Syllabus

PANJAB UNIVERSITY, CHANDIGARH

B.Sc. Part–III [Semester–VI]

Paper-XXI : Inorganic Chemistry-B

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

Instructions for paper setters and candidates :

(*i*) *Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.*

(*ii*) *The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.*

(*iii*) *Compulsory question carries six marks and remaining all questions carry four marks each.*

UNIT–I (7 Hrs.)

Silicones and Phosphazenes :

Silicones and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.

UNIT–II (8 Hrs.)

Hard and Soft Acids and Bases (HSAB) :

Classification of acids and bases as hard and soft, Pearson's HSAB concept, acid-base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness.

UNIT–III (8 Hrs.)

Electronic Spectra of Transition Metal Complexes :

Types of electronic transitions, L – S coupling, selection rules for *d–d* transitions, spectroscopic ground states, Orgel – energy level diagram for d^1 and d^9 states, discussion of the electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion.

UNIT–IV (7 Hrs.)

Magnetic Properties of Transition Metal Complexes :

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. Correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment data for 3*d*-metal complexes.