, 20<sup>th</sup> edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.27**

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**Name of topic/lesson** – Gastrointestinal agents

**Sub Points** – Cathartics: Magnesium sulphate, Sodium orthophosphate,

**Objective:** To study inorganic chemicals used as (cathartics) Gastrointestinal agents

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

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5. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  6. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  7. . Indian Pharmacopoeia
  8. Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.28**

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**Name of topic/lesson** – Gastrointestinal agents

**Points** – Protectives and Adsorbents: Kaolin and Bentonite

**Objective:** To study inorganic chemicals used as Protectives and Adsorbents mucosal layer and intestinal tract

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
  4. Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.29**

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**Name of topic/lesson** – Antimicrobials

**Sub Points Helium,** Potassium permanganate, Boric acid, Hydrogen peroxide\*

**Objective:** To study Antimicrobials

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Antimicrobials

Definition

Classifications

Mechanism of action

**References:**

- 
7. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  8. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  9. . Indian Pharmacopoeia
-

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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 30**

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**Name of topic/lesson** – Antimicrobials

**Sub Points** – Chlorinated lime\*, Iodine and its preparations

**Objective:** To study inorganic chemicals used as Antimicrobials

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

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9. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  10. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 11.. Indian Pharmacopoeia
  12. Remington The Science and Practice of Pharmacy by Remington, 20<sup>th</sup> edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.31**

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**Name of topic/lesson – Antimicrobials**

**Sub Points –** Hydrogen peroxide solution, Sodium perborate, Zinc peroxide, Potassium permanganate

**Objective:** To study inorganic chemicals used as Antimicrobials

**Topic Outcomes:** at the end of all topic you will

1 To know the preparation, properties, uses and storage conditions of chemicals

**References:**

---

9. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  10. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 11.. Indian Pharmacopoeia
  12. Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins.
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**Name of topic/lesson – Miscellaneous agents**

**Sub Points** – Expectorants: Ammonium chloride, potassium iodide

**Objective:** To study importance of Expectorants and its use in cough preparation

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Expectorants and chemicals used in it

Expectorants are drugs which enhance the secretion of the sputum by the air passages so that it is easier to remove the phlegm through coughing

MOA: they act either

1. by increasing the bronchiole secretion or
  2. by making it less viscous (mucolytic agents)
- **Potassium Iodide** stimulates the gastric mucosa and reflexly increases the bronchiole secretion .
  - **Amonium chloride** acts like potassium iodide but is less potent Antimony potassium tatratre also used as expectorant.

**References:**

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12. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  13. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 14.. Indian Pharmacopoeia
-



**Name of topic/lesson – Miscellaneous agents**

**Sub Points** – Emetics: Copper sulphate\* , Sodium potassium tartarate

**Objective:** To study importance of Emetics in various conditions

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, Emetics

These are the drugs which give rise to forced regurgitation (emesis) by which the contents of the stomach get expelled through the oral cavity.

To discuss General methods of preparation and assay for compounds superscripted with asterisk (\*). Properties and Medicinal uses of Inorganic Compounds belonging to the following classes

**References:**

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11. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  12. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 13.. Indian Pharmacopoeia
  14. Bentley & Driver's Text Book of Pharmaceutical Chemistry Revised by L. M. Atherden, 8<sup>th</sup> edition, Oxford Medical Publications.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 34**

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**Name of topic/lesson – Miscellaneous agents**

**Sub Points Helium**, Haematinics: Ferrous sulphate\*, Ferrous gluconate

**Objective:** To study importance of Haematinics

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, Haematinics preparations

- HAEMATINICS are the agents used for formation of blood to treat various types of anaemia's. These include: Iron, Vitamin B12 and Folic Acid.
  
- ANAEMIA
  
- **DISTRIBUTION OF IRON IN BODY**
- **FACTORS FACILITATING IRON ABSORPTION**
- **IRON DEFICIENCY ANAEMIA**

**References:**

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10. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  
  11. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  
  - 12.. Indian Pharmacopoeia
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 35**

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**Name of topic/lesson** – Miscellaneous agents

**Sub Points – Poison and Antidote**

**Objective:** To study importance of Antidote

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, Antidote in poisonous conditions and there uses

Antidote is an agent that counteracts or works against or neutralizes a poison.

Classified depend upon antidotal action:

Cyanide poisoning:

**References:**

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13. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  14. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 15.. Indian Pharmacopoeia
  16. Remington The Science and Practice of Pharmacy by Remington, 20<sup>th</sup> edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 36**

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**Name of topic/lesson – Miscellaneous agents**

**Sub Points – Poison and Antidote:** Sodium thiosulphate\*, Activated charcoal, Sodium nitrite

**Objective:** To study chemicals used as antidote

**Topic Outcomes:** at the end of all topic you will

To discuss General methods of preparation and assay for compounds superscripted with asterisk (\*).

