Year 12 Chemistry
HSC ER Questions 9.3.A – Acid Synthesis

Module	9.3 – The Acidic Environment
Topic	9.3.A – Acid Synthesis
Name	**Date**

2010

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.

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Question 18 (5 marks)

There has been an increase in the concentration of the oxides of nitrogen in the atmosphere as a result of combustion. **5**

Assess both the evidence to support this statement and the need to monitor these oxides.

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Question 22 (7 marks)

The following article was sourced from the internet.

> In 2004, Australia's Minister for the Environment announced that the allowable amounts of sulfur in unleaded petrol and diesel would be reduced over the next 5 years.
>
> Currently sulfur in diesel is 500 parts per million (ppm) but it will be cut to 50 ppm on 1 January 2006 and capped at 10 ppm from January 2009.

(a) Calculate the volume of sulfur dioxide produced when a full tank (capacity 60 kg) of diesel is consumed at 25°C and 100 kPa in November 2007. **3**

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(b) Evaluate the effect of the sulfur reduction policy on the environment. **4**

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Question 22 (4 marks)

The atmosphere contains acidic oxides of sulfur which have been increasing in concentration since the Industrial Revolution. **4**

Discuss the evidence for this statement, and include relevant balanced chemical equations.

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