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 OUTCOMES:**

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

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

**SYLLABUS:**

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

Group 13: Preparation & structure of Diborane, Borazine and (BN)x.

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

Group 15: Preparation & structure of Phosphonitrilic Chloride P3N3Cl6

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

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: 9 h**

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: 9 h**

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: 9 h**

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 D Lee
  5. Nuclear Chemistry by Maheshwar Sharon, 2009

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