

## Question 9

9. What is the density of ammonia in  $\text{gL}^{-1}$  of ammonia at 0 C and 1 atm if the gas in a 1L Bulk weighs 0.672 g at 25C and 733.4 mm Hg pressure.

Answer:

$$P = \frac{\rho RT}{M}$$

$$733\text{mm Hg} = x \text{ atm}$$

$$760\text{mm Hg} = 1 \text{ atm}$$

$$P_2 = 733/760 = 0.96447 \text{ atm}$$

$$\frac{P_1}{P_2} = \frac{\rho_1 T_1}{\rho_2 T_2}$$

$$\rho_2 = 1 * (25 + 273) * (0.672) / (0.96447 * 273) = 0.76056 \text{ gL}^{-1}$$