

Concentrations

Q1. (2021)

- 2 (a) The concentration of a solution can be calculated using the equation

$$\text{concentration of solution} = \frac{\text{mass of solid}}{\text{volume of solution}}$$

A student dissolved 9.25 g of ammonium chloride in water and made up the solution to a volume of 200 cm³.

Use the equation to calculate the concentration of this solution in g dm⁻³.

(2)

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concentration = g dm⁻³

Q2. (2022) – 4c

- (c) A flame photometer was used to analyse samples of a solution of metal ions.

Each sample was treated with 5.00 cm³ of dilute hydrochloric acid.
1.00 dm³ of the acid contained 219 g of hydrogen chloride.

Calculate the mass of hydrogen chloride in the acid used to test 20 samples.

(2)

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mass = g

Q3. (2023) – 10c

- 10 (a) A student carried out a flame test on a sample of solid potassium chloride.

The student followed this method.

step 1 dip a dry wooden splint into water

step 2 then dip the wooden splint into the sample of potassium chloride

step 3 hold the wooden splint in a roaring Bunsen burner flame

step 4 observe the colour seen in the flame.

Question:

- (c) (i) A student was asked to test a sample of aluminium sulfate for sulfate ions.

The student needed 25 cm³ of barium chloride solution of concentration 83 g dm⁻³ for the test.

Calculate the mass of barium chloride that must be dissolved in water to make 25 cm³ of solution of this concentration.

Give your answer to 2 significant figures.

(3)