Chemistry - 11th Class Chemistry Short Questions Chapter 3 Preparation

Q1. **How the behavior of real gases is given by van der waal's equation?**

Ans 1: The constant 'a' and 'b' called van der Waal's constants give the quantitative measurements of attractive forces and sizes of the gas molecules. These parameters are very important for the real gases.

Q2. **Justify that 1 cm^3 of H_2 1 cm^3 of CH_4 at STP will have same number of molecules. When one molecule of CH_4 is 8 times heavier that of hydrogen.**

Ans 1: According to Avogadro's law, equal volumes of the ideal gases at same temperature and pressure have equal number of molecules. So 1cm^3 of H_2 and 1 cm^3 of CH_4 at STP will have an equal number of molecules. No doubt, the molecule of methane is eight times heavier than H2, but the sizes of the gas molecules and their masses don't disturb the volumes. The reason is that at STP, one molecule of the gas is at a distance of three hundred times than its diameter.

Q3. **Justify that the volume of given mass of a gas becomes theoretically zero at -273°C.**

Ans 1:

Q4. **What are various scales of thermometry?**

Ans 1:

Q5. **What is absolute zero? What happens to real gases while approaching it?**

Ans 1: It is the lowest possible temperature which would have been achieved if the substance remains in the gaseous state. All the real gases are converted to liquids above this temperature. This -273.16°C is called zero absolute or zero Kelvin.

Q6. **What are isotherms? What happens to the positions of isotherms when they are plotted at high temperature for a particular gas?**

Ans 1: Isotherms are the graphs between pressure and volume at constant temperature and number of moles. This condition is fulfilled by Boyle's law. The word isotherm means "same temperature".

Q7. **The product of pressure and volume at constant. Temperature and number of moles is a constant quantity. Why?**

Ans 1: When the temperature and number of moles of a gas are constant, then the increase of pressure decreases the volume in such a way that PV remains constant (PV = K), by doubling the pressure the volume becomes half. We can say that, $P_1V_1 = P_2V_2 = P_3V_3$, at constant temperature and number of moles.

Q8. **How the density of an ideal gas doubles by doubling the pressure or decreasing the temperature on Kelvin scale by 1/2?**

Ans 1:

Q9. **Calculate the S.I unit of R.**

Ans 1:

Q10. **Lighter gases diffuse more rapidly than heavier gases. Give reason.**

Ans 1: At a given temperature the average. K.E. of different gas molecules are same. Since their masses are different, so their velocities will also be different. The lighter molecules will have greater velocities and so they WI diffuse rapidly.
