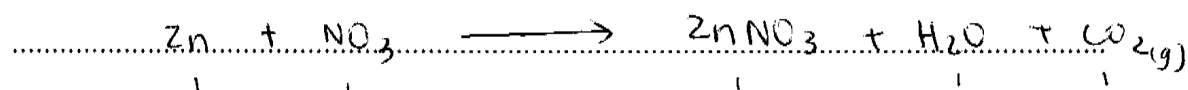**Question 26** (4 marks)

A gas is produced when 10.0 g of zinc is placed in 0.50 L of 0.20 mol L^{-1} nitric acid.   **4**

Calculate the volume of gas produced at 25°C and 100 kPa. Include a balanced chemical equation in your answer.

$$Zn + NO_3 \longrightarrow ZnNO_3 + H_2O + CO_{2(g)}$$

Volume of gas at 24.79L   Volume

$$n(CO_2) = \frac{10.0}{44}$$ $= 0.227 \times 24.79$

$= 5.63$ L

$n(CO_2) = 0.227272727$

$= 0.2270$ (3sf)