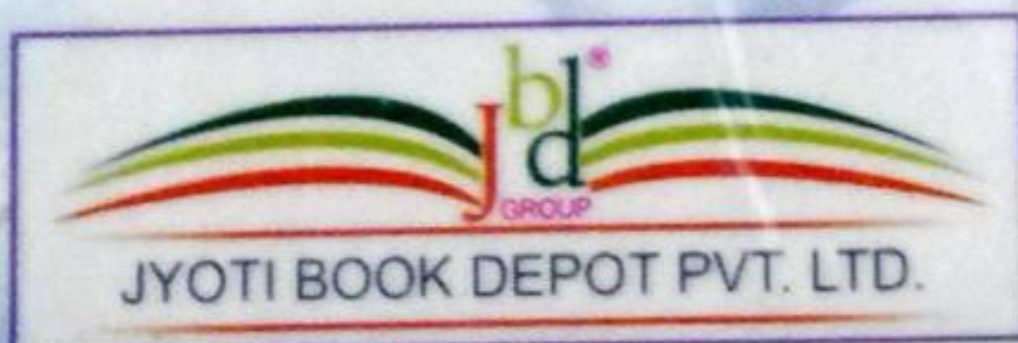
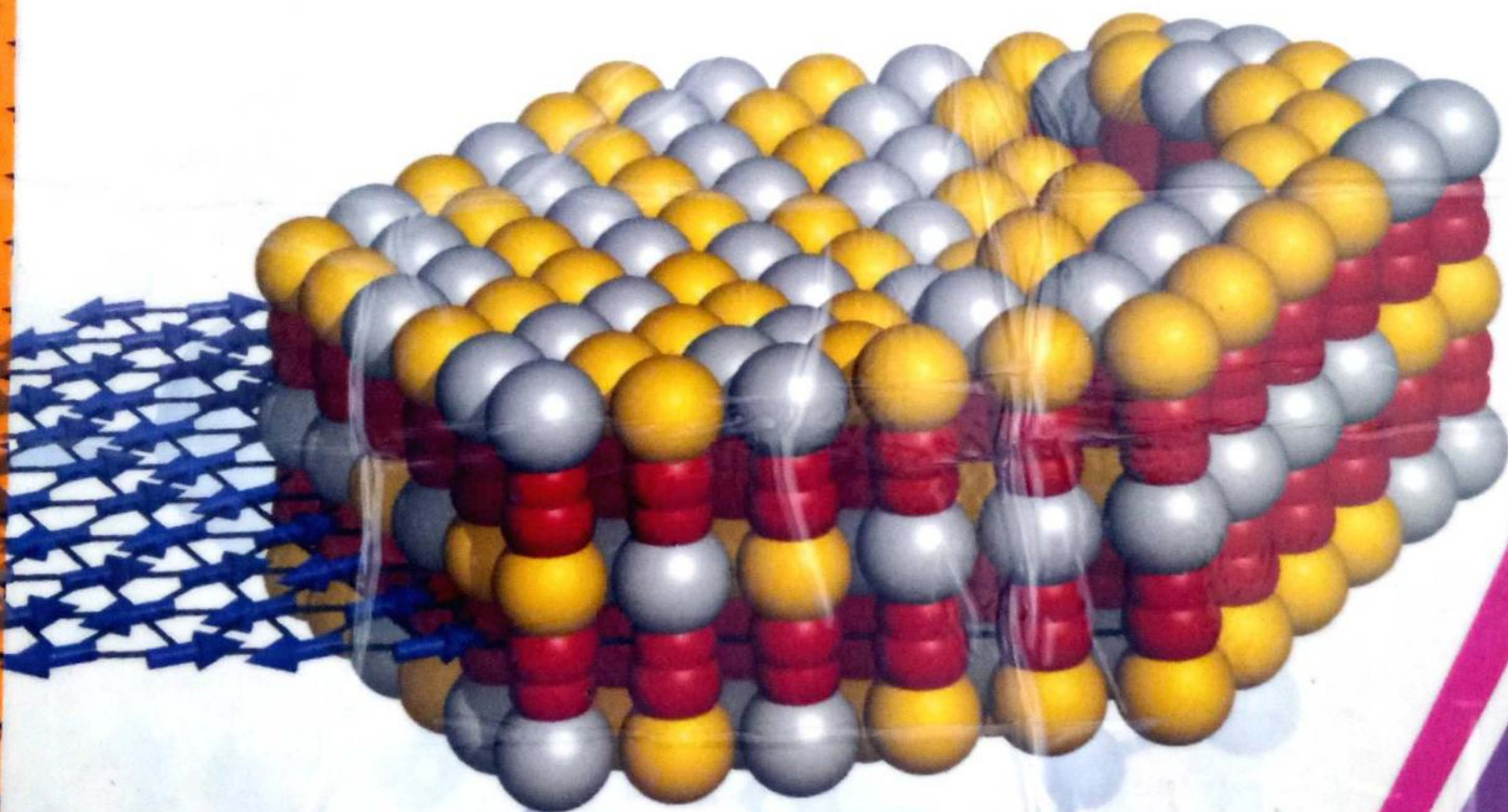




