

MOLE CONCEPT & STOICHIOMETRY

WORKSHEET - 1

1. Define atomic weight (relative atomic mass) of an element
2. From the equation: $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$
Calculate the volume of ammonia gas formed when 6 liters of hydrogen reacts with excess of nitrogen, all volumes being measured at STP.
3. 60 cm^3 of oxygen was added to 24 cm^3 of carbon monoxide and the mixture is ignited. Calculate (i) the volume of oxygen used up (ii) the volume of carbon dioxide formed.
4. Ammonia is oxidized according to the following equation : $4\text{NH}_3 + 5\text{O}_2 \rightarrow 4\text{NO} + 6\text{H}_2\text{O}$
5. How many liters of nitric oxide are formed when 90 liters of oxygen reacts with ammonia?
6. What volume of propane is burnt for every 100 cm^3 of oxygen used in the reaction? $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$. The volumes of gases are measured at room temperature and pressure.
7. Explain what is meant by "molar volume of a gas."
8. Calculate the number of moles of nitrogen in 7 grams of nitrogen
9. State Avogadro's law
10. The mass of 5.6 liter of certain gas is 12 gram. What is the relative molecular mass?
11. What do you understand by the statement "vapour density of CO_2 gas is 22"?
12. Atomic weight of chlorine is 35.5. What is its vapour density? If 100 cm^3 of oxygen contains Y molecules, how many molecules of nitrogen will be present in 50 cm^3 of nitrogen under the same conditions of temperature and pressure?
13. The number of atoms in one mole of hydrogen is twice the number of in mole of helium at the same temperature and pressure.
14. The mass of 5.6 dm^3 of a gas at STP is 129. Calculate the relative molecular mass of gas. (2012)
15. Calculate the number of gram atoms in 4.6 g of
 - (a) Na
 - (b) The mass of 11.2 L of a certain gas at STP is 24 g. Find the gram molecular mass of the gas. (2017)