Question 12

Calculate the volume occupied by 5.0 g of acetylene gas at 50°C and 740 mm pressure.   *(1991 - 2 Marks)*

Applying the general gas equation

$$PV = nRT = \frac{m}{M} RT$$

Here, Mol. wt. of acetylene i.e., C_2H_2 (M) = 26, P = $\frac{740}{760}$ atm,

$T = 50°C = 50 + 273 = 323$ K

$$\therefore \quad V = \frac{mRT}{MP} \quad \text{or} \quad V = \frac{5 \times 0.082 \times 323 \times 760}{26 \times 740} = \textbf{5.23 L}$$