Chemistry - 11th Class Chemistry Short Questions Chapter 4 Preparation

Q1. **The rate of increase of vapour pressure with respect to temperature of water is higher at higher temperature thin at lower temperature. Justify it.**

Ans 1: The rate of evaporation depends on temperature. When water is close to room temperature, then its intermolecular forces are dominant. So the evaporation tendency of the water molecules is less. At higher temperature the intermolecular forces of water are less, so the evaporating tendency is sufficiently high.

Q2. **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.

Q3. **Ice floats on water. Justify it.**

Ans 1: Ice is solid water. Water expands when it is solidified. This expansion is due J empty spaces which are left behind due to the hydrogen bonding. The density of ice is close to 0.91 g cm^{-3} as compared to that of liquid water which is 1.00 gcm^{-3} at 4°c.

Q4. **Molecular solids are soft and easily compressible. Why?**

Ans 1: The molecules in such crystals are present at the lattice points. There are van der waal's forces among the molecules of such solids. There forces are weak. So, there solids are soft and easily compressible.

Q5. **Why the melting boiling points of halogens increase down the group?**

Ans 1: The atomic sizes increase from fluorine to iodine. The number of shells increase, polarizability increase and the overlapping of the orbitals increase. This makes the melting and boiling points high down the group.

Q6. **Why the metals are malleable and ductile?**

Ans 1: In the metallic crystals the lattice points are occupied by positively charged ions and free electrons are responsible to hold them together. When stress is applied on the metals then the layers slide past over one another. The layers are bounded by the free electrons and they play the role of glue. Due to this reason metals are malleable and ductile.

Q7. **The boiling point of water is different at Murree Hills and at mount Everest. Justify it.**

Ans 1: Boiling point of a liquid changes as the external pressure changes. At murree Hills, atmospheric pressure is less than standard pressure (760 torr). So water boils at 98°C instead of 100°C. At mount Everest atmospheric pressure is further reduced .So water boils at 69° C.

Q8.

How liquid crystals can act as temperature sensors?

Ans 1: Liquid crystals can reflect light. When any of the wavelength of light is reflected, the liquid crystal look coloured, when the temperature is changed the distances between layers of molecules are changed. So, the reflected light also changes colours. Due to this property of cholesteric liquid crystals, they are used as temperature sensors.

Q9. **Define boiling point. Is it related with the external pressure?**

Ans 1: Boiling point is that temperature of the liquid at which the vapour pressure of the liquid is equal to the external pressure. If the external pressure is higher, then the boiling point of the liquid is increased. If the external presser is decreased, then the boding point decreases. The boiling of water is low at mountains. Due to the change in external pressure.

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.