Chemistry - 11th Class Chemistry Short Questions Chapter 4 Preparation

Q1. **Define polymorphism and isomorphism? Give on example of each.**

Ans 1: Isomorphism is the phenomenon in which two different substances exist in the same crystalline form, e.g; NaNO3, KNO3, KNO_3 are rhombonedral enystalline form. When a compound exists in more than one crystalline shape. Then the phenomenon is called polymorphism. $AgNO_3$ rhombohedral crystals and orthorhombic crystalline form.

Q2. **Amorphous solid like glass is also called super cooled liquid. Why?**

Ans 1: Amorphous solids like glass have random structures and their particles are disarranged just like liquids. So the amorphous solids are no doubt hard and rigid but look like liquids. That is why glass is called a super cooled liquid.

Q3. **Liquid boils at that temperature when its vapour pressure becomes equal to the external Pressure. Why?**

Ans 1: Increase in temperature increases the vapour pressure of liquids. When the vapour pressure of the liquid becomes equal to the external pressure, then the vapour pressure inside the bubbles of the liquid is such that it can face the external pressure, so the bubbles burst in the outward direction on the surface. This bursting of the bubbles outwardly is called boiling.

Q4. **Why the heat of sublimation of a substance is greater than that of heat of vaporization?**

Ans 1: During sublimation two stages are crossed in a single step i.e., conversion of solid to liquid and liquid to vapours. In vaporization, liquid changes into vapours. Therefore, heat required for sublimation is greater than for vaporization.

Q5. **How in a very cold winter fish in garden ponds owe their lives to hydrogen bonding?**

Ans 1: When water is frozen at $0^{\circ}C$, then it expands. The hydrogen bonding in the solid state of H_2O adjust the molecules of water in such a way that empty spaces are left behind. In this way the density of water in the solid state becomes less. So ice floats on water.

Q6. **Why dipole-dipole forces are much stronger than dipole-induced dipole forces?**

Ans 1: In dipole-dipole forces, the atoms have sufficient partial positive and partial negative charges to attract each other. Where as in cuse of Londonforces no +ve or - ye change present apparently.

Q7. **How is that some of crystalline solid substances show anisotropy?**

Ans 1: The variation of a certain physical property in different direction is known as anisotropy. Some of the crystalline - substances are anisotropic for certain properties. Like electrical conductivity, thermal conductivity, passage of light and cleavage.

Q8. **Why the melting and boiling points of alkanes increase with increase in molar masses?**

Ans 1: Alkanes are saturated hydrocarbons. Greater the length of carbon chain, greater the interaction of one molecule with the other. Higher alkanes are zig-zag in structure and they are tailed macromolecules as well. These features are responsible for the forces of interactions and cause the increase of M.P. and B.P. of alkanes.

Q9. **Why intermolecular forces are weaker than intramolecular forces?**

Ans 1: Intermolecular forces are present between two different molecules of the same kind or different kinds. Valence electrons are not responsible for these forces, that is why they are weak forces. Intramolecular forces are present within the same molecule due to sharing of electrons and overlapping of the orbitals, so that why they are strong.

Q10.

How unit cell is define by unit cell dimensions?

Ans 1: The distances between two adjacent particles along x, y and z axis are measured and denoted by 'a', 'b', and 'c'. These distances are called unit cell lengths. The angles in between these three axes are denoted by "33" and. These six parameters are also called Crystallographic elements.
