

with Coordination numbers 4 and 6. Geometrical Isomerism of complexes with Coordination numbers 4 and 6. Stability of metal complexes Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method. Spectral and magnetic properties of metal complexes Types of magnetic behavior, spin-only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility-Gouy method.

UNIT – III:

5. Reactivity of metal complexes and Bioinorganic chemistry

Labile and inert complexes, ligand substitution reactions - SN^1 and SN^2 , substitution reactions of square planar complexes - Trans effect and applications of trans effect. Essential elements, biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and Cl. Metalloporphyrins – Structure and functions of hemoglobin, Myoglobin and Chlorophyll.

6. Solidstate

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravais lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Defects in crystals. Stoichiometric and non-stoichiometric defects.

REFERENCE BOOKS:

1. Advanced Inorganic chemistry by Gurudeep Raj
2. Concise Inorganic Chemistry by J.D.Lee
3. Unified Chemistry (Vol.) (B.Sc. I) – Y.R.Sharma & Dr. K.Rama Rao - Kalyani Publishers, Ludhjana. Fourth Revised and Enlarged Edition (2013 , Reprint)
4. Unified Chemistry (Vol.2) (B.Sc. II) – Y.R.Sharma & Dr. K.Rama Rao - Kalyani Publishers, Ludhjana. Fourth Revised and Enlarged Edition (2013, Reprint)
5. Unified Chemistry (Vol.2) (B.Sc. III) – Y.R.Sharma & Dr. K.Rama Rao - Kalyani Publishers, Ludhjana. Fourth Revised and Enlarged Edition (2013, Reprint)
6. Advanced Inorganic Chemistry – F.A.Cotton & G.Wilkinson – Inter Science Publishers, New York.
7. Modern Aspects of Inorganic Chemistry – IV Edition – H.J.Emeleus & A.G.Sharpe – ELBS, Great Britain.
8. Inorganic Chemistry – 20th Edition – P.L.Soni – Sultan Chand & Sons, New Delhi.
9. Man-made Transuranium Elements – Glenn T.Seaborg – Prentice – Hall, N.J.
10. Coordination Compounds – D.F.Martin & B.B.Martin – McGraw-Hill Book Company, New York.
11. Coordination Chemistry – F.Basolo & R.Johnson-W.A.Benjamin Inc. , California.
12. Test Book of Physical Chemistry – 2nd Edition – S.Glasstone – Macmillan & Co.Ltd., London.
13. Solid State Chemistry and its applications by Anthony R. West

Practical paper - IV

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
IV SEMESTER CHEMISTRY TIME: 3Hrs/Week
CH 4251 (2) VOLUMETRIC ANALYSIS - II Marks: 50
w. e .f 2017-2018'AE' batch PRACTICAL SYLLABUS

OBJECTIVES: To enable the students to –

- Conduct experiments designed for volumetric analysis
- Interpret experimental/investigative data
- Apply theory-based tools to solve simple chemical problems related to subject areas
- Understand the use of conductometers and apply them to estimate the strength of acids

1. Determination of Cu(II) using $\text{Na}_2\text{S}_2\text{O}_3$ with $\text{K}_2\text{Cr}_2\text{O}_7$ as primary standard.
2. Determination of concentration of HCl conductometrically using standard NaOH solution.
3. Determination of concentration of acetic acid conductometrically using standard NaOH Solution.

REFERENCES:

1. Vogel's Text Book of Quantitative Inorganic Analysis, IV Edition J.Bassett, R.C.Denny, G.H.Jeffery, J.Mendhan ELBS/Longman, England
2. Instrumental methods of chemical analysis B.K.Sharma GOEL Publishing House, Meerut, 26th Edition.
3. Practical Monograph prepared by the Department.