Properties and Medicinal uses of Inorganic Compounds belonging to the following classes

**References:**

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13. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  14. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  - 15.. Indian Pharmacopoeia
  16. Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 37**

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**Name of topic/lesson – Miscellaneous agents**

**Sub Points Astringents:** Zinc Sulphate, Potash Alum

**Objective:** To study Astringents and classification

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of, acid base and buffers in pharmaceutical preparations

An astringent (occasional alternative: adstringent) substance is a chemical compound that tends to shrink or

constrict body tissues and precipitate the protein and astringent form protective layer on the surface.

- Due to their protein action, astringents are able to reduce the cell permeability

To discuss General methods of preparation and assay for compounds superscripted with asterisk (\*).

Properties and Medicinal uses of Inorganic Compounds belonging to the following classes

**References:**

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1. Inorganic, Medicinal and Pharmaceutical Chemistry by J. H. Block, E. B. Roche, Indian edition, Varghese Publication.
  2. . Harkishan Singh & A. K. Kapoor – Principles of Inorganic Chemistry
  3. . Indian Pharmacopoeia
  4. Remington The Science and Practice of Pharmacy by Remington, 20th edition, Lipincott, William and Wilkins.
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**Class- Final Year B. Pharm**

**Subject- PA III**

**Subject Incharge- HPA**

**Lecture Synopsis No. 38**

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**Name of topic/lesson – Radiopharmaceuticals**

**Sub Points – Radiopharmaceuticals**

**Objective:** To study importance Radiopharmaceuticals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Radiopharmaceuticals, proper use

**Introduction**

To understand the concept of nuclear chemistry and isotopes

**References:**

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15.Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson  
Brookslcole.

16. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B.  
Stenlake, Anthlone Press of the University of London.

17.Instrumental Methods of Chemical Analysis by BK Sharma, Goel  
Publishing House.

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**Name of topic/lesson – Radiopharmaceuticals**

**Sub Points** – Radio activity, measurement of radioactivity

**Objective:** To study importance Radiopharmaceuticals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of radioactivity and there methods

Methods of nuclear radiation measurement:

Techniques is based upon detection & measurement of activity

Dived into 2 categories

Depending upon collection if ions e.g. Geiger Muller counter (GM counter)

Depending upon collection of photons e.g. Scintillation counter

**References:**

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1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No. 40**

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**Name of topic/lesson – Radiopharmaceuticals**

**Sub Points:** Properties of  $\alpha$ ,  $\beta$ ,  $\gamma$  radiations, half-life, radio isotopes

**Objective:** To study importance Radiopharmaceuticals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of radiations and half of radioisotopes

To know the concept of various radiations and there Types of radioactive decay with applicability

**References:**

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1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.41**

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**Name of topic/lesson – Radiopharmaceuticals**

**Sub Points** Study of radio isotopes - Sodium iodide<sup>131</sup>

**Objective:** To study importance Study of radio isotopes

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Study of radio isotopes, and proper uses

**References:**

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1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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**Name of topic/lesson – Radiopharmaceuticals**

**Sub Points** – Indium<sup>111</sup>, Calcium<sup>47</sup>, Chromium<sup>51</sup>

**Objective:** To Study radio isotope chemicals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Study o radio isotope chemicals properties, storage and uses

**References:**

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1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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**Class- First Year B. Pharm**

**Subject- PIC**

**Subject Incharge- HPA**

**Lecture Synopsis No.43**

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**Name of topic/ Radiopharmaceuticals**

**Sub Points** – Erbium169, Gallium68, Technetium99m ,

**Objective:** To Study radio isotope chemicals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Study o radio isotope chemicals properties, storage and uses

**References**

1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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**Name of topic/ Radiopharmaceuticals**

**Sub Points** – Storage conditions, precautions & pharmaceutical applications of radioactive substances

**Objective:** To Study precautions and uses radio isotope chemicals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Study precautions and uses radio isotope chemicals

**References**

1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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**Name of topic/ Radiopharmaceuticals**

**Sub Points** – Storage conditions, precautions & pharmaceutical applications of radioactive substances

**Objective:** To Study precautions and uses radio isotope chemicals

**Topic Outcomes:** at the end of all topic you will

1 To know the importance of Study precautions and uses radio isotope chemicals

**References**

1. Principles of Instrumental Analysis by Skoog, 5<sup>th</sup> edition, Thomson Brookscole.
  2. Practical Pharmaceutical Chemistry (Vol. II & I), A.H. Beckett and J.B. Stenlake, Anthlone Press of the University of London.
  3. Instrumental Methods of Chemical Analysis by BK Sharma, Goel Publishing House.
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