**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.

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

\[ \text{Zn} + \text{nitric acid} \rightarrow \text{gas (unknown)} + 2\text{H}^+ \]