

Chemistry - 11th Class Chemistry Short Questions Chapter 3 Preparation

Q1. 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.

Q2.

Gases deviate more from the general gas equation at 0° C and deviate to less extent at 100° C. why?

Ans 1: At 0° C, the forces of attractions are dominant and gases become non-ideal. At high temperature attractive forces become less dominant and gases behave ideally.

Q3. In Joule-Thomson effect sudden expansion of the gas molecules needs energy. Why?

Ans 1: In the compressed state, there are sufficient attractive forces among. The molecules of the gas. During sudden expansion, the energy is required to overcome the intermolecular attractions. Moreover, the molecules need extra energy to run away in vacuum.

Q4. Why the gases deviate from ideal behavior at high pressure and low temperature?

Ans 1: When the temperature of the gases are low, the attractive forces become dominant, so gases don't obey the gas laws. When the pressure of the gases are high, collisions become more frequent and force of attraction are created. Moreover, the actual volume of the gas molecules are no more negligible as compared to the volume of the vessel.

Q5. 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.

Q6. The amount of pressure which is decreased due to the forces of attraction is given by a/V_2 where 'a' is the van der Waal's constant and V is the volume of the vessel.

Ans 1: The pressure p is proportional to the number of molecules which are hitting on the walls of the vessel/area/sec. The number of molecules/area/sec. Is proportional to the density of the gas. P' (lessened pressure) depends upon the number of molecules which are attracting each other

Q7. Why the non-polar gases like H_2 and H_2 and H_3 and H_4 are critical temperatures while polar gases like H_3 and H_4 have critical temperatures, sufficiently above room temperature?

order to liquefy them, the	e consisted of small-sized molecules, and have low polar abilities. They have least forces of attractions among themselves. In eir temperatures have to bring close to absolute-zero. NH_3 and SO_2 have attractive force event at room temperature. In order perature may be above the room temperature.
Q8. How the value of th	e general gas constant 'R' can be derived with the help of Avogadro's law?
Ans 1:	
Q9. What are isotherms	? What happens to the positions of isotherms when they are plotted at high temperature for a particular gas?
	the graphs between pressure and volume at constant temperature and number of moles. This condition is fulfilled by Boyle's means "same temperature".
Q10. Justify that the vo	lume of given mass of a gas becomes theoretically zero at -273°C.
Ans 1:	