

ST. JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

II SEMESTER

CHEMISTRY

TIME: 3Hrs/Week

CH-Ma2-2201(3)

INORGANIC CHEMISTRY-I

Marks:100

W.e.f. 2023-24 admitted batch (23AK) SYLLABUS

Course Objective: To enable students to understand and apply concepts pertaining to the classification, properties and uses of p, d and f block elements along with the preparation methods and applications of selected compounds of these elements.

Course Outcomes:

At the end of the course, the student will be able to:

- Understand the basic concepts of p-block elements.
- Explain the concepts of d-block elements
- Distinguish lanthanides and actinides.
- Describe the importance of radioactivity.

SYLLABUS:

UNIT-I: CHEMISTRY OF P-BLOCK ELEMENTS – I: (9h)

Group13: Preparation & structure of Diborane, Borazine and $(BN)_x$.

Group14: Preparation, classification and uses of silicones and Silanes.

Group 15: Preparation & structure of Phosphonitrilic Chloride $P_3N_3Cl_6$

UNIT-II: CHEMISTRY OF P-BLOCK ELEMENTS– II: (9h)

Group 16: Classification of Oxides, structures of oxides and Oxoacids of Sulphur

Group 17: Preparation and Structures of Interhalogen compounds.

Pseudohalogens.

UNIT – III: CHEMISTRY OF D-BLOCK ELEMENTS: (9h)

Characteristics of d-block elements with special reference to electronic configuration, variable valence, colour, magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states of 3d series-Latimer diagrams.

UNIT-IV: CHEMISTRY OF F-BLOCK ELEMENTS: (9h)

Chemistry of lanthanides electronic configuration, oxidation states, lanthanide contraction, consequences of lanthanide contraction, colour, magnetic properties.

Separation of lathanides by ion exchange method.

Chemistry of actinides-electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

UNIT-V: RADIOACTIVITY:

(9h)

Definition, Isotopes, n/p ratio, binding energy, types of radioactivity, Soddy-Fajan's displacement law, Law of Radioactivity, Radioactive decay series, Nuclear Reactions-fission and fusion, Applications of radioactivity.

LIST OF REFERENCE BOOKS:

1. Basic Inorganic Chemistry by Cotton and Wilkinson
2. Advance Inorganic chemistry vol-I by Satya Prakash
3. Inorganic chemistry by Puri and Sharma
4. Concise Inorganic Chemistry by J DLee
5. Nuclear Chemistry by Maheshwar Sharon,2009

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