Chemistry - 12th Class Chemistry Chapter 1 Short Questions Preparation

Q1. Why the metals are good conductors?

Ans 1: Metal are good conductors due to the presence of relatively loose electrons in the outermost shell of the element and ease of their movement in the solid lattice.

Q2. Ionization energy increases from left to right in a period.Justify the statement.

Ans 1: In period by moving from left to right the outer shell remains the same while the nuclear charge increase effectively that makes the removal of an electron difficult and hence the value of ionization energy increases.

Q3. Define electron affinity.Give its trend in periodic table.

Ans 1: **Electron affinity:**Energy released or absorbed,when an electron is added to a gaseous atom to form a negative ion is called electron affinity.

Ans 2: **Trend of electron affinity in periodic table**:Electron affinity generally increases with increasing atomic number within a period and decreases from lighter to heavier elements in a given group of the periodic table.

Q4. What is Newland's law of octaves?

Ans 1: Newland who was English chemist,in 1864,classified 62 elements,known at that time,in increasing order of their atomic masses.He noted that every eight element had some properties in common with the first one.The principle on which this classification is based was called the law of Octaves.

Q5. Ionization energy of Al^{3+} is greater than Mg^{2+}.Give the reason.

Ans 1: By moving from left to right in a period,the outer shell remains the same,while the nuclear charge increases effectively that makes the removal of an electron difficult and hence the value of ionization energy increases.Similarly the size of Al is smaller than Mg so Al^{3+} it has greater ionization energy than Mg^{2+}.

Q6. How the classification of elements in different blocks help in understanding their chemistry?

Ans 1: Classification of elements in different blocks help in understanding chemistry of elements and predicting their properties especially the concept of valency or oxidation state.

Ans 2: According to this classification elements of IA and IIA subgroups are called s-block elements,because their valence electrons available in s orbital.The elements for IIIA to VIIIA subgroups are known as p block elements as their valence electrons are present in p orbital.Similarly in transition elements,electrons are in d orbital are responsible for their valency hence they are called d-block elements.For Lanthanides and Actinides valence electrons are present in f orbital hence these elements are called f-block elements.

Q7. Describe 7^{th} period of modern periodic table.

Ans 1: This period is incomplete.This contains only two normal elements Fr and Ra,ten transition elements and fourteen inner transition elements.The inner transition elements of this period are called Actinides,as they starts after Ac(Actinium).The actinides are also shown at the bottom of the periodic table under the Lanthanides. Due to their scarcity,the inner transition elements are also called Rare Earth Elements.

Q8. The oxidation state vary in a period,but remain almost constant in a group.Give reason.

Ans 1: The number of electrons in outermost shells goes on changing in periods from left to the right,So oxidation states go on changing.The number of electrons in the outermost shells remains the same in a group,so the oxidation states remains the same.Anyhow,the process of unpairing of electrons may happen in a group and oxidation states may change.

Q9. Why the ionization energies decreases down the groups?

Ans 1: Going down in the group,the nuclear charge increases but as the size of the atom and the number of electrons causing the shielding effect also increases therefore ionization energy decreases from top to bottom.

Q10. The ionic radius of positive ion is smaller than its parent atom.Give reason.

Ans 1: The removal of electrons causes an imbalance in proton-electron ratio.Due to greater attraction of the nuclear charge,the remaining electrons of the ion are drawn closer to the nucleus.thus,a positive ion is always smaller than the neutral atom from which it is derived.The radius of Na is 157 pm and the radius of Na is 95 pm.