INORGANIC CHEMISTRY

[1st SEMESTER]

B.Sc - I



CONTENTS

1. Atomic Structure	1/1 — 1/66
1.1 Introduction	1/1
1.2 Towards Quantum Mechanical Model of Atom	1/1
1.3 Quantum Mechanical Model of Atom-Modern Concept of Atomic Structure	1/15
1.4 Concept of Orbitals	1/20
1.5 Orbitals and Quantum Numbers	1/21
1.6 Pauli Exclusion Principle	1/29
1.7 Orbital Wave Functions and Shapes of Orbitals	1/30
1.8 Wave Functions of Hydrogen Atom	1/31
1.9 Plots of Radial Probability Density (R^2), Radial Probability Functions and Angular Wave Functions	1/35
1.10 Plots of Total Probability Density (ψ^2) – Shapes of Atomic Orbitals	1/37
1.11 Energies of Atomic Orbitals	1/40
1.12 Filling of Orbitals in Atoms	1/42
1.13 Electronic Configuration of Some Elements	1/44
1.14 Screening Effect and Effective Nuclear Charge	1/53
2. Periodic Table and Atomic Properties	2/1 — 2/42
2.1 Introduction	2/1
2.2 Development of the Periodic Table	2/1
2.3 Modern Periodic Table or Long form of Periodic Table	2/1
2.4 Nomenclature of the Elements with Atomic Number more than 100	2/5
2.5 Division of Periodic Table into s-, p-, d- and f-blocks of Elements	2/6
2.6 Periodicity and Periodic Properties	2/9
2.7 Atomic Size or Atomic Radius	2/10
2.8 Ionic Radii	2/15
2.9 Ionization Energy or Ionization Potential	2/20
2.10 Electron Affinity	2/25
2.11 Electronegativity	2/29
2.12 Difference Between Electronegativity and Electron Affinity	2/36

3. Covalent Bond	3/1 — 3/44
3.1 Introduction	3/1
3.2 Characteristics of Covalent Compounds	3/1
3.3 Theoretical Approach to Covalent Bond	3/1
3.4 Phenomenon of Resonance-Resonance Structures	3/7
3.5 Directional Character of Covalent Bond	3/10
3.6 Types of Overlapping and Nature of Covalent Bonds	3/10
3.7 Hybridisation	3/14
3.8 Valence Shell Electron-Pair Repulsion (VSEPR) Theory	3/28
3.9 Effect of Electronegativity on the Shapes of Molecules	3/36
3.10 Molecular Orbital Theory	3/39
3.11 Electronic Configuration and Behaviour of the Molecules	3/48
3.12 Electronic Configurations of Some Homonuclear Diatomic Molecules and Molecular Ions	3/48
3.13 Electronic Configuration and Molecular Orbital Diagram for Some Heteronuclear Diatomic Molecules	3/58
3.14 Bond Parameters	3/61
3.15 Polarity of Bonds — Polar and Non-Polar Covalent Bonds	3/65
4. Ionic Solids	4/1 — 4/44
4.1 Introduction	4/1
4.2 Ionic Bond and Ionic Solids	4/1
4.3 Concept of Close Packing - Packing of Constituent Particles in Crystals	4/6
4.4 Radius Ratio and Coordination Number	4/9
4.5 Calculation of Radius Ratios	4/13
4.6 Structures of Some Ionic Solids	4/17
4.7 Lattice Defects	4/22
4.8 Semiconductors	4/29
4.9 Lattice Energy (U)	4/30
4.10 Born-Haber Cycle	4/31
4.11 Solvation Energy and Solubility of Ionic Solids	4/37
4.12 Partial Covalent Character of Ionic Bond	4/38
• KUK Examination Paper – 2016	
• MDU Examination Paper – 2016	
• CDLU Examination Paper – 2016	