PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

23CHMAL122: INORGANIC CHEMISTRY- I

Offered to: B.Sc. Honours (Chemistry) **Course Type:**Major 4 (Core -TH)

Year of Introduction: 2023-24 **Year of offering: 2023 - 2024**

Semester: II 60 Hrs **Credits: 3**

Course Outcomes: At the end of the course the student will be able to

Course Outcome NO	Outcome	Mapping to
CO1	Remember the basic concepts of p,d,f, block and radio active elements.	PO1
CO2	Understand preparation and structures of p,d,f, block and radio active elements.	PO2
CO3	Applying the concepts of p,d,f, block and radio active elements.	PO2
CO4	Analyzing properties of p,d,f, block and radio active elements.	PO1
CO5	Create awareness on importance of inorganic chemistry.	PO1

CO-PO MATRIX								
	CO-PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
23CHMAL122	**CO1**	M						
	CO2		M					
	CO3		M					
	CO4	H						
	CO5	H						

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.

Text Book:

1. Inorganic chemistry by dr. r.l.madan and g.d. tuli.

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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MODEL PAPER FOR SEMESTER END EXAMINATION

23CHMAL122: INORGANIC CHEMISTRY- I

Major 4 B.Sc. Honours (Chemistry) Semester II

Time: 3 hours Maximum Marks: 70M

Section - A 5 X 4 = 20 Marks

Answer the following questions. Each Question carries FOUR marks

1. a) Describe Preparation & structure of Borazine. **L1-CO1**

Or

b) Discuss Preparation & structure of Phosphonitrilic Chloride. **L1-CO1**

2. a)Tell structures of oxides and Oxo acids of Sulphur. **LI -CO2**

Or

b) Describe Pseudo halogens. **L1-CO2**

3. a) Explain electronic configuration of d-block elements. **L2-CO3**

Or

b) Explain ability to form complexes of d-block elements. **L2-CO3**

4. a) compare lanthanides and actinides . **L2-CO4**

Or

b) State electronic configuration of lanthanides. **L2-CO4**

5. a) Define Isotopes and n/p ratio. **L2-CO5**

Or

b) Define Nuclear Reactions-fission and fusion. **L2-CO5**

Section – B

Answer ALL the questions. Each Question carries TEN marks

5X 10M = 50M

6 (a). Explain Preparation & structure of Diborane.**L2-CO1**

(or)

(b). Explain Preparation, classification and uses of silicones and Silanes**. L2-CO1**

7 (a). Discuss Classification of Oxides with an examples. **L1-CO2**

(or)

(b). Describe Preparation and Structures of Interhalogen compounds. **L1-CO2**

8.(a). Explain variable valence, magnetic properties and catalytic properties of d-block elements.

(or)

(b). Explain colour and Stability of various oxidation states of 3d series. **L1-CO3**

9.(a). Explain lanthanide contraction and what are the consequences of lanthanide contraction. **L2-CO4**

(or)

(b). Explain Separation of lanthanides by ion exchange method. **L2-CO4**

10.(a).Discuss types of radioactivity and Soddy-Fajan's displacement law. **L2-CO5**

(or)

(b). Discuss Radioactive decay series and Applications of radioactivity. **L2-CO5**