SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Sc.Chemistry - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - I
22UCHCT1001 - Basic Concepts in Inorganic Chemistry

Total Duration : 2 Hrs.30 Mins.   Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks$)$

1. What is the Compton effect, and how does it demonstrate the particle nature of light? Discuss its implications for our understanding of photons.

2. Outline the key postulates of Bohr's model of the atom.

3. Analyze the factors affecting the ionization potential.

4. Evaluate the radius ratio rule and its significance in determining the coordination number in ionic crystals.

5. Analyze the structural differences between crystalline and amorphous solids.

6. Evaluate the Born-Lande equation and its significance in calculating lattice energy for ionic crystals.

7. Evaluate the significance of disportionation reactions in redox chemistry.

8. Discuss the common ion effect and its applications in qualitative analysis

Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks$)$

9. Apply Slater's rules to calculate the effective nuclear charge for a given electron in a multi-electron atom.

10. Explain Sanderson's electron density ratio and how it can be used to understand the nature of bonding in compounds. Illustrate with one example.

11. Analyze the Born-Haber cycle and its application in calculating the lattice energy of an ionic compound.

12. Examine the nature of point defects in crystals, focusing on Schottky and Frenkel defects.

13. Discuss the concept of Hard and Soft Acids and Bases (HSAB) principle. Summarize its applications.

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