Inorganic Chemistry-II (M = 35)

Unit 1 (M = 15)

Comparative study of p-block elements

Group trends in electronic configuration, common oxidation states, inert pair effect, and their important compounds in respect of the following groups of elements: i) B-AI-Ga-In-Tl ii) C-Si-Ge-Sn-Pb iii) N-P-As iv) O-S v) F-CI-Br-I

Unit 2 (M = 10)

Acid-Base concept

Arrhenius and Bronsted-Lowry's concept, relative strength of acids bases, amphoterism, Lux-Flood concept, Lewis concept. HSAB principle (qualitative idea).

Redox chemistry

Balancing of equations by ion-electron methods, elementary idea on standard redox potentials with sign convention, Nemst equation (without derivation). Influence of complex formation and change of pH on redox potentials, formal potential, feasibility of a redox titration, redox indicators, disproportionation and comproportionation reactions (typical examples).

Unit 3 (M = 10)

Ores and minerals (containing some typical non-transition, transition and inner transition elements).

Extraction, purification and uses ofthe following elements: Li, Si, Cr, Mn, Ni, Ag, Au, U.

Preparation, use and analytical application (if any) of the following compounds: KMn04' ~Cr04' $K_2Cr_20_7$, $AgN0_3$•

Inorganic Practical-II (M = 15)

Quantitative analysis

Experiment-I: Standardization of KMn04 solution by standard oxalic acid solution (supplied) and estimation of Fe^{2}+ in Mohr's salt solution by KMn04 solution.

Experiment-2: Standardization of KMn04 solution by standard oxalic acid solution (supplied) and estimation of Fe^{2}+ and Fe^{3}+ in a mixture by KMn04 solution.

Experiment-3: Estimation of i) Fe^{2}+ in Mohr's salt solution, ii) Fe^{3}+ in a solution by standard $K_2Cr_20_7$ solution (supplied).

Experiment-4: Estimation of Fe^{2+} and Fe^{3+} in a mixture by standard $K_2Cr_20_7$ solution (supplied).