



# HSC MC Questions

9.3.A – ACID SYNTHESIS

Year 12 Chemistry

# 2011



- 19** All of the carbon dioxide in a soft drink with an initial mass of 381.04 g was carefully extracted and collected as a gas. The final mass of the drink was 380.41 g.

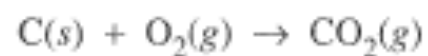
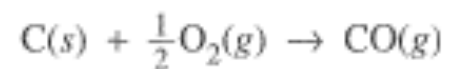
What volume would the carbon dioxide occupy at 100 kPa and 25°C?

- (A) 0.33 L
- (B) 0.35 L
- (C) 0.56 L
- (D) 0.63 L

# 2011



- 20 When charcoal reacts in the presence of oxygen, carbon monoxide and carbon dioxide are produced according to the following chemical reactions.



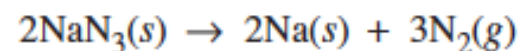
What would be the total mass of gas produced when 400 g of charcoal is reacted, assuming equal amounts are consumed in each reaction?

- (A) 0.93 kg
- (B) 1.2 kg
- (C) 1.5 kg
- (D) 2.5 kg

# 2010



- 19 Sodium azide is used in automobile airbags to provide a source of nitrogen gas for rapid inflation in an accident. The equation shows the production of nitrogen gas from sodium azide.



What mass of sodium azide will produce 40 L of  $\text{N}_2$  at 100 kPa and  $0^\circ\text{C}$ ?

- (A) 70 g
- (B) 76 g
- (C) 114 g
- (D) 172 g

2009



2 Unpolluted rain water in New South Wales is slightly acidic.

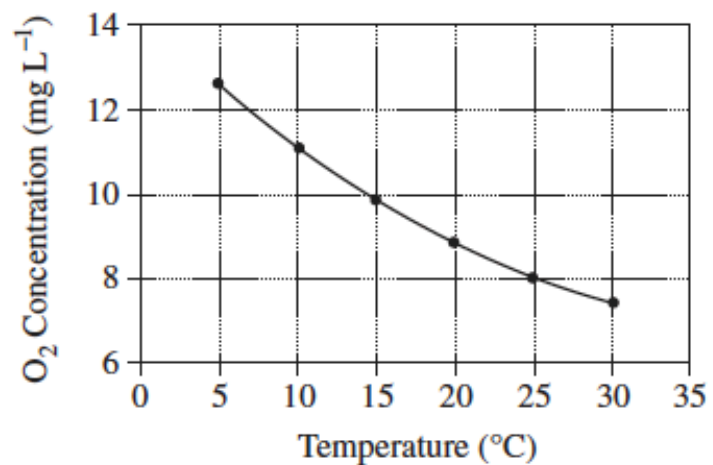
Which substance is the major contributor to this acidity?

- (A) Ozone
- (B) Sulfur dioxide
- (C) Carbon dioxide
- (D) Nitrogen dioxide

# 2009



- 15 The graph shows the maximum dissolved oxygen concentration in water as a function of temperature at normal atmospheric pressure.



What is the volume of O<sub>2</sub> that can dissolve in 10.0 L of water at 25°C and normal atmospheric pressure?

- (A) 62.0 mL
- (B) 63.5 mL
- (C) 80.0 mL
- (D) 124 mL

# 2008



- 2 What are the volumes of one mole of argon, Ar, and one mole of fluorine, F<sub>2</sub>, at 0°C and 100 kPa?

<i>Volume (litres)</i>	
Ar	F <sub>2</sub>
(A) 12.40	24.79
(B) 22.71	22.71
(C) 22.71	45.42
(D) 24.79	24.79

2008



- 9 Which of the following lower atmosphere pollutant gases is produced directly by the smelting of mineral ores?
- (A) Carbon monoxide
  - (B) Nitrogen dioxide
  - (C) Ozone
  - (D) Sulfur dioxide



2007



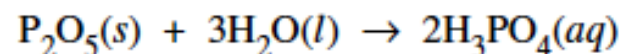
**12** Which of the following is always produced during combustion of fossil fuels?

- (A) Water
- (B) Carbon (soot)
- (C) Sulfur dioxide
- (D) Carbon dioxide

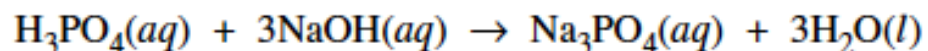
# 2006



- 10 Phosphorus pentoxide reacts with water to form phosphoric acid according to the following equation.



Phosphoric acid reacts with sodium hydroxide according to the following equation.



A student reacted 1.42 g of phosphorus pentoxide with excess water.

What volume of  $0.30 \text{ mol L}^{-1}$  sodium hydroxide would be required to neutralise all the phosphoric acid produced?

- (A) 0.067 L
- (B) 0.10 L
- (C) 0.20 L
- (D) 5.0 L