

Syllabus

PANJAB UNIVERSITY

B.Sc.II [SEMESTER-IV]

PAPER-XIII : INORGANIC CHEMISTRY-B

Time : 3 Hrs.

Max. Marks : 22+3
60 Hrs. (2 Hrs/Week)
3 Periods/Week

Instructions for the Paper Setters and Candidates

- Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.
- The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.
- Compulsory question carries six marks and remaining all questions carry four marks each.

UNIT—I

8 Hrs.

Chemistry of Lanthanide Elements :

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

Chemistry of Actinides :

General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from U, similarities between the later actinides and the later lanthanides.

UNIT—II

7 Hrs.

Acids and Bases :

Arrhenius, Bronsted-Lowry, the Lux-Flood, solvent system and Lewis concepts of acids and bases.

UNIT—III

8 Hrs.

Oxidation and Reduction :

Use of redox potential data – analysis of redox cycle, redox stability in water – Frost, Latimer and Pourbaix diagrams. Principles involved in the extraction of the elements.

UNIT—IV

7 Hrs.

Non-aqueous Solvents :

Physical properties of a solvent, types of solvents and their general characteristics, reactions in non-aqueous solvents with reference to liquid NH_3 and liquid SO_2 .