Year 12 Acid and Bases Questions 3

Question 1

Calculate the mass of lime, calcium oxide, which will react completely with 250.0 mL of 1.50 mol L^{-1} hydrochloric acid.

(4 marks)

Question 2

A fire extinguisher produces carbon dioxide by the reaction between sodium hydrogencarbonate and sulfuric acid. If a fire extinguisher is designed to hold 600.0 g of sodium hydrogencarbonate, calculate

(a)   the mass of sulfuric acid required to react with the sodium hydrogencarbonate, and

(b)   the volume of 12.0 mol L^{-1} sulfuric acid required to react with the sodium hydrogencarbonate.

(6 marks)

Question 3

20.0 mL of 2.00 mol L^{-1} sodium hydroxide solution was diluted to 500.0 mL in a volumetric flask. A 20.0 mL aliquot of the dilute solution was neutralised by 21.8 mL of nitric acid solution. Calculate the concentration of the acid solution.

(6 marks)

Question 4

2.00 g of an acid was dissolved in water and made up to 250.0 mL of solution in a volumetric flask. 20.0 mL of this acid solution required 24.3 mL of 0.103 mol L^{-1} sodium hydroxide solution for complete neutralisation. If one mole of the acid can release three moles of hydrogen ions, determine the relative molecular mass of the acid.

(6 marks)

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