

Problem Based on Avogadro's Law

VERY SHORT ANSWER TYPE QUESTIONS :

VSA.1 State Avogadro law mathematically.

Sol. $V \propto n$ (at constant pressure & temperature)

VSA.2 Define Avogadro constant ?

Sol. A mole of any substance contains 6.022×10^{23} particles (molecules, atoms or any other entities). This number is called Avogadro number.

SHORT ANSWER TYPE QUESTIONS :

SA.1 Calculate the number of nitrogen molecules present in 2.8 gm of nitrogen gas.

Sol. Number of moles of nitrogen = $2.8 \text{ gm} / 28 \text{ gm mol}^{-1} = 0.1 \text{ mol}$
Number of nitrogen molecules = $0.1 \text{ mol} \times 6.022 \times 10^{23} \text{ mol}^{-1}$
 $= 6.022 \times 10^{22}$

SA.2 State Avogadro Law.

Sol. At a given temperature and pressure the volume of a gas is directly proportional to the amount of gas that is

$V \propto n$ (P and T constant)
or $V = \text{constant} \times